

**Module: Introduction****Page: W0. Introduction**

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**W0.1****Introduction****Please give a general description and introduction to your organization**

Anadarko's mission is to deliver a competitive and sustainable rate of return to shareholders by exploring for, acquiring and developing oil and natural gas resources vital to the world's health and welfare. As of year-end 2016, the company had 2.06 billion barrels equivalent of proved reserves, making it one of the world's largest independent oil and natural gas exploration and production companies. For more information about Anadarko, please visit <http://www.anadarko.com>.

Anadarko recognizes that proper water management and conservation are essential in developing energy resources. The company works diligently to manage, protect and conserve water through engaging in collaborative industry efforts and the use of improved technologies, including water recycling programs and closed-loop systems that conserve water, reduce waste and consolidate equipment. The use of automated and pipeline systems reduce truck traffic and our surface footprint. Anadarko has made progress in developing a comprehensive water management inventory for oil and natural gas production through a water data system project.

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**W0.2****Reporting year**

**Please state the start and end date of the year for which you are reporting data**

<b>Period for which data is reported</b>
Fri 01 Jan 2016 - Sat 31 Dec 2016

**Period for which data is reported**

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**W0.3**

**Reporting boundary**

**Please indicate the category that describes the reporting boundary for companies, entities, or groups for which water-related impacts are reported**

Companies, entities or groups over which operational control is exercised

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**W0.4**

**Exclusions**

**Are there any geographies, facilities or types of water inputs/outputs within this boundary which are not included in your disclosure?**

Yes

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**W0.4a**

**Exclusions**

**Please report the exclusions in the following table**

Exclusion	Please explain why you have made the exclusion
International operations	Water data for international operations is immaterial to the company's overall portfolio and is not included in this report. Once operated international operations move beyond exploratory, the company will consider including water data from these operations.

**Further Information**

**Module: Current State**

**Page: W1. Context**

**W1.1**

**Please rate the importance (current and future) of water quality and water quantity to the success of your organization**

<b>Water quality and quantity</b>	<b>Direct use importance rating</b>	<b>Indirect use importance rating</b>	<b>Please explain</b>
Sufficient amounts of good quality freshwater available for use	Important	Not very important	We rely on the direct use of freshwater for drilling and, in part, for completions operations. Freshwater is important for the drilling process, in order to protect local aquifers. There is less need for freshwater for indirect purposes. Recently, to further reduce our need for freshwater, we have begun to drill more wells using air instead of water.
Sufficient amounts of recycled, brackish and/or produced water available for use	Important	Not very important	Consistent with our efforts to draw from a variety of sources so as to limit competition with municipal, agricultural and other consumers, we rely on recycled, brackish and produced water for completions operations in many of our larger plays. Sufficient amounts of such water is important in order for us to limit the amount of freshwater necessary for operations.

**W1.2**

**For your total operations, please detail which of the following water aspects are regularly measured and monitored and provide an explanation as to why or why not**

<b>Water aspect</b>	<b>% of sites/facilities/operations</b>	<b>Please explain</b>
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Water aspect	% of sites/facilities/operations	Please explain
Water withdrawals- total volumes	76-100	Teams track water withdrawn from ground and surface water sources
Water withdrawals- volume by sources	76-100	Sources are tracked
Water discharges- total volumes	76-100	Discharges to surface and groundwater require permits, which require volumes to be tracked
Water discharges- volume by destination	76-100	Discharges to surface and groundwater require permits, which require reporting on discharge destination
Water discharges- volume by treatment method	76-100	Discharges to surface and groundwater require permits, which require reporting treatment methods
Water discharge quality data- quality by standard effluent parameters	76-100	Discharges to surface and groundwater require permits, which require quality data to be maintained
Water consumption- total volume	76-100	Team track water use, disposal and discharge, thus we can calculate consumption by volume
Facilities providing fully-functioning WASH services for all workers	76-100	All Anadarko facilities provide WASH services to employees

#### W1.2a

**Water withdrawals: for the reporting year, please provide total water withdrawal data by source, across your operations**

Source	Quantity (megaliters/year)	How does total water withdrawals for this source compare to the last reporting year?	Comment
Fresh surface water	6290.38	Lower	We continue to seek ways to reduce fresh water use, while increasing the use of produced and brackish water. Also, activity levels were reduced.
Brackish surface water/seawater	44.49	Lower	We use seawater for offshore operations, in a manner consistent with regulatory requirements.
Rainwater	0	About the same	We currently do not rely on rainwater as a source of water.
Groundwater -	3661.74	Lower	We continue to seek ways to reduce fresh water use, while increasing the use of

Source	Quantity (megaliters/year)	How does total water withdrawals for this source compare to the last reporting year?	Comment
renewable			produced and brackish water. Also, activity levels were reduced.
Groundwater - non-renewable	0	About the same	Not applicable
Produced/process water	0	About the same	Where feasible, we utilize recycled drilling and flowback fluids in operations. Since this is not a withdrawal, no value is presented here though the estimated volume is less than 1% of total water withdrawals.
Municipal supply	130.39	Lower	We use municipal water primary for office buildings. Due to the sale of some assets, the number is lower.
Wastewater from another organization	0	About the same	At this time, we are not using wastewater directly provided from a wastewater treatment operation.
Total	10127.01		Our water use varies with the amount of drilling and completions that are conducted, which slowed down in 2016. Also, several assets were sold in 2016 (e.g. Carthage, East Chalk, Hugoton, Ozona) resulting in an overall decrease in water withdrawals.

#### W1.2b

**Water discharges: for the reporting year, please provide total water discharge data by destination, across your operations**

Destination	Quantity (megaliters/year)	How does total water discharged to this destination compare to the last reporting year?	Comment
Fresh surface water	3.59	Lower	
Brackish surface water/seawater	16.13	About the same	Related to Offshore Gulf of Mexico operations
Groundwater	1139.42	Lower	We include all downhole wastewater injection as a groundwater discharge.

Destination	Quantity (megaliters/year)	How does total water discharged to this destination compare to the last reporting year?	Comment
Municipal/industrial wastewater treatment plant	0	About the same	
Wastewater for another organization	0	About the same	
Total	1159.14	Lower	Our water discharge varies with the amount of drilling and completions that are conducted, which were reduced in 2016. Also, several assets were sold in 2016 (e.g. Carthage, East Chalk, Hugoton, Ozona) resulting in an overall decrease in water discharge, in line with a decrease in water withdrawals.

#### W1.2c

**Water consumption: for the reporting year, please provide total water consumption data, across your operations**

Consumption (megaliters/year)	How does this consumption figure compare to the last reporting year?	Comment
8968.0	Lower	Our water consumption varies with the amount of drilling and completions that are conducted, which reduced in 2016. Also, several assets were sold in 2016 (e.g. Carthage, East Chalk, Hugoton, Ozona) resulting in an overall decrease in water consumption.

#### W1.3

Do you request your suppliers to report on their water use, risks and/or management?

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**W1.3a**

Please provide the proportion of suppliers you request to report on their water use, risks and/or management and the proportion of your procurement spend this represents

Proportion of suppliers %	Total procurement spend %	Rationale for this coverage
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**W1.3b**

Please choose the option that best explains why you do not request your suppliers to report on their water use, risks and/or management

Primary reason	Please explain
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**W1.4**

**Has your organization experienced any detrimental impacts related to water in the reporting year?**

Yes

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**W1.4a**

Please describe the detrimental impacts experienced by your organization related to water in the reporting year

Country	River basin	Impact driver	Impact	Description of impact	Length of impact	Overall financial impact	Response strategy	Description of response strategy
United States of America	Mississippi River	Reg-Regulatory uncertainty	Delays in permitting	Federal, state and local agencies are evaluating current water regulations and may require more extensive permitting requirements and additional water quality monitoring and treatment. This may result in permit delays and higher operating costs.	Estimated to be 2-5 years.	The financial impact is uncertain at this time.	Alignment of public policy positions with water stewardship goals Engagement with public policy makers Infrastructure investment Increased investment in new technology	We are implementing water strategies to expand optionality for water sourcing, use and disposal. We are increasing investments in new technology and infrastructure. Anadarko staff regularly engages with public policy makers on water issues, including chairing the Energy Water Initiative (EWI). The EWI is comprised of 22 oil and gas companies working to enhance water technology for the industry.
United States of America	Rio Grande	Reg-Regulatory uncertainty	Higher operating costs	Federal, state and local agencies are evaluating current water regulations and may require more extensive permitting requirements and additional water quality monitoring and treatment. This may result in permit delays and higher operating costs.	Estimated to be 2-5 years.	The financial impact is uncertain at this time.	Alignment of public policy positions with water stewardship goals Engagement with public policy makers Infrastructure investment Increased investment in new technology	We are implementing water strategies to expand optionality for water sourcing, use and disposal. We are increasing investments in new technology and infrastructure. Anadarko staff regularly engages with public policy makers on water issues, including chairing the Energy Water Initiative (EWI). The EWI is comprised of 22 oil and gas companies working to enhance water technology for the industry.
United States of	Colorado River (Pacific	Reg-Regulatory	Higher operating	Federal, state and local agencies are evaluating	Estimated to be 2-5	The financial	Alignment of public policy	We are assessing and implementing water strategies to

Country	River basin	Impact driver	Impact	Description of impact	Length of impact	Overall financial impact	Response strategy	Description of response strategy
America	Ocean)	uncertainty	costs	current water regulations and may require more extensive permitting requirements and additional water quality monitoring and treatment. This may result in permit delays and higher operating costs.	years.	impact is uncertain at this time.	positions with water stewardship goals Engagement with public policy makers Infrastructure investment Increased investment in new technology	expand optionality for water sourcing, use and disposal. We are increasing investments in new technology and infrastructure. Anadarko staff regularly engages with public policy makers on water issues, including chairing the Energy Water Initiative (EWI). The EWI is comprised of 17 oil and gas companies working to enhance water technology for the industry.
United States of America	Susquehanna River	Reg-Regulatory uncertainty	Delays in permitting	Federal, state and local agencies are evaluating current water regulations and may require more extensive permitting requirements and additional water quality monitoring and treatment. This may result in permit delays and higher operating costs.	Estimated to be 1 year.	The financial impact is uncertain at this time.	Alignment of public policy positions with water stewardship goals Engagement with public policy makers Infrastructure investment Increased investment in new technology	We implemented water strategies to expand on optionality for water sourcing, use and disposal. We divested the upstream operations in Pennsylvania in 2017.

W1.4b

Please choose the option below that best explains why you do not know if your organization experienced any detrimental impacts related to water in the reporting year and any plans you have to investigate this in the future

Primary reason	Future plans
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**Further Information**

**Module: Risk Assessment**

**Page: W2. Procedures and Requirements**

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**W2.1**

**Does your organization undertake a water-related risk assessment?**

Water risks are assessed

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**W2.2**

**Please select the options that best describe your procedures with regard to assessing water risks**

Risk assessment procedure	Coverage	Scale	Please explain
Comprehensive company-wide risk assessment	Direct operations	All facilities	A macro-level analysis of water-related risk informs decisions about water-related activities in Anadarko's Enterprise Risk Management Process (ERMP). Operation and facility teams conduct area risk analyses, including water stress, water availability (including water suppliers), regional and local regulations, and stakeholder concerns. In certain operations, the company uses site surveys and/or sampling to collect baseline water quality data, and water-related risk is analysed on a per-project basis. Anadarko monitors

Risk assessment procedure	Coverage	Scale	Please explain
			current and future issues related to water risk and management.

**W2.3**

**Please state how frequently you undertake water risk assessments, at what geographical scale and how far into the future you consider risks for each assessment**

Frequency	Geographic scale	How far into the future are risks considered?	Comment
Annually	Business unit	1 to 3 years	Anadarko undertakes a rigorous macro-level analysis of the water-management programs to inform decisions about water-related issues and enhance water-management, conservation and recycling. On an asset basis, operations evaluates the risk of water availability and management across direct operations and supply chain. Risk around water management is evaluated on a quarterly basis and reported to company leadership and the Board of Directors.

**W2.4**

**Have you evaluated how water risks could affect the success (viability, constraints) of your organization's growth strategy?**

Yes, evaluated over the next 1 year

**W2.4a**

**Please explain how your organization evaluated the effects of water risks on the success (viability, constraints) of your organization's growth strategy?**

Anadarko evaluates water-related issues at multiple levels and monitors current and future issues related to water risk and management. On a quarterly basis, we evaluate and report enterprise level risks around water management to the Enterprise Risk Management Committee (ERMC), Governance and Risk Committee of the Board of Directors and company leadership. The Technical Water Group and others implement and continue to improve a holistic water-management approach that: i) assesses availability and prudent use of water, ii) enhances technology development, iii) increases public outreach, and iv) works to address water management and challenges according to local conditions and considerations. The Group continually improves the company's water-management program (including tools) to inform decisions about water-related issues and enhance water sourcing, disposal, conservation and recycling programs. As part of its commitment to continuous improvement, Anadarko works to reduce the use of "fresh water" to mitigate risk to future growth in certain areas.

Anadarko's key upstream assets include water-management plans and goals in the annual planning process. The company has dedicated technical water management teams in each key asset. Each team has conducted a risk and cost assessment for their operations. Based on the outcome of the assessments, each key asset has or is developing a specific water management plan that can include water recycling, water treatment, and water infrastructure sharing. Asset level water-management strategies include tracking: total water volume used in operations; sources of water (surface, groundwater, municipal, non-potable water, etc.); volume of produced water recycled; volume of water discharged; and volume of water injected downhole. Water quality is evaluated as wells are drilled to better understand local groundwater aquifers and design wellbores to protect groundwater. Water contracts are entered into on a relatively long-term basis. We comply with local, state, regional and federal requirements, including for water quality, wastewater treatment and the protection of watersheds. The teams regularly evaluate and improve upon the water management strategies at the regional watershed and project basis

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**W2.4b**

**What is the main reason for not having evaluated how water risks could affect the success (viability, constraints) of your organization's growth strategy, and are there any plans in place to do so in the future?**

Main reason	Current plans	Timeframe until evaluation	Comment
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**W2.5**

**Please state the methods used to assess water risks**

Method	Please explain how these methods are used in your risk assessment
Other: Internal Process	Anadarko developed an internal and life-cycle based risk assessment process and tool to evaluate risk around the use and management of water. We include aspects of the GEMI LWT, WBSCD GWT, IPIECA GWT for Oil and Gas, and WRI Aqueduct in the water risk tool. The methods used are uniquely tailored to upstream oil and natural gas operations at a local level, in order to best inform operational decisions. This includes evaluating local, regional and national external conditions, mitigating actions, and mitigating plans (GEMI), community engagement and stakeholder opportunities (WBSCD) and water scarcity at a local level (IPIECA). The operational scope of the assessment is for the complete life cycle of water use (i.e., construction, drilling, completions, production, and disposal).

**W2.6**

**Which of the following contextual issues are always factored into your organization's water risk assessments?**

Issues	Choose option	Please explain
Current water availability and quality parameters at a local level	Relevant, included	Anadarko considers and evaluates water availability and protection of the water quality of local aquifers in decision making and risk evaluation.
Current water regulatory frameworks and tariffs at a local level	Relevant, included	Anadarko considers and closely monitors risks associated with current water regulations in each assessment, including for water quality, availability, and disposal.
Current stakeholder conflicts concerning water resources at a local level	Relevant, included	Local stakeholders' perceptions and concerns are included in the assessment.
Current implications of water on your key commodities/raw materials	Relevant, included	Water is an important commodity in producing oil and natural gas, thus we work to estimate the implications of lack of availability of water.
Current status of ecosystems and habitats at a local level	Relevant, included	Water use at a local level can impact ecosystems, thus it is considered as a potential stakeholder concern in the assessment process, where appropriate.
Current river basin management plans	Relevant, included	Where river basin management plans are in existence, we consider such plans as a potential regulatory risk.
Current access to fully-functioning WASH services for all employees	Relevant, included	We provide fully functioning WASH services at all office buildings on a global basis.

Issues	Choose option	Please explain
Estimates of future changes in water availability at a local level	Relevant, included	The risk assessment includes changes in water availability on a local watershed basis.
Estimates of future potential regulatory changes at a local level	Relevant, included	Risk associated with potential future water regulations are included in each assessment, including for quality, availability, and disposal.
Estimates of future potential stakeholder conflicts at a local level	Relevant, included	We work to identify future potential stakeholder concerns around local water use and management and include it the assessment.
Estimates of future implications of water on your key commodities/raw materials	Relevant, included	Since we anticipate water to continue to be a critical commodity in producing oil and gas into the future, we work to estimate the implications of lack of availability of water.
Estimates of future potential changes in the status of ecosystems and habitats at a local level	Relevant, included	Water use at a local level can have a future impact ecosystems, thus it is considered as a future potential stakeholder concern where appropriate.
Scenario analysis of availability of sufficient quantity and quality of water relevant for your operations at a local level	Relevant, included	Anadarko includes scenario analysis in the risk assessment tool, where appropriate.
Scenario analysis of regulatory and/or tariff changes at a local level	Relevant, included	Anadarko includes a regulatory analysis in the risk assessment tool.
Scenario analysis of stakeholder conflicts concerning water resources at a local level	Relevant, included	Anadarko includes a stakeholder scenario analysis in the risk assessment tool.
Scenario analysis of implications of water on your key commodities/raw materials	Relevant, included	Anadarko includes the raw material implications in its scenario analysis in the risk assessment tool.
Scenario analysis of potential changes in the status of ecosystems and habitats at a local level	Relevant, included	Anadarko includes scenario analysis in the risk assessment tool, where appropriate.
Other		

## W2.7

Which of the following stakeholders are always factored into your organization's water risk assessments?

Stakeholder	Choose option	Please explain
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Stakeholder	Choose option	Please explain
Customers	Relevant, not yet included	At this time, the primary customers are not factored into the risk assessment, but may be considered in the future.
Employees	Relevant, not yet included	At this time, employees are not factored into the risk assessment, but may be considered in the future.
Investors	Relevant, included	Investors' concerns are considered in the risk assessment, particularly for areas of water scarcity.
Local communities	Relevant, included	The local community is factored into the risk assessment for current and future potential risks.
NGOs	Relevant, included	NGOs that are relevant to the industry are considered in the risk assessment, particularly for water availability and quality.
Other water users at a local level	Relevant, included	NGOs that are relevant to the industry, are considered in the risk assessment, particularly for water availability and quality.
Regulators	Relevant, included	Regulators are always considered as relevant stakeholders for water assessments, including the level of concern about the water use from the industry.
River basin management authorities	Relevant, included	These authorities are included in a risk assessment, in our operating areas where they exist.
Statutory special interest groups at a local level	Relevant, included	Certain areas have groundwater conservation districts and other statutorily created groups that are included in the risk assessment.
Suppliers	Relevant, included	Service companies must run their equipment with the water that we supply, so they are a stakeholder in terms of the water quality necessary to effectively run the equipment. For example, a service company may not be able to use brackish water in their equipment.
Water utilities at a local level	Relevant, included	Where relevant, we consider local water utilities.
Other		

W2.8

Please choose the option that best explains why your organisation does not undertake a water-related risk assessment

Primary reason	Please explain
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#### Further Information

#### Module: Implications

#### Page: W3. Water Risks

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##### W3.1

**Is your organization exposed to water risks, either current and/or future, that could generate a substantive change in your business, operations, revenue or expenditure?**

Yes, direct operations and supply chain

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##### W3.2

**Please provide details as to how your organization defines substantive change in your business, operations, revenue or expenditure from water risk**

A substantive change is a significant modification or expansion in the scope or nature of Anadarko's direct operations (not suppliers) at a field level, as measured by the level of activity or production of an asset from sourcing, management or disposal of water. Anadarko has a deep portfolio of opportunities in the U.S. onshore, most of which would be considered unconventional resource plays. As such, these assets require access to water for drilling and completions operations. Without an adequate supply of water, Anadarko and/or its suppliers would need to develop alternatives, allocate capital to other assets in its portfolio, and/or consider reducing the level of activity in a given play. The threshold amount of change necessary will differ among operational plays based upon the economics involved with the required change. These considerations are a significant part of our investment, engagement and water-management strategies to ensure adequate supplies of and appropriate disposal of water at all of our U.S. onshore growth opportunities. Additionally, activity levels are evaluated continuously as part of our capital allocation process for each field. During this process, potential changes in operations and costs, including water availability, management and disposal, are considered.

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##### W3.2a

Please provide the number of facilities\* per river basin exposed to water risks that could generate a substantive change in your business, operations, revenue or expenditure; and the proportion of company-wide facilities this represents

Country	River basin	Number of facilities exposed to water risk	Proportion of company-wide facilities that this represents (%)	Comment
United States of America	Mississippi River	1	11-20	A facility is defined as an asset or field. Wattenberg - Facility 1
United States of America	Rio Grande	2	21-30	A facility is defined as an asset or field. Maverick - Facility 2 Delaware - Facility 3 (divested)
United States of America	Susquehanna River	1	11-20	A facility is defined as an asset or field. Marcellus - Facility 4 (divested)
United States of America	Colorado River (Pacific Ocean)	1	11-20	A facility is defined as an asset or field. Greater Natural Buttes - Facility 5

### W3.2b

For each river basin mentioned in W3.2a, please provide the proportion of the company's total financial value that could be affected by water risks

Country	River basin	Financial reporting metric	Proportion of chosen metric that could be affected	Comment
United States of America	Mississippi River	% global production volume	31-40	This area encompasses our Wattenberg operations for oil and natural gas production in Colorado.
United States of America	Rio Grande	% global production volume	11-20	This area encompasses our Delaware and Maverick basin operations for oil and natural gas production in Texas. Maverick has been divested.

Country	River basin	Financial reporting metric	Proportion of chosen metric that could be affected	Comment
United States of America	Susquehanna River	% global production volume	11-20	This area encompasses our Marcellus shale operations for oil and natural gas production in Pennsylvania (divested).
United States of America	Colorado River (Pacific Ocean)	% global production volume	6-10	This area encompasses our Greater Natural Buttes area operations for oil and natural gas production in Utah.

**W3.2c**

Please list the inherent water risks that could generate a substantive change in your business, operations, revenue or expenditure, the potential impact to your direct operations and the strategies to mitigate them

Country	River basin	Risk driver	Potential impact	Description of potential impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
United States of America	Rio Grande	Physical-Drought	Higher operating costs	Temporary water stress translating to decreased supply, and likely impacts to transportation infrastructure. It could result in limitations to future growth if states have to	1-3 years	Probable	Low-medium	Alignment of public policy positions with water stewardship goals Infrastructure investment Increased investment in new technology	Medium	Continued evaluation and investment in water management strategies, technologies and systems that enable the company to decrease the use of freshwater in completions and increase the use of

Country	River basin	Risk driver	Potential impact	Description of potential impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				restrict water use.						recycled, brackish and other sources of water. The cost of response is based on increased cost of water. The infrastructure investment may have a positive return on investment. Maverick has been divested.
United States of America	Colorado River (Pacific Ocean)	Physical-Drought	Higher operating costs	Temporary water stress translating to decreased supply, and likely impacts to transportation infrastructure. It could result in limitations to future growth if states have to restrict water use.	1-3 years	Probable	Low-medium	Alignment of public policy positions with water stewardship goals Infrastructure investment Increased investment in new technology	Medium	Continued evaluation and investment in water-management strategies, technologies and systems that enable the company to decrease the use of fresh water in completions and increase the use of recycled, brackish and other sources of water. The cost of response is based on increased cost of water. The infrastructure investment may have a strong ROI.

Country	River basin	Risk driver	Potential impact	Description of potential impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
United States of America	Susquehanna River	Physical-Flooding	Closure of operations	Damage to transportation infrastructure and facilities. Interruption of production. If facilities are designed and maintained properly, the impact will be minimized.	>6 years	Probable	Medium	Infrastructure investment Increased investment in new technology	Low-medium	The upstream asset was divested in early 2017.
United States of America	Rio Grande	Physical-Increased water scarcity	Higher operating costs	Possible limitations on surface water use and groundwater withdrawal could lead to project delays.	>6 years	Probable	Medium	Alignment of public policy positions with water stewardship goals Infrastructure investment Increased investment in new technology	Low-medium	Continued evaluation and investment in water-management strategies, technologies and systems that enable the company to decrease the use of fresh water in completions. The cost of response is based on increased cost of water. The infrastructure investment may have a strong ROI. Maverick has been divested.
United States of	Mississippi River	Physical-Increased water scarcity	Higher operating costs	Possible limitations on surface water	>6 years	Probable	Medium	Alignment of public policy positions	Low-medium	Continued evaluation and investment in water-

Country	River basin	Risk driver	Potential impact	Description of potential impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
America				use and groundwater withdrawal could lead to project delays.				with water stewardship goals Infrastructure investment Increased investment in new technology		management strategies, technologies and systems that enable the company to decrease the use of fresh water in completions. The cost of response is based on increased cost of water. The infrastructure investment may have a strong ROI. This asset has been divested.
United States of America	Colorado River (Pacific Ocean)	Physical-Increased water scarcity	Higher operating costs	Possible limitations on surface water use and groundwater withdrawal could lead to project delays.	>6 years	Probable	Medium	Alignment of public policy positions with water stewardship goals Infrastructure investment Increased investment in new technology	Low-medium	Continued evaluation and investment in water-management strategies, technologies and systems that enable the company to decrease the use of fresh water in completions. The cost of response is based on increased cost of water. The infrastructure investment may have a strong ROI.
United	Rio Grande	Physical-	Higher	Seasonal water	>6 years	Probable	Low-	Alignment of	Low-	Continued

Country	River basin	Risk driver	Potential impact	Description of potential impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
States of America		Seasonal supply variability/Inter annual variability	operating costs	stress translating to decreased supply, and likely impacts to transportation infrastructure. It could result in limitations to future growth if states have to restrict water use			medium	public policy positions with water stewardship goals Infrastructure investment Increased investment in new technology	medium	evaluation and investment in water management strategies, technologies and systems that allow the company to decrease the use of fresh water in completions. The cost of response is based on increased cost of water. The infrastructure investment may have a strong ROI. Maverick has been divested.
United States of America	Mississippi River	Physical-Seasonal supply variability/Inter annual variability	Higher operating costs	Seasonal water stress translating to decreased supply, and likely impacts to transportation infrastructure. It could result in limitations to future growth if states have to restrict water use	>6 years	Probable	Low-medium	Alignment of public policy positions with water stewardship goals Infrastructure investment Increased investment in new technology	Low-medium	Continued evaluation and investment in water management strategies, technologies and systems that allow the company to decrease the use of fresh water in completions. The cost of response is based on increased cost of water. The infrastructure investment may

Country	River basin	Risk driver	Potential impact	Description of potential impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
										have a strong ROI. This asset has been divested.
United States of America	Rio Grande	Regulatory-Regulatory uncertainty	Higher operating costs	The potential revision or expansion of regulations on water quality and quantity could result in higher operating costs, increased production cycle time. An example is an increased groundwater sampling requirements.	1-3 years	Probable	Low	Engagement with public policy makers	Low-medium	Effective policy analysis and involvement in legislation/regulatory rule/law-making Dedicated pre-compliance preparation for requirements as well as robust compliance assurance. The magnitude of the financial impact and response cost are expected to be low to medium, based on our strategy to be proactive on water strategies, thus reducing the potential costs of compliance. Maverick has been divested.
United States of America	Susquehanna River	Regulatory-Regulatory uncertainty	Higher operating costs	The potential revision or expansion of regulations on water quality and quantity	1-3 years	Probable	Low	Engagement with public policy makers	Low-medium	This asset was divested in 2017.

Country	River basin	Risk driver	Potential impact	Description of potential impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				could result in higher operating costs, increased production cycle time. An example is increased groundwater sampling requirements.						
United States of America	Mississippi River	Reputational-Community opposition	Loss of license to operate	Community opposition of the use of water in completions could lead to restriction or loss of Anadarko's ability or license to operate. This could be a result of the need of water for agricultural and municipal uses.	1-3 years	Unlikely	Low-medium	Engagement with public policy makers	Low	Effective policy analysis and involvement in legislation/regulatory rule/law-making. Dedicated pre-compliance preparation for requirements as well as robust compliance assurance. The magnitude of financial risk and response cost is low, since Anadarko has a robust community stakeholder engagement strategy already working to minimize this and other identified risks. This

Country	River basin	Risk driver	Potential impact	Description of potential impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
										asset has been divested.

**W3.2d**

Please list the inherent water risks that could generate a substantive change in your business operations, revenue or expenditure, the potential impact to your supply chain and the strategies to mitigate them

Country	River basin	Risk driver	Potential impact	Description of potential impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs

**W3.2e**

Please choose the option that best explains why you do not consider your organization to be exposed to water risks in your direct operations that could generate a substantive change in your business, operations, revenue or expenditure

Primary reason	Please explain
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W3.2f

Please choose the option that best explains why you do not consider your organization to be exposed to water risks in your supply chain that could generate a substantive change in your business, operations, revenue or expenditure

Primary reason	Please explain
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W3.2g

Please choose the option that best explains why you do not know if your organization is exposed to water risks that could generate a substantive change in your business operations, revenue or expenditure and discuss any future plans you have to assess this

Primary reason	Future plans
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**Further Information**

**Page: W4. Water Opportunities**

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W4.1

**Does water present strategic, operational or market opportunities that substantively benefit/have the potential to benefit your organization?**

Yes

W4.1a

Please describe the opportunities water presents to your organization and your strategies to realize them

Country or region	Opportunity	Strategy to realize opportunity	Estimated timeframe	Comment
Company-wide	Cost savings	Innovative water recycling and delivery systems have reduced costs in operations. For example in Colorado, a “water on demand” system has reduced the impact on the community of trucking water, reduced water usage and reduced costs. By constructing 60+ miles (FYI - OVER 150 miles in Colorado alone) of pipelines, there are 96% fewer trucks on the road and 88% fewer storage tanks.	Current-up to 1 year	Anadarko is currently assessing and designing technologies and opportunities to continue to enhance such systems. For example, in four onshore operating areas, Anadarko has constructed and continues to enhance water recycling and delivery systems.
United States of America	Improved water efficiency	The increase of water reuse and recycling systems is resulting in improved water efficiency. For example, in Utah, a completions system creates temporary staging sites on existing well sites to treat and recycle flow back water, then move it to the next operation for reuse.	Current-up to 1 year	Anadarko is currently installing and operating equipment and systems to increase water recycling and anticipates it will continue to do so into the future. For example, in West Texas a water recycling system has resulted in the reuse of more than 1 million barrels of produced water. In Pennsylvania, when we are completing wells we aim to reuse 100% of flowback water recovered from our operations.
United States of America	Other: Improved water measurement	Improving the ability of the oil and natural gas industry to account for total lifecycle water use and generation, through enhanced water measurement. Anadarko has a water technical team currently working on developing a company-wide enhanced water-measurement program.	Current-up to 1 year	As cited by Energy In Depth on its website, the combustion of 1 Bcf of natural gas as a source of fuel creates more than 11 million gallons, or nearly 42 megaliters of water as vapor, a volume which is not typically accounted for in the measurement of life cycle water management for the oil and gas industry. Anadarko is working with industry to develop a valid approach to evaluating this aspect of the use of natural gas.

W4.1b

Please choose the option that best explains why water does not present your organization with any opportunities that have the potential to provide substantive benefit

Primary reason	Please explain
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W4.1c

Please choose the option that best explains why you do not know if water presents your organization with any opportunities that have the potential to provide substantive benefit

Primary reason	Please explain
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**Further Information**

**Module: Accounting**

**Page: W5. Facility Level Water Accounting (I)**

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W5.1

**Water withdrawals: for the reporting year, please complete the table below with water accounting data for all facilities included in your answer to W3.2a**

Facility reference number	Country	River basin	Facility name	Total water withdrawals (megaliters/year) at this facility	How does the total water withdrawals at this facility compare to the last reporting year?	Please explain
Facility 1	United States of America	Mississippi River	Wattenberg	5114.65	Lower	Activity decreased in the Wattenberg in 2016
Facility 2	United States of America	Rio Grande	Maverick - divested	1120.78	Much lower	Activity decreased in Maverick in 2016
Facility 3	United States of America	Rio Grande	Delaware	3402.27	Lower	Activity decreased in Delaware in 2016
Facility 4	United States of America	Susquehanna River	Marcellus - divested	33.60	Lower	Activity decreased in Marcellus in 2016
Facility 5	United States of America	Colorado River (Pacific Ocean)	Greater Natural Buttes	87.26	Much lower	Activity decreased in Greater Natural Buttes in 2016

#### Further Information

#### Page: W5. Facility Level Water Accounting (II)

#### W5.1a

Water withdrawals: for the reporting year, please provide withdrawal data, in megaliters per year, for the water sources used for all facilities reported in W5.1

Facility reference number	Fresh surface water	Brackish surface water/seawater	Rainwater	Groundwater (renewable)	Groundwater (non-renewable)	Produced/process water	Municipal water	Wastewater from another organization	Comment
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Facility reference number	Fresh surface water	Brackish surface water/seawater	Rainwater	Groundwater (renewable)	Groundwater (non-renewable)	Produced/process water	Municipal water	Wastewater from another organization	Comment
Facility 1	5051.06	0	0	62.98	0	0	0.61	0	
Facility 2	1120.78	0	0	0	0	0	0	0	
Facility 3	0	0	0	3402.27	0	0	0	0	
Facility 4	33.60	0	0	0	0	0	0	0	
Facility 5	81.08	0	0	3.55	0	0	2.63	0	

#### W5.2

**Water discharge:** for the reporting year, please complete the table below with water accounting data for all facilities included in your answer to W3.2a

Facility reference number	Total water discharged (megaliters/year) at this facility	How does the total water discharged at this facility compare to the last reporting year?	Please explain
Facility 1	381.39	Lower	
Facility 2	219.92	Lower	
Facility 3	454.56	About the same	
Facility 4	0	About the same	
Facility 5	71.12	Lower	

#### W5.2a

**Water discharge:** for the reporting year, please provide water discharge data, in megaliters per year, by destination for all facilities reported in W5.2

Facility reference number	Fresh surface water	Municipal/industrial wastewater treatment plant	Seawater	Groundwater	Wastewater for another organization	Comment
Facility 1	0.32	0	0	381.07	0	
Facility 2	0	0	0	219.92	0	
Facility 3	0	0	0	454.56	0	
Facility 4	0	0	0	0	0	
Facility 5	0	0	0	71.12	0	

### W5.3

**Water consumption: for the reporting year, please provide water consumption data for all facilities reported in W3.2a**

Facility reference number	Consumption (megaliters/year)	How does this compare to the last reporting year?	Please explain
Facility 1	4733.26	About the same	
Facility 2	900.86	Lower	
Facility 3	2947.71	About the same	
Facility 4	33.60	About the same	
Facility 5	16.14	Lower	

### W5.4

**For all facilities reported in W3.2a what proportion of their water accounting data has been externally verified?**

Water aspect	% verification	What standard and methodology was used?
Water withdrawals- total volumes	Not verified	Anadarko is currently enhancing its data system and associated processes.
Water withdrawals- volume by sources	Not verified	Anadarko is currently enhancing its data system and associated processes.
Water discharges- total volumes	Not verified	Anadarko is currently enhancing its data system and associated processes.
Water discharges- volume by destination		Anadarko is currently enhancing its data system and associated processes.
Water discharges- volume by treatment method	Not verified	Anadarko is currently enhancing its data system and associated processes.
Water discharge quality data- quality by standard effluent parameters	Not verified	Anadarko is currently enhancing its data system and associated processes.
Water consumption- total volume	Not verified	Anadarko is currently enhancing its data system and associated processes.

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**Further Information**

**Module: Response**

**Page: W6. Governance and Strategy**

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**W6.1**

**Who has the highest level of direct responsibility for water within your organization and how frequently are they briefed?**

Highest level of direct responsibility for water issues	Frequency of briefings on water issues	Comment
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Highest level of direct responsibility for water issues	Frequency of briefings on water issues	Comment
Senior Manager/Officer	Scheduled - monthly	The Vice President of HSE convened a Corporate Water Strategy team to evaluate and assess water strategies and risk for the company. The Vice President of each operating area has direct responsibility over water management.

## W6.2

**Is water management integrated into your business strategy?**

Yes

## W6.2a

**Please choose the option(s) below that best explains how water has positively influenced your business strategy**

Influence of water on business strategy	Please explain
Alignment of public policy positions with water stewardship goals	As part of its culture of continuous improvement, Anadarko has worked to decrease freshwater use in its operations by increasing the reuse and recycling of flowback and produced water. We actively work with policymakers to maximize the optionality around how produced and flowback water could be kept at the surface for use.
Establishment of a clear water strategy	Anadarko has developed and is implementing a multi-element water strategy for each key asset, as provided in the HSE & Sustainability annual compliance report for 2016..
Water resource considerations are factored into location planning for new operations	Anadarko now evaluates water availability, management and disposal options in evaluating exploratory plays, which has led to more long-term planning around water management.

Influence of water on business strategy	Please explain
Publicly demonstrated our commitment to water	Anadarko's website includes a commitment to water management, in addition to participating in multiple forums to present on our commitment to responsible water management practices.
Greater regulator engagement	Anadarko is the chair of the Energy Water Initiative (EWI) – a group of 22 companies that is working on technical water matters. The group is engaging with federal, state and local agencies on enhancing water technologies and data. In addition, we have increased our direct engagement with local, state and federal agencies and legislatures on water matters. This is resulting in a greater understanding of potential impacts of future regulations.
Accelerating vital research and development	The Energy Water Initiative was formed to increase knowledge about new technologies and enhance research and development of water treatment and management technologies. This includes encouraging federal agencies and funding organizations to increase financial support for enhanced treatment technologies. The internal Anadarko Technical Water Working Group engages to discuss technologies and request external experts to present on new research and technologies.

**W6.2b**

**Please choose the option(s) below that best explains how water has negatively influenced your business strategy**

Influence of water on business strategy	Please explain
Increased capital expenditure	In certain assets, Anadarko has seen an increase in capital expenditures while it develops the necessary infrastructure to better manage water. For example, in Texas we are increasingly investing in water capital projects to manage water.

**W6.2c**

**Please choose the option that best explains why your organization does not integrate water management into its business strategy and discuss any future plans to do so**

Primary reason	Please explain
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**W6.3**

**Does your organization have a water policy that sets out clear goals and guidelines for action?**

Yes

**W6.3a**

**Please select the content that best describes your water policy (tick all that apply)**

Content	Please explain why this content is included
Publicly available Company-wide Commitment to customer education Other: Incorporated within group environmental, sustainability or EHS policy	Anadarko has an internal multi-level water strategy and a public and company-wide water statement on the website ( <a href="http://www.anadarko.com/Responsibility/Sustainable-Development/HSE/Water-Management/">http://www.anadarko.com/Responsibility/Sustainable-Development/HSE/Water-Management/</a> ). The website states: "Anadarko recognizes that effective water management and water conservation are essential to developing all energy resources for our world. The availability of water, combined with varying municipal, industrial, agricultural and other demands, affects governments, businesses and individuals in many parts of the world. Anadarko respects water as a natural resource, and where feasible, recycles water used in our operations." The company offers education to customers (utilities) and suppliers that are interested in learning more about how we are continually working to minimize the impacts of our operations on communities and the environment, including water.

**W6.4**

**How does your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) during the most recent reporting year compare to the previous reporting year?**

Water CAPEX (+/- % change)	Water OPEX (+/- % change)	Motivation for these changes
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**Further Information**

**Page: W7. Compliance**

**W7.1**

**Was your organization subject to any penalties, fines and/or enforcement orders for breaches of abstraction licenses, discharge consents or other water and wastewater related regulations in the reporting year?**

Yes, not significant

**W7.1a**

**Please describe the penalties, fines and/or enforcement orders for breaches of abstraction licenses, discharge consents or other water and wastewater related regulations and your plans for resolving them**

Facility name	Incident	Incident description	Frequency of occurrence in reporting year	Financial impact	Currency	Incident resolution
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**W7.1b**

What proportion of your total facilities/operations are associated with the incidents listed in W7.1a?

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**W7.1c**

Please indicate the total financial impacts of all incidents reported in W7.1a as a proportion of total operating expenditure (OPEX) for the reporting year. Please also provide a comparison of this proportion compared to the previous reporting year

Impact as % of OPEX	Comparison to last year
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**Further Information**

There were no financial penalties for water-related incidents in 2016.

**Page: W8. Targets and Initiatives**

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**W8.1**

Do you have any company wide targets (quantitative) or goals (qualitative) related to water?

Yes, goals only

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**W8.1a**

Please complete the following table with information on company wide quantitative targets (ongoing or reached completion during the reporting period) and an indication of progress made

Category of target	Motivation	Description of target	Quantitative unit of measurement	Base-line year	Target year	Proportion of target achieved, % value
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**W8.1b**

**Please describe any company wide qualitative goals (ongoing or reached completion during the reporting period) and your progress in achieving these**

Goal	Motivation	Description of goal	Progress
Other: Internal strategic water planning	Water stewardship	Implement an internal company-wide water plan and strategy and meeting region-by-region strategic goals, sharing best practices and technologies, using a water risk assessment tool, enhancing internal and external communications, and developing a water data base. See Anadarko's annual HSES overview for the full water strategy.	
Other: Internal strategic water strategy implementation	Water stewardship	Implement strategies to increase water-related efficiency and conservation, by increasing its capability of tracking water use and management. Developing a data system to better measure: total water volume used; sources of water (surface, groundwater, municipal, etc.); and volume of water recycled, discharged, and injected.	
Other: Continually improve on technologies around water management	Water stewardship	We work to continually improve Anadarko's technological approaches to protect water quality. This is done by encouraging multi-disciplinary teams to work on challenges and problems. We also recognize teams that have made progress on health, safety and environmental goals (including water) through the Safety & Environmental Excellence Program (SEEP).	
Other: Internal strategic water plan	Recommended sector best practice	Protection of water sources in hydraulic fracturing operations. In order to protect local aquifers, Anadarko is committed to constructing its wells in a manner that meets or exceeds regulatory requirements and industry standards.	
Engagement with public policy makers to advance sustainable water policies and management	Recommended sector best practice	Be a leader of the Energy Water Initiative (EWI) effort and ensure that the group meets with key policy makers to advance sustainable water policy.	
Engagement with suppliers to	Recommended	Be transparent in the use of hydraulic fracturing materials	

Goal	Motivation	Description of goal	Progress
help them improve water stewardship	sector best practice		
Engagement with public policy makers to advance sustainable water policies and management	Recommended sector best practice	Support states in addressing concerns with water disposal from the oil and natural gas industry.	

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W8.1c

Please explain why you do not have any water-related targets or goals and discuss any plans to develop these in the future

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**Further Information**

**Module: Linkages/Tradeoff**

**Page: W9. Managing trade-offs between water and other environmental issues**

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W9.1

Has your organization identified any linkages or trade-offs between water and other environmental issues in its value chain?

Yes

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W9.1a

Please describe the linkages or trade-offs and the related management policy or action

Environmental issues	Linkage or trade-off	Policy or action
Water treatment, transportation, and storage required the use of energy.	Trade-off	We regularly assess energy use when evaluating water management options.
Water treatment for reuse can increase the generation of solid waste.	Trade-off	We evaluate the generation of waste as a part of any water management option, and generally water treatment strategies result in a net decrease in waste generation.

#### Further Information

**Module: Sign Off**

**Page: Sign Off**

#### W10.1

Please provide the following information for the person that has signed off (approved) your CDP water response

Name	Job title	Corresponding job category
Robert K. Reeves	EVP	Board/Executive board

#### W10.2

Please indicate that your organization agrees for CDP to transfer your publicly disclosed data regarding your response strategies to the CEO Water Mandate Water Action Hub.

**Note: Only your responses to W1.4a (response to impacts) and W3.2c&d (response to risks) will be shared and then reviewed as a potential collective action project for inclusion on the WAH website.**

**By selecting Yes, you agree that CDP may also share the email address of your registered CDP user with the CEO Water Mandate. This will allow the Hub administrator to alert your company if its response data includes a project of potential interest to other parties using water resources in the geographies in which you operate. The Hub will publish the project with the associated contact details. Your company will be provided with a secure log-in allowing it to amend the project profile and contact details.**

Yes

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#### **Further Information**

[CDP 2017 Water 2017 Information Request](#)