

# CORPORATE RESPONSIBILITY REPORT

## APPENDIX 2018-19



### OUR PRIMARY OPERATING COMPANIES, SUBSIDIARIES AND OPERATING UNITS

#### Exploration and Production (E&P) Operations and Services

- SWN Production (Arkansas), LLC, also known as SEECO, conducts exploration, drilling and production, exclusively in Arkansas<sup>1</sup>
- SWN Production Company, LLC, also known as SEPCO, conducts exploration, drilling and production activities, primarily in Pennsylvania and West Virginia
- SWN E&P Services, LLC, provides oilfield products and services
- SWN Drilling Company, LLC, operates drilling rigs

#### Midstream Services

SWN Midstream Services Company, LLC, oversees the marketing and transport of natural gas, primarily for SWN. Key subsidiaries include the following:

- Prior to December 3, 2018 DeSoto Gathering Company, LLC, engaged in natural gas, oil and NGLs gathering activities in Arkansas for SWN and other natural gas producers<sup>1</sup>
- SWN Energy Services Company, LLC, markets and transports natural gas, crude oil and natural gas liquids

### GLOBAL REPORTING INITIATIVE INDEX

Southwestern Energy Company's 2018-19 corporate responsibility report was developed in accordance with the Global Reporting Initiative (GRI) Sustainability Reporting Standards at the Core level. We also used non-GRI indicators – specifically, those from the IPIECA oil and gas industry guidance on voluntary sustainability reporting, from Disclosing the Facts (DTF), which was developed by the Investor Environmental Health Network, As You Sow and Boston Common Asset Management, and from the Sustainability Accounting Standards Board (SASB) Oil and Gas Exploration and Production Sustainability Accounting Standard – when they were more relevant to the aspect reported than the GRI indicator or when they added additional transparency relevant for our industry. Fully reported indicators are noted in dark blue and partially reported indicators are in light blue. The financial data drawn from our Form 10-K have been externally assured; while other data haven't been externally assured, they have been subject to internal quality assurance procedures.

GENERAL DISCLOSURES	
INDICATOR	PAGE/RESPONSE/OMISSION
<b>Organizational Profile</b>	
102-1	<u>Who We Are</u>
102-2	<u>Operations Overview</u> See also the note for Indigenous Rights 103-2.
102-3	Spring, Texas
102-4	<u>Areas of Operation</u> <u>2018 10-K, pp. 4-6</u>
102-5	Southwestern Energy Company is a publicly held company. Our common stock is traded on the New York Stock Exchange under the symbol "SWN."
102-6	<u>Operations Overview</u>
102-7	<u>Areas of Operation</u> <u>2018 10-K, pp. 4-15, 24, 43, 47</u>
SASB EM-EP-000.A	<u>Areas of Operation</u> <u>2018 10-K, pp. 15, 43</u>
SASB EM-EP-000.C	<u>2018 10-K, pp. 41-42</u>

GENERAL DISCLOSURES	
INDICATOR	PAGE/RESPONSE/OMISSION
102-8	<u>Workforce/Diversity and Workplace Respect</u> <u>Data/Workforce</u> See the Workforce section for an overview of our approach to working with contractors. SWN does not employ a significant number of seasonal workers.
102-9	As SWN is a vertically integrated company supplying a basic commodity product, we do not have a long supply chain. We do purchase equipment (e.g., steel casing, pipe, valves, engineered equipment) from a variety of manufacturers, and we use contractors for some aspects of our work. We utilize approximately 1,000 outside suppliers. Of these, 63% are contractors/service suppliers, 19% supply materials, 8% are consultants and 10% provide transportation. An estimated 99% of our suppliers are U.S.-based and 1% are based elsewhere. The estimated annual value of payments made to suppliers in 2018 was approximately \$1.3 billion.

<sup>1</sup> SWN transferred ownership of this entity to a third party in December 2018 as a result of the divestiture of our Fayetteville Shale business and related assets.

## GENERAL DISCLOSURES

INDICATOR	PAGE/RESPONSE/OMISSION
102-10	<a href="#">2018 10-K, p. 14, 91</a>
102-11	<a href="#">Approach/Strategy and Governance</a> We do not apply this principle formally across all of our risk management decisions, but it does inform our thinking.
102-12	<a href="#">Environment/Air</a> Appalachian Shale Recommended Practices Group
102-13	Main national and international organizations SWN is a member of or supports: <ul style="list-style-type: none"> <li>• American Exploration &amp; Production Council</li> <li>• International Gas Union</li> <li>• American Petroleum Institute</li> <li>• Gas Processors Association</li> <li>• International Association of Directional Drilling</li> <li>• International Facility Management Association</li> <li>• Leadership in Energy and Environmental Design</li> <li>• National Petroleum Council</li> <li>• Society of Petroleum Engineers</li> <li>• The Nature Conservancy</li> </ul>

### Strategy

102-14	<a href="#">Approach/Message from the CEO</a>
102-15	<a href="#">Approach/Message from the CEO</a> <a href="#">Approach/Strategy and Governance/Ethics</a> <a href="#">Approach/Key Issues</a> <a href="#">2018 10-K, pp. 29-40</a>

### Ethics and Integrity

102-16	<a href="#">Responsibility/</a> <a href="#">Approach/Message from the CEO</a> <a href="#">Approach/Strategy and Governance/Ethics</a> <a href="#">Business Conduct Guidelines</a> We have a code of ethics that applies specifically to our CEO, Chief Financial Officer and Chief Accounting Officer. Also, our approach to corporate responsibility includes responsible development of America's abundant supply of natural gas as an essential part of achieving a secure, low-carbon energy future for our country. For Southwestern, the proper development of this resource means balancing the economic, environmental and social impacts of our activities.
102-17	<a href="#">Business Conduct Guidelines</a> Also, we have developed a detailed, confidential complaint procedure to facilitate the reporting of concerns or complaints by our employees and other interested parties regarding the company's accounting practices.

SASB  
EM-EP-510a.2

### Governance

102-18	<a href="#">Approach/Strategy and Governance</a> <a href="#">2019 Proxy Statement, pp. 6-10</a>
--------	--

## GENERAL DISCLOSURES

INDICATOR	PAGE/RESPONSE/OMISSION
102-19	<a href="#">Approach/Strategy and Governance</a>
102-20	<a href="#">Approach/Strategy and Governance</a>
102-21	<a href="#">2019 Proxy Statement, p. 21</a>
102-22	<a href="#">2019 Proxy Statement pp. 4, 16-19, 21, 24</a> <a href="#">Board of Directors</a> Also note, as of year-end 2018, five of eight of our Board members have had long careers with companies in oil and gas exploration and production, where they encountered and addressed the wide range of environmental, health, safety and social issues applicable to that industry.
102-23	<a href="#">2019 Proxy Statement, pp. 20-21</a> The Chairman of the Board is not an executive officer.
102-24	<a href="#">2019 Proxy Statement, pp. 14-15, 21</a> <a href="#">Corporate Governance Guidelines, pp. 5-8</a>
102-25	<a href="#">2019 Proxy Statement, p. 24</a> Our Board members are subject to our business conduct guidelines, which cover conflicts of interest and also limit membership on other boards. Board members are also subject to the independence requirements of the New York Stock Exchange, including the strengthened requirements relating to Audit, Compensation, Governance, and Nominating committees.
102-26	<a href="#">Approach/Strategy and Governance</a> <a href="#">2019 Proxy Statement, p. 21</a> <a href="#">Corporate Governance Guidelines, pp. 1-2</a>
102-28	<a href="#">2019 Proxy Statement, p. 15</a>
102-29	<a href="#">2019 Proxy Statement, pp. 6, 10</a>
102-30	<a href="#">2019 Proxy Statement, pp. 6, 10</a> To manage risks related to economic, social, environmental and other topics, we have an enterprise risk management committee made up of senior managers from throughout the company. The committee regularly assesses and discusses the risks facing the company and presents its findings to the Audit Committee at least once a year. Based on the committee's analysis and recommendations, the Board sets the direction of the company to manage these risks.
102-31	<a href="#">2019 Proxy Statement, pp. 6, 10</a> See note for 102-30.
102-32	<a href="#">Responsibility/Our Corporate Responsibility Reporting</a>

## GENERAL DISCLOSURES

INDICATOR	PAGE/RESPONSE/OMISSION
102-33	<p>Approach/Strategy and Governance  <a href="#">2019 Proxy Statement, p. 21</a>  <a href="#">Contact the Board</a></p> <p>Also, as part of our internal control procedures, our Audit Services department conducts regular internal audits. These audits address a range of compliance issues, including compliance with our business conduct guidelines and code of ethics. Concerns raised by these audits are forwarded to our Chief Compliance Officer and the Audit Committee for disposition.</p>
102-35	<a href="#">2019 Proxy Statement, pp. 26-58</a>
102-36	<a href="#">2019 Proxy Statement, pp. 26-58</a>
<b>Stakeholder Engagement</b>	
102-40	Approach/Stakeholders
102-41	None of our employees are covered by collective bargaining agreements.
102-42	Approach/Stakeholders Communities/Engagement
102-43	Approach/Key Issues Approach/Stakeholders <a href="#">2019 Proxy Statement, p. 3</a>
102-44	Approach/Key Issues Environment/Water Environment/Air Communities/Addressing Concerns <a href="#">2019 Proxy Statement, p. 3</a>
<b>Reporting Practice</b>	
102-45	<p>Appendix, p. 1</p> <p>There are no entities in the consolidated financial statement that are not covered in this report.</p>
102-46	Approach/Key Issues
102-47	Approach/Key Issues Appendix, p. 11
102-48	All material restatements of CR performance are provided in notes to the data in the <a href="#">Data section</a> .
102-49	There have been no significant changes in the report scope or aspect boundaries since our last report.
102-50	Responsibility/Our Corporate Responsibility Reporting
102-51	2017
102-52	Annually
102-53	Southwestern Energy Company 10000 Energy Drive Spring, TX 77389 832.796.1000 community@swn.com
102-54	This report has been prepared in accordance with the GRI Standards: Core option

## TOPIC-SPECIFIC DISCLOSURES

INDICATOR	PAGE/RESPONSE/OMISSION
102-55	This index
102-56	<a href="#">Appendix, p. 1</a>
<b>GRI 201: Economic Performance (2016)</b>	
103-1	Approach/Key Issues Appendix, p. 11
103-2	Approach/Strategy and Governance Communities/Addressing Concerns <a href="#">2018 10-K, pp. 49-69</a>
103-3 <sup>2</sup>	Approach/Strategy and Governance
201-1	Data <a href="#">2018 10-K, pp. 49-69</a>
201-2	Approach/Strategy and Governance Approach/Key Issues Environment/Air Environment/Climate Change and Scenario Analysis <a href="#">2018 10-K, pp. 23, 35</a> See mission statement in note for 102-16.
201-3	<a href="#">2018 10-K, pp. 108-113</a>
IPIECA SE6	Communities/Economic Impacts
<b>GRI 203: Indirect Economic Impacts (2016)</b>	
103-1	Approach/Key Issues Appendix, p. 11
103-2	Approach/Strategy and Governance Communities/Economic Impacts Communities/Giving and Volunteering Communities/Addressing Concerns
103-3 <sup>2</sup>	Approach/Strategy and Governance
203-1	Communities/Economic Impacts Communities/Giving and Volunteering
203-2	Communities/Economic Impacts
<b>GRI 204: Procurement Practices (2016)</b>	
103-2	Approach/Strategy and Governance Communities/Economic Impacts Communities/Addressing Concerns SWN makes every effort to work with local suppliers at significant locations of operations. However, we do not record a percentage at this time.
103-3 <sup>2</sup>	Approach/Strategy and Governance
204-1	See note for Procurement Practices 103-2.
OG1	Data <a href="#">2018 10-K, pp. 7-11</a>
<b>GRI 205: Anti-Corruption (2016)</b>	
103-2	Approach/Strategy and Governance Business Conduct Guidelines
103-3 <sup>2</sup>	Approach/Strategy and Governance Business Conduct Guidelines

<sup>2</sup> We review management of economic, social and environmental issues as part of our regular business performance review processes and make changes as needed based on these evaluations.

TOPIC-SPECIFIC DISCLOSURES	
INDICATOR	PAGE/RESPONSE/OMISSION
<b>GRI 301: Materials (2016)</b>	
103-2	<a href="#">Approach/Strategy and Governance Environment/Water/Protecting Water Resources Communities/Addressing Concerns</a>
103-3 <sup>2</sup>	<a href="#">Approach/Strategy and Governance</a>
301-1	<a href="#">Environment/Water/Protecting Water Resources</a> The part of this indicator that is relevant to SWN relates to the use of chemicals in our hydraulic fracturing fluids. SWN discloses that information to the <a href="#">FracFocus database</a> .
DTF-21 Fracturing fluid toxicity reduction	<a href="#">Environment/Water/Protecting Water Resources</a> SWN has implemented an internally developed program, called <a href="#">Right Products</a> , that provides standards that chemical suppliers must meet prior to a product's use in our operations. The Right Products program is designed to drive the assessment of all chemical products SWN uses in hydraulic fracturing through an effective decision-making process aimed at minimizing the toxicity of fracture fluids. Since inception in 2014, our Right Products program has processed 292 products across four corporate divisions and 20 service providers. Of the 292 products evaluated, 187 have been approved after the hazard assessment, 64 have been approved after further evaluation and risk assessment, and 50 have been denied for use in SWN operations.  The Right Products program demonstrates our commitment to do the right thing in order to responsibly develop our resources. The program and work flow are described in more detail in a paper – <a href="#">Choosing the "Right Products" SPE-189891-MS</a> – that we presented at a conference of the Society for Petroleum Engineers.
DTF-22 Use of dry hydraulic fracturing chemicals	Through our Right Products program we assess possible hazardous characteristics of chemicals – dry and liquid – that may be identified for use in our operations prior to using them in hydraulic fracturing. Our selection of chemical products, whether liquid or dry media, is based on this hazard assessment and our goal to minimize the toxicity of the products approved for use.
DTF-23 Use of BTEX	<a href="#">Environment/Water/Protecting Water Resources</a>

TOPIC-SPECIFIC DISCLOSURES	
INDICATOR	PAGE/RESPONSE/OMISSION
DTF-24 Confidential business information (CBI) re: supplier fracturing fluid	<a href="#">Environment/Water/Protecting Water Resources</a>
DTF-25 Measures to reduce CBI claims for fracturing fluid	<a href="#">Environment/Water/Protecting Water Resources</a> Collaborating with our chemical suppliers is key to the success of SWN's <a href="#">Right Products program</a> . The program quantifies the risk of both public and proprietary chemical formulations by using an independent, third-party Ph.D. toxicologist to conduct the assessments. The integrity of confidential business information (CBI) is therefore maintained and assured by confidentiality agreements between the consulting toxicologist and the chemical suppliers. Implementing this system of collaboration, disclosure and compliance enables SWN to effectively communicate our chemical product expectations and assessment methodology to our service providers. This approach also ensures we can hold our service providers accountable to only use the products and product formulations that have been assessed and deemed acceptable by SWN.
<b>GRI 302: Energy (2016)</b>	
103-2	<a href="#">Environment/Air Communities/Addressing Concerns</a>
103-3 <sup>2</sup>	<a href="#">Approach/Strategy and Governance Environment/Air</a>
302-4	The <a href="#">Environment/Air page</a> of the report reflects our focus as a company on reducing greenhouse gas (GHG) emissions throughout our operations. Many of these efforts have also had the positive effect of reducing energy use – for example, employing a fleet of fuel-efficient, lean-burn compressor engines and utilizing dual-fuel drilling rigs. We have also reduced energy use in our administrative operations by moving to a LEED-certified headquarters building in Spring, Texas, and by operating out of a LEED-certified building in Conway, Arkansas.
<b>GRI 303: Water (2016)</b>	
103-1	<a href="#">Approach/Key Issues Appendix, p. 11</a>
103-2	<a href="#">Approach/Strategy and Governance Environment/Water Communities/Addressing Concerns</a>
103-3 <sup>2</sup>	<a href="#">Approach/Strategy and Governance Environment/Water</a>

TOPIC-SPECIFIC DISCLOSURES	
INDICATOR	PAGE/RESPONSE/OMISSION
303-1	<a href="#">Environment/Water/Water Use Data/Environment Appendix, p. 13</a>
303-2	No water source is significantly affected by SWN's water withdrawals. We follow state-imposed guidelines for stopping withdrawal from surface water sources during low-flow periods to minimize impacts. We also obtain permits and follow regulatory requirements for water sources to ensure we are considering local needs and impacts.
303-3	<a href="#">Environment/Water/Responsible Produced Water Management Data/Environment Appendix, pp. 14-15</a>
SASB EM-EP-140a.1	<a href="#">Environment/Water Data/Environment Appendix, pp. 13-16</a> None of SWN's primary operating areas are located in areas of high or extremely high baseline water stress, as defined by the World Resources Institute's <a href="#">Aqueduct water risk mapping tool</a> .
SASB EM-EP-140a.2	<a href="#">Environment/Water/Responsible Produced Water Management Data/Environment Appendix, pp. 13-15</a> There are no hydrocarbons in the water SWN discharges.
SASB EM-EP-140a.3	<a href="#">Environment/Water/Protecting Water Resources</a>
SASB EM-EP-140a.4	<a href="#">Environment/Water/Protecting Water Resources Appendix, p. 12</a> SWN performs baseline (pre-drill) water quality testing before beginning drilling operations in Pennsylvania, West Virginia, Colorado and the Brown Dense play. Pre-drill water quality sampling is conducted in Arkansas if requested by the landowner.
DTF-2 Well integrity failures releasing to environment	<a href="#">Environment/Water/Protecting Water Resources Environment/Land/Preventing Spills Appendix, p. 12</a> In 2017 and 2018, SWN has drilled and completed over 250 wells. Only one well had a wellbore integrity issue and that did not have a proven release to the environment.
DTF-4 Avoiding impacts to nearby wells	<a href="#">Environment/Water/Protecting Water Resources</a>
DTF-6 Pre-drilling water quality testing	See note for SASB EM-EP-140a.4 above.

TOPIC-SPECIFIC DISCLOSURES	
INDICATOR	PAGE/RESPONSE/OMISSION
DTF-7 Post-drilling water quality testing	See note for SASB EM-EP-140a.4.
DTF-8 Operations in water scarce areas	See note for SASB EM-EP-140a.1.
DTF-9 Aggregate quantity of water used for operations	<a href="#">Appendix, pp. 13-16</a>
DTF-10 Use of fresh water vs. non-fresh water	<a href="#">Appendix, p. 13</a>
DTF-11 Water sourced by play	<a href="#">Environment/Water Use Environment/Water/Responsible Produced Water Management Appendix, pp. 13-16</a>
DTF-12 Produced and/or flowback water recycling	<a href="#">Appendix, pp. 14-16</a> We recycle produced water in each of our operating areas to the extent it is technically practical to do so.
DTF 13 Reducing use of fresh water	<a href="#">Environment/Water</a>
DTF-14 Volume of wastewater	<a href="#">Environment/Water/Responsible Produced Water Management Appendix, pp. 14-16</a>
<b>GRI 304: Biodiversity (2016)</b>	
103-2	<a href="#">Approach/Strategy and Governance Environment/Land/Protecting Biodiversity Communities/Addressing Concerns</a>
103-3 <sup>2</sup>	<a href="#">Approach/Strategy and Governance</a>
304-2	<a href="#">Environment/Water/Fresh Water Neutral Environment/Land/Protecting Biodiversity</a>
304-3	<a href="#">Environment/Water/Fresh Water Neutral Environment/Land/Protecting Biodiversity</a>
304-4	<a href="#">Environment/Land/Protecting Biodiversity</a>
SASB EM-EP-160a.1	<a href="#">Environment/Land</a>
<b>GRI 305: Emissions (2016)</b>	
103-1	<a href="#">Approach/Key Issues Environment/Air Appendix, p. 11</a>
103-2	<a href="#">Environment/Air Communities/Addressing Concerns Approach/Strategy and Governance</a>
103-3 <sup>2</sup>	<a href="#">Approach/Strategy and Governance</a>

## TOPIC-SPECIFIC DISCLOSURES

INDICATOR	PAGE/RESPONSE/OMISSION
305-1	<a href="#">Environment/Air/GHG Emissions Leadership Data/Environment</a>
SASB EM-EP-110a.1	<a href="#">Environment/Air Data/Environment</a>
305-4	<a href="#">Environment/Air/GHG Emissions Leadership Data/Environment</a>
SASB EM-EP-110a.3	<a href="#">Environment/Air Data/Environment</a>
<b>GRI 306: Effluents and Waste (2016)</b>	
103-1	<a href="#">Approach/Key Issues Environment/Water Environment/Land Appendix, p. 11</a>
103-2	<a href="#">Environment/Water Environment/Land Communities/Addressing Concerns Approach/Strategy and Governance</a>
103-3 <sup>2</sup>	<a href="#">Approach/Strategy and Governance Environment/Water</a>
306-1	<a href="#">Environment/Water/Responsible Produced Water Management Environment/Land/Spills Appendix, pp. 14 -16</a>
306-3	<a href="#">Data/Environment Environment/Land/Preventing Spills</a>
OG5	<a href="#">Environment/Water/Responsible Produced Water Management Appendix, pp. 14-16</a>
SASB EM-EP-540a.1	<a href="#">Environment/Land/Preventing Spills Data/Environment</a>
DTF-1 Maintaining well integrity	<a href="#">Environment/Water/Protecting Water Resources</a> Regulatory requirements vary in the multiple basins in which we operate. Regardless of local requirements, SWN follows industry best management practices for wellbore integrity throughout the full life of the well. As a result, we meet regulatory requirements at a minimum and go beyond those requirements in some areas.

## TOPIC-SPECIFIC DISCLOSURES

INDICATOR	PAGE/RESPONSE/OMISSION
DTF-15 Wastewater storage	<a href="#">Environment/Water/Protecting Water Resources</a> SWN uses a range of options to store produced water, including frac tanks, aboveground storage tanks, and impoundments. We consider multiple factors to determine the appropriate storage method – most importantly, the safety for personnel and the environment. Other key considerations include regulations and permitting, topography, soil and subgrade suitability, surface footprint, the quality and quantity of the produced water to be stored, secondary containment, monitoring and/or leak detection, operational support services (i.e., trucking, pipeline, etc.), proximity to disposal, economics (capital and operating expenses) and closure requirements. We also consider if the storage is to be temporary or a fixed, centralized facility.
DTF-16 Wastewater storage protection measures	<a href="#">Environment/Water/Protecting Water Resources Environment/Land/Preventing Spills</a>
DTF-17 Drilling residuals	<a href="#">Environment/Land/Solid Waste Management</a>
DTF-18 Naturally occurring radioactive materials	<a href="#">Environment/Land/Solid Waste Management Health and Safety/Industrial Hygiene</a>
DTF-19 Managing inactive wells	Inactive wells are managed to comply with local regulatory requirements, at a minimum. This includes periodic surveillance and integrity management testing. Wells that no longer have a future use are plugged and abandoned per local regulatory guidelines.
DTF-20 Waste product reuse	<a href="#">Environment/Water/Responsible Produced Water Management</a> Produced water is either properly reused in operations or appropriately disposed of following best management practices for disposal and regulatory requirements. We do not reuse produced water for any other purposes including without limitation for dust suppression, agricultural irrigation or road de-icing.

## GRI 307: Environmental Compliance (2016)

103-1	<a href="#">Approach/Key Issues Appendix, p. 11</a>
103-2	<a href="#">Approach/Strategy and Governance Communities/Addressing Concerns</a>
103-3 <sup>2</sup>	<a href="#">Approach/Strategy and Governance</a>

## TOPIC-SPECIFIC DISCLOSURES

INDICATOR	PAGE/RESPONSE/OMISSION
307-1	In 2018 we had no significant fines and no significant nonmonetary sanctions for noncompliance with environmental laws and regulations.

### GRI 308: Supplier Environmental Assessment (2016)

103-2	<u>Workforce/Contractor Assessment and Selection</u> <u>Communities/Addressing Concerns</u>
103-3 <sup>2</sup>	<u>Approach/Strategy and Governance</u> <u>Health and Safety/HSE Programs and Training</u> <u>Workforce/Contractor Assessment and Selection</u>
308-1	<u>Health and Safety/HSE Programs and Training</u> <u>Workforce/Contractor Assessment and Selection</u> We review contractor HSE management programs and performance, including on environmental issues, as part of a robust HSE audit program.

### GRI 401: Employment (2016)

103-1	<u>Approach/Key Issues</u> <u>Workforce/Talent Acquisition and Development</u> <u>Health and Safety/Health and Well-Being</u> Appendix, p. 11
103-2	<u>Approach/Strategy and Governance</u> <u>Workforce/Talent Acquisition and Development</u> <u>Health and Safety/Health and Well-Being</u>
103-3 <sup>2</sup>	<u>Approach/Strategy and Governance</u> <u>Workforce/Talent Acquisition and Development</u>

## TOPIC-SPECIFIC DISCLOSURES

INDICATOR	PAGE/RESPONSE/OMISSION
401-2	<u>Health and Safety/Health and Well-Being</u> We offer competitive pay and benefits. In addition to a base salary, our compensation program includes variable pay, stock-based awards, a 401(k) and pension plans. Beyond financial compensation, SWN provides challenging work assignments, potential for advancement, training specific to each role and a competitive benefits package. Our benefit offerings include high-quality health and dental insurance plans; leaves of absence, including family and medical leave, personal leave, military leave, workers' compensation and short-term and long-term disability benefits; life and accidental death and dismemberment insurance; long-term care insurance; employee assistance programs; and optional supplemental insurance. We also offer a high-deductible insurance option and personal health savings accounts, which the company will help to fund. We also have implemented on-site health screenings and other health and wellness education and encouragement programs. All employees who work 20 hours or more are eligible for benefits. For more on our benefits programs see <a href="#">our website</a> .

PIECA SE16	<u>Workforce/Talent Acquisition and Development</u>
------------	---

### GRI 403: Occupational Health and Safety (2016)

103-1	<u>Approach/Key Issues</u> <u>Health and Safety</u> Appendix, p. 11
103-2	<u>Approach/Strategy and Governance</u> <u>Health and Safety</u>
103-3 <sup>2</sup>	<u>Approach/Strategy and Governance</u>
403-1	<u>Health and Safety/HSE Programs and Training</u>
403-2	<u>Health and Safety/Metrics and Performance</u> <u>Data/Health and Safety</u> We report industry-standard data related to health and safety to the American Exploration and Product Council on an annual basis.
SASB EM-EP-320a.1	<u>Health and Safety/HSE Programs and Training</u> <u>Health and Safety/Metrics and Performance</u> <u>Data/Health and Safety</u>
SASB EM-EP-320a.2	<u>Health and Safety</u> <u>Workforce/Contractor Assessment and Selection</u> <u>Workforce/ONE Team Culture</u>

## TOPIC-SPECIFIC DISCLOSURES

INDICATOR	PAGE/RESPONSE/OMISSION
DTF-3 Tracking near misses	<a href="#">Health and Safety/HSE Programs and Training/Incident Management</a> We work hard to build a culture in which all SWN employees and contractors feel comfortable reporting safety or environmental concerns including near misses, as this information is important for identifying and mitigating risks and reducing actual incidents. In 2018, SWN employees and contractors reported 250 near misses.
IPIECA HS1	<a href="#">Health and Safety/HSE Programs and Training</a> <a href="#">Workforce/ONE Team Culture</a> <a href="#">Workforce/Contractors</a>
IPIECA HS2	<a href="#">Health and Safety/HSE Programs and Training</a> <a href="#">Workforce/ONE Team Culture</a>
<b>GRI 404: Training and Education (2016)</b>	
103-1	<a href="#">Approach/Key Issues</a> <a href="#">Health and Safety/HSE Programs and Training</a> <a href="#">Workforce/Talent Acquisition and Development</a> Appendix, p. 11
103-2	<a href="#">Approach/Strategy and Governance</a> <a href="#">Health and Safety/HSE Programs and Training</a> <a href="#">Workforce/Talent Acquisition and Development</a>
103-3 <sup>2</sup>	<a href="#">Approach/Strategy and Governance</a>
404-1	<a href="#">Health and Safety</a>
404-2	<a href="#">Health and Safety/HSE Programs and Training</a> <a href="#">Workforce/Talent Acquisition and Development</a>
404-3	<a href="#">Workforce/Talent Acquisition and Development</a>
<b>GRI 405: Diversity and Equal Opportunity (2016)</b>	
103-2	<a href="#">Approach/Strategy and Governance</a> <a href="#">Workforce/Diversity and Workplace Respect</a> <a href="#">Careers/Equal Opportunity</a>
103-3 <sup>2</sup>	<a href="#">Approach/Strategy and Governance</a> <a href="#">Careers/Equal Opportunity</a>
405-1	<a href="#">Workforce/Diversity and Workplace Respect</a> <a href="#">Data/Workforce</a> 57% of our Board members are diverse based on gender, ethnicity and nationality. They are all over 50 years old.
405-2	<a href="#">Workforce/Diversity and Workplace Respect</a>

## TOPIC-SPECIFIC DISCLOSURES

INDICATOR	PAGE/RESPONSE/OMISSION
<b>GRI 406: Non-Discrimination (2016)</b>	
103-2	<a href="#">Approach/Strategy and Governance</a> <a href="#">Workforce/Diversity and Workplace Respect</a> <a href="#">Careers/Equal Opportunity</a>
103-3 <sup>2</sup>	<a href="#">Approach/Strategy and Governance</a> <a href="#">Careers/Equal Opportunity</a>
<b>GRI 411: Rights of Indigenous Peoples (2016)</b>	
103-2	<a href="#">Communities/Engagement</a> <a href="#">Communities/Addressing Concerns</a> In 2010, SWN was awarded licenses to explore in the Canadian province of New Brunswick. After receiving those licenses, the province implemented an on-going moratorium on hydraulic fracturing. Any future work in New Brunswick will include a hiring policy that supports strong representation of First Nations within our workforce and due diligence that focuses on First Nations' concerns.
103-3 <sup>2</sup>	<a href="#">Approach/Strategy and Governance</a>
SASB EM-EP-210a.3	<a href="#">Communities/Engagement</a> <a href="#">Communities/Addressing Concerns</a> See also note for Indigenous Rights 103-2.
<b>GRI 413: Local Communities (2016)</b>	
103-1	<a href="#">Approach/Key Issues</a> <a href="#">Communities</a> Appendix, p. 11
103-2	<a href="#">Approach/Strategy and Governance</a> <a href="#">Approach/Stakeholders</a> <a href="#">Communities</a>
103-3 <sup>2</sup>	<a href="#">Approach/Strategy and Governance</a> <a href="#">Communities</a>
413-1	<a href="#">Approach/Stakeholders</a> <a href="#">Communities</a> <a href="#">Environment/Water</a> <a href="#">Environment/Land</a> <a href="#">Health and Safety/HSE Programs and Training</a> <a href="#">Workforce/ONE Team Culture</a>
413-2	<a href="#">Communities/Addressing Concerns</a>
SASB EM-EP-210b.1	<a href="#">Communities/Addressing Concerns</a>
IPIECA SE1	<a href="#">Communities</a>



## TOPIC-SPECIFIC DISCLOSURES

INDICATOR	PAGE/RESPONSE/OMISSION
-----------	------------------------

DTF-5 Avoiding seismic activity	<u>Environment/Responsible Produced Water Management</u> In all of our operational areas, we undertake thorough assessments of potential seismic impacts before engaging in drilling and hydraulic fracturing operations, including extensive reviews of area geology, fault lines and fractures. We base these assessments on our own and third-party data, including assessments of regulatory agencies. Regulatory agencies in all of our primary operational areas have determined seismic activity from hydraulic fracturing is very unlikely. We also assess and address potential communication between wells. During any activities that have the potential to cause seismic activity we constantly monitor pressures and shut off activity if any readings suggest possible seismicity. All of our contractors also follow the same industry best practices related to seismicity.
------------------------------------	--

IPIECA SE4	<u>Communities/Economic Impacts</u> <u>Communities/Giving and Volunteering</u>
------------	---

### GRI 414: Supplier Social Assessment (2016)

103-2	<u>Approach/Strategy and Governance</u> <u>Workforce/Contractors</u> <u>Workforce/ONE Team Culture</u>
-------	--

103-3 <sup>2</sup>	<u>Approach/Strategy and Governance</u> <u>Workforce/Contractors</u> <u>Workforce/ONE Team Culture</u>
--------------------	--

### GRI 415: Public Policy (2016)

103-2	<u>Approach/Strategy and Governance</u>
-------	---

103-3 <sup>2</sup>	<u>Approach/Strategy and Governance</u> <u>SWN's Political Activities</u>
--------------------	--

415-1	<u>SWN's Political Activities</u>
-------	-----------------------------------

IPIECA SE14	<u>Approach/Strategy and Governance</u>
-------------	---

## ADDITIONAL MATERIAL TOPICS AND DISCLOSURES

INDICATOR	PAGE/RESPONSE/OMISSION
-----------	------------------------

### Setting Appropriate Targets and Metrics

103-1	<u>Approach/Key Issues</u> <u>Health and Safety/Metrics and Performance</u> <u>Environment/Air</u> <u>Appendix, p. 11</u>
-------	--

103-2	<u>Approach/Strategy and Governance</u> <u>Health and Safety/Metrics and Performance</u> <u>Environment/Air</u>
-------	---

103-3 <sup>2</sup>	<u>Approach/Strategy and Governance</u>
--------------------	---

### Managing Contractors

103-1	<u>Approach/Key Issues</u> <u>Workforce/Contractors</u> <u>Workforce/ONE Team Culture</u> <u>Appendix, p. 11</u>
-------	---

103-2	<u>Approach/Strategy and Governance</u> <u>Workforce/Contractors</u> <u>Health and Safety/HSE Programs and Training</u> <u>Workforce/ONE Team Culture</u>
-------	--

103-3 <sup>2</sup>	<u>Approach/Strategy and Governance</u>
--------------------	---

## Task Force on Climate-Related Financial Disclosures

### Governance

Indicator	Page/Response
Board's oversight of climate-related risks and opportunities	<a href="#">Approach/Strategy and Governance</a> <a href="#">Environment/Air/Emissions Reduction Efforts</a> <a href="#">Environment/Climate Change and Scenario Analysis</a>
Management's role in assessing and managing climate-related risks and opportunities	<a href="#">Approach/Strategy and Governance</a> <a href="#">Environment/Air/Emissions Reduction Efforts</a>

### Strategy

Indicator	Page/Response
Climate-related risks and opportunities the organization has identified over the short, medium and long term	<a href="#">Approach/Key Issues</a> <a href="#">Environment/Climate Change and Scenario Analysis 2018 10-K, pp. 23, 35</a>
Impact of climate-related risks and opportunities on the organization's businesses, strategy and financial planning	<a href="#">Environment/Air</a> <a href="#">Environment/Climate Change and Scenario Analysis</a>
Resilience of the organization's strategy under different climate-related scenarios, including a 2°C or lower scenario	<a href="#">Environment/Climate Change and Scenario Analysis</a>

### Risk Management

Indicator	Page/Response
Organization's processes for identifying and assessing climate-related risks	<a href="#">Approach/Strategy and Governance/Enterprise Risk Management</a> <a href="#">Approach/Key Issues</a> <a href="#">Environment/Climate Change and Scenario Analysis</a>
Organization's processes for managing climate-related risks	<a href="#">Environment/Air</a> <a href="#">Environment/Climate Change and Scenario Analysis</a>
How processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management	<a href="#">Approach/Strategy and Governance</a>

### Metrics and Targets

Indicator	Page/Response
Metrics used to assess climate-related risks and opportunities in line with its strategy and risk management process	<a href="#">Environment/Air</a> <a href="#">Data/Environment</a> See note for SASB EM-EP-140a.1 on p. 5 of this Appendix.
Greenhouse gas emissions	<a href="#">Environment/Air</a> <a href="#">Data/Environment</a>
Targets used to manage climate-related risks and opportunities and performance against targets	<a href="#">Approach/Strategy and Governance</a> <a href="#">Environment/Air</a> <a href="#">Environment/Water/Fresh Water Neutral</a>

## REPORT BOUNDARIES

The following table lists SWN's most material issues and their boundaries. As part of our analysis of [material issues](#), we analyzed the value chain of SWN's operations to ensure we considered impacts and stakeholders at each value chain stage. This value chain analysis was used to determine whether the impacts occurred primarily internally or externally to the organization and which stakeholders were most associated with each issue, which we then used as the basis for defining the boundaries of each material issue.

SWN MATERIAL ISSUE	GRI STANDARD	MATERIAL WITHIN THE ORGANIZATION <sup>3</sup>	MATERIAL OUTSIDE THE ORGANIZATION <sup>4</sup>
<b>Economic Performance</b>			
Company financial health	GRI 201 - Economic performance	Exploration, development, gathering and processing	Local operations and stakeholders
Shareholder return	GRI 201 - Economic performance	Exploration, development, gathering and processing	Investors
Commodity price volatility	GRI 201 - Economic performance	Exploration, development, gathering and processing	Investors, local operations and stakeholders, use phase
<b>Governance</b>			
Setting appropriate metrics and incentives	None	Exploration, development, gathering and processing	Contractors
Risk management	GRI 103 - Management approach	Exploration, development, gathering and processing	Investors, local operations and stakeholders
<b>Health and Safety</b>			
Safe working conditions and training	GRI 403 - Occupational health and safety	Exploration, development, gathering and processing	Contractors
<b>Environment</b>			
Environmental management, policies, targets and metrics	GRI 103 - Environment-related management approaches	Exploration, development, gathering and processing	Contractors
Environmental monitoring	GRI 303 - Water GRI 305 - Emissions	Exploration, development, gathering and processing	Local communities
GHG emissions, methane emissions	GRI 305 - Emissions	Exploration, development, gathering and processing	Use phase
Impacts of transporting materials	GRI 305 - Emissions GRI 306 - Effluents and Waste	Exploration and development	Local operations and stakeholders
Regulation/compliance	GRI 307 - Environmental compliance	Exploration, development, gathering and processing	Local operations and stakeholders
Spill prevention and management; asset integrity	GRI 303 - Water GRI 306 - Effluents and waste	Exploration, development, gathering and processing	Local operations and stakeholders
Water quality, sourcing and wastewater management	GRI 303 - Water GRI 306 - Effluents and waste	Exploration, development, gathering and processing	Local operations and stakeholders
Wellbore integrity	GRI 303 - Water GRI 306 - Effluents and waste GRI 413 - Local communities	Exploration and development	Local operations and stakeholders
<b>Communities</b>			
Community health and safety	GRI 413 - Local communities	Exploration, development, gathering and processing	Local communities
Economic impact in local communities	GRI 413 - Local communities	Exploration, development, gathering and processing	Local operations and stakeholders
Impacts on community infrastructure and quality of life	GRI 413 - Local communities	Exploration, development, gathering and processing	Local communities
Proactive community engagement	GRI 413 - Local communities	Exploration, development, gathering and processing	Local communities
<b>Workforce</b>			
Talent attraction, retention, development and career transitions	GRI 401 - Employment	Exploration, development, gathering and processing	Contractors
Managing contractors	None	Exploration, development, gathering and processing	Contractors

<sup>3</sup> Defined by *value chain stage*.

<sup>4</sup> Defined by *value chain stage and/or stakeholders directly affected*. "Local operations and stakeholders" includes local communities, contractors and landowners/holders of mineral rights.

## ADDITIONAL DATA<sup>5</sup>

### Water Well Impairment Claims, 2005–2018

All Operating Regions	Number (up through 2018) <sup>6</sup>	% of Total
Bacterial	92	41
No Problem	62	28
Drought	25	11
Mechanical	16	7
Stray Gas	7	3
Miscellaneous	22	10

Southwest Appalachia	Number (up through 2018) <sup>6</sup>	% of Total
Bacterial	4	67
No Problem	1	17
Drought	1	17
Mechanical	0	0
Stray Gas	0	0
Miscellaneous	0	0

Northeast Appalachia	Number (up through 2018) <sup>6</sup>	% of Total
Bacterial	21	45
No Problem	17	36
Drought	0	0
Mechanical	4	9
Stray Gas	1	2
Miscellaneous	4	9

Fayetteville Shale	Number (up through 2018) <sup>6</sup>	% of Total
Bacterial	68	40
No Problem	44	26
Drought	24	14
Mechanical	12	7
Stray Gas	6	4
Miscellaneous	17	10

Sandwash	Number (up through 2018) <sup>6</sup>	% of Total
Bacterial	0	0
No Problem	0	0
Drought	0	0
Mechanical	0	0
Stray Gas	0	0
Miscellaneous	1	100

### Number of Unconventional Wells Drilled

	2015	2016	2017	2018
Fayetteville Shale	254	31	23	2
Southwest Appalachia	38	17	50	63
Northeast Appalachia	93	35	78	54
Production-Only Plays	1	0	1	0
<b>All Regions</b>	<b>386</b>	<b>83</b>	<b>152</b>	<b>119</b>

<sup>5</sup> Much of the data in this section is broken down according to our major operating divisions. Fayetteville Shale includes operations in Arkansas. Northeast Appalachia includes operations in northeast Pennsylvania. And used herein, Southwest Appalachia includes operations in West Virginia and southwest Pennsylvania. Production-only plays include the Sandwash Basin in Colorado, the Brown Dense in southern Arkansas and Northern Louisiana, and ArkLaTex in parts of Arkansas, Louisiana and Texas. Currently we no longer hold any operating assets in Arkansas, and we operate almost exclusively in Northeast and Southwest Appalachia. The water use, water recycling and water disposal data in this section cover our drilling, completions, production and midstream services. The 2015 data include those assets as well as additional Pennsylvania and West Virginia assets we purchased in early 2015. None of the data include our sand plant. All water used at our sand plant (except for drinking water) is sourced on location, from the facility's lake and four groundwater wells. This water is recirculated for reuse or, for a small portion, returned to the environment via evaporation. Finally, numbers in the tables may not sum, due to rounding.

<sup>6</sup> The number of claims may not always be a round number because more than one cause may be assigned to a case (for instance, where a problem was found to be caused by both drought and a mechanical problem).

## Freshwater Withdrawal by Source (in barrels)

All Regions <sup>7</sup>	2015	2016	2017	2018
Surface Water (for hydraulic fracturing)	29,380,312	11,394,634	29,705,112	27,468,238
Surface Water (for nonfracturing completion operations)	301,180	64,740	113,500	89,250
<b>Surface Water, Total</b>	<b>29,681,492</b>	<b>11,459,374</b>	<b>29,818,612</b>	<b>27,557,488</b>
Groundwater	119,709	52,928	154,158	175,215
Water Utilities	550,762	118,275	207,750	163,350
<b>Total Freshwater Withdrawals</b>	<b>30,351,963</b>	<b>11,630,577</b>	<b>30,180,520</b>	<b>27,896,053</b>
<b>Fayetteville Shale</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
Surface Water (for hydraulic fracturing)	10,163,625	1,359,930	985,916	391,375
Surface Water (for nonfracturing completion operations)	198,120	24,180	17,250	1,500
<b>Surface Water, Total</b>	<b>10,361,745</b>	<b>1,384,110</b>	<b>1,003,166</b>	<b>392,875</b>
Groundwater	0	0	0	0
Water Utilities	361,950	44,175	31,050	2,700
<b>Total Freshwater Withdrawals</b>	<b>10,723,695</b>	<b>1,428,285</b>	<b>1,034,216</b>	<b>395,575</b>
<b>Southwest Appalachia</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
Surface Water (for hydraulic fracturing)	7,677,394	4,547,806	12,451,608	14,875,424
Surface Water (for nonfracturing completion operations)	29,640	13,260	37,500	47,250
<b>Surface Water, Total</b>	<b>7,707,034</b>	<b>4,561,066</b>	<b>12,489,108</b>	<b>14,922,674</b>
Groundwater	0	0	0	0
Water Utilities	54,150	24,225	67,500	85,050
<b>Total Freshwater Withdrawals</b>	<b>7,761,184</b>	<b>4,585,291</b>	<b>12,556,608</b>	<b>15,007,724</b>
<b>Northeast Appalachia</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
Surface Water (for hydraulic fracturing)	11,281,756	5,486,898	16,248,869	12,201,439
Surface Water (for nonfracturing completion operations)	72,540	27,300	58,500	40,500
<b>Surface Water, Total</b>	<b>11,354,296</b>	<b>5,514,198</b>	<b>16,307,369</b>	<b>12,241,939</b>
Groundwater	119,709	52,928	152,911	175,215
Water Utilities	132,525	49,875	109,200	75,600
<b>Total Freshwater Withdrawals</b>	<b>11,606,530</b>	<b>5,617,001</b>	<b>16,569,480</b>	<b>12,492,754</b>
<b>Production-Only Plays (Sandwash, Brown Dense, ArkLaTex)</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
Surface Water (for hydraulic fracturing)	257,537	0	18,719	0
Surface Water (for nonfracturing completion operations)	880	0	250	0
<b>Surface Water, Total</b>	<b>258,417</b>	<b>0</b>	<b>18,969</b>	<b>0</b>
Groundwater	0	0	1,247	0
Water Utilities	2,137	0	0	0
<b>Total Freshwater Withdrawals</b>	<b>260,554</b>	<b>0</b>	<b>20,216</b>	<b>0</b>

<sup>7</sup> Includes production-only plays.

## Water Recycling

All Operating Regions	2015	2016	2017	2018
Total Operational Water Volume [Fresh + Reuse] (barrels)	50,683,879	17,266,338	35,015,041	32,421,236
Total Downhole Water Volume (Fresh + Reuse)	49,751,084	17,083,323	34,694,041	32,168,636
Total Produced Water Generated <sup>8</sup>	22,286,094	14,617,095	14,294,907	13,083,559
Total Volume that Is Recycled or Reused Downhole by SWN (barrels)	20,508,600	5,635,761	4,854,737	4,525,183
Total Volume that Is Recycled to Other Operations (Drilling and Midstream) <sup>9</sup>	83,870	0	0	0
Total Volume that Is Recycled to Other Operators (recycling with other companies) <sup>10</sup>	0	708,251	843,827	772,626
Percentage of Total Operational Water that Is Recycled Water (%)	40.60%	36.7%	16.27%	16.34%
Percentage of Produced Water that SWN Recycled (%)	92.40%	43.4%	39.86%	41.05%

Fayetteville Shale	2015	2016	2017	2018
Total Operational Water Volume (Fresh + Reuse) (barrels)	28,243,928	4,690,823	3,514,751	418,082
Total Downhole Water Volume (Fresh + Reuse)	27,599,988	4,622,468	3,466,451	413,882
Total Produced Water Generated <sup>8</sup>	17,830,756	9,878,863	9,330,726	5,122,507
Total Volume that Is Recycled or Reused Downhole by SWN (barrels)	17,436,363	3,262,538	2,480,535	22,507
Total Volume that Is Recycled to Other Operations (Drilling and Midstream) <sup>9</sup>	83,870	0	0	0
Total Volume that Is Recycled to Other Operators (recycling with other companies) <sup>10</sup>	0	0	0	0
Percentage of Total Operational Water that Is Recycled Water (%)	62.03%	69.55%	70.57%	5.38%
Percentage of Produced Water that SWN Recycled (%)	98.26%	33.03%	26.58%	0.44%

Southwest Appalachia	2015	2016	2017	2018
Total Operational Water Volume (Fresh + Reuse) (barrels)	8,168,294	5,175,514	13,143,038	16,349,194
Total Downhole Water Volume (Fresh + Reuse)	8,084,504	5,138,029	13,038,038	16,216,894
Total Produced Water Generated <sup>8</sup>	1,790,211	2,474,147	2,932,405	4,569,640
Total Volume that Is Recycled or Reused Downhole by SWN (barrels)	407,110	590,223	586,430	1,341,470
Total Volume that Is Recycled to Other Operations (Drilling and Midstream) <sup>9</sup>	0	0	0	0
Total Volume that Is Recycled to Other Operators (recycling with other companies) <sup>10</sup>	0	230,588	616,934	719,380
Percentage of Total Operational Water that Is Recycled Water (%)	5.0%	15.9%	9.16%	12.61%
Percentage of Produced Water that SWN Recycled (%)	22.7%	33.2%	41.04%	45.10%

<sup>8</sup> These volumes include flowback and produced water, encountered water during drilling and rainwater naturally captured in facility containments. Reuse water can include volumes generated during drilling that have been treated off-site and returned for additional use. It excludes recycled flowback and produced water that is supplied to other operators for their downhole hydraulic fracturing operations.

<sup>9</sup> The volumes for other operational support have been treated prior to use with drilling or midstream. The water sources may include flowback and produced water, encountered water from drilling and rainwater naturally captured in facility containments.

<sup>10</sup> Volumes shared from SWN to other operating companies, which they use in their operations in place of fresh water.

Northeast Appalachia	2015	2016	2017	2018
Total Operational Water Volume (Fresh + Reuse) (barrels)	14,271,657	7,400,001	18,357,252	15,653,960
Total Downhole Water Volume (Fresh + Reuse)	14,066,592	7,322,826	18,189,552	15,537,860
Total Produced Water Generated <sup>8</sup>	2,665,127	2,264,085	2,031,776	3,391,412
Total Volume that Is Recycled or Reused Downhole by SWN (barrels)	2,665,127	1,783,000	1,787,772	3,161,206
Total Volume that Is Recycled to Other Operations (Drilling and Midstream) <sup>9</sup>	0	0	0	0
Total Volume that Is Recycled to Other Operators (recycling with other companies) <sup>10</sup>	0	477,663	226,893	53,246
Percentage of Total Operational Water that Is Recycled Water (%)	18.70%	30.5%	10.97%	20.53%
Percentage of Produced Water that SWN Recycled (%)	100.00%	99.85%	99.16%	99.99%

### Water Intensity (gallons/million BTUs (MMBTUs))

All Operations	2015	2016	2017 <sup>11</sup>	2018 <sup>11</sup>
Water Use to Produce Unit Energy	1.04	0.89	0.63	0.75
Fayetteville Shale	2015	2016	2017	2018
Water Use to Produce Unit Energy	1.40	2.44	1.56	NA
Southwest Appalachia	2015	2016	2017	2018
Water Use to Produce Unit Energy	0.91	0.90	0.51	0.76
Northeast Appalachia	2015	2016	2017	2018
Water Use to Produce Unit Energy	0.73	0.63	0.69	0.74

### Water Use per Well (barrels/well)

Fayetteville Shale	2015	2016	2017	2018
Downhole Fresh Water per Well	40,014	43,869	42,866	195,688
Downhole Reuse Water per Well <sup>12</sup>	68,647	105,243	107,849	11,254
Downhole Water per Well	108,661	149,112	150,715	206,941
Total Operational Water per Well	111,197	151,317	152,815	209,041
Southwest Appalachia	2015	2016	2017	2018
Downhole Fresh Water per Well	202,037	267,518	249,032	236,118
Downhole Reuse Water per Well <sup>12</sup>	10,713	34,719	11,729	21,293
Downhole Water per Well	212,750	302,237	260,761	257,411
Total Operational Water per Well	214,955	304,442	262,861	259,511
Northeast Appalachia	2015	2016	2017	2018
Downhole Fresh Water per Well	122,596	158,281	210,279	229,197
Downhole Reuse Water per Well <sup>12</sup>	28,657	50,943	22,920	58,541
Downhole Water per Well	151,254	209,224	233,199	287,738
Total Operational Water per Well	153,459	211,429	235,349	289,888

<sup>11</sup> Water intensity values reflect estimated ultimate recovery from 2017 and 2018 stimulated wells.

<sup>12</sup> Excluding recycled flowback and produced water that is supplied to other operators for their downhole hydraulic fracturing operations.

### Water Use per Foot of Completed Lateral (CLAT) (barrels/foot)

	2015	2016	2017	2018
Fayetteville Shale	21.1	25.0	23.2	30.5
Southwest Appalachia	32.2	40.3	36.5	35.6
Northeast Appalachia	28	34.6	37.6	37.0

### Water Disposal (barrels)

	2015	2016	2017	2018
Fayetteville Shale	310,523	6,616,325	6,850,191	5,100,000
Southwest Appalachia	1,383,101	1,653,336	1,729,041	2,508,790
Northeast Appalachia	0	3,422	17,111	440
<b>Total Water Disposal for Primary Production Regions Only</b>	<b>1,693,624</b>	<b>8,273,083</b>	<b>8,596,343</b>	<b>7,609,230</b>
Sandwash Basin	121,303	63,145	39,973	14,915
Brown Dense	23,153	9,143	8,023	3,489
ArkLaTex	158,598	NA	NA	NA
<b>Total Water Disposal All Operating Regions</b>	<b>1,996,678</b>	<b>8,345,371</b>	<b>8,644,339</b>	<b>7,627,634</b>