



Water 2014 Information Request Anadarko Petroleum Corporation

Module: Introduction

Page: W0. Introduction

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 2013, the company had over 2.5 billion barrels-equivalent of proved reserves, making it one of the world's largest independent exploration and production companies. For more information about Anadarko, please visit <http://www.anadarko.com>.

Water Management: Anadarko recognizes that proper water management and conservation are essential in developing energy resources. The company works diligently to protect and conserve this resource through improved technologies and collaborative industry efforts, including water-recycling programs and closed-loop systems that conserve water, reduce waste and consolidate equipment. Automation and underground pipelines also reduce truck traffic and surface use. Anadarko is also working towards developing a more accurate water management inventory for oil and natural gas production, including more accurate measurements of the addition of water to the water-cycle.

W0.2 Reporting Year

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

Period for which data is reported

Tue 01 Jan 2013 - Tue 31 Dec 2013

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

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

W0.4a List of Exclusions

Please report the exclusions in the following table

Exclusion	Please explain why you have made the exclusion
Produced water from oil and gas production	This water is a by-product of oil and gas production and is considered a waste stream. It is typically high in salinity and not for immediate reuse. Most produced water is simply separated from the oil and gas and re-injected into a deep reservoir.
Offshore and international operations	At this time, Anadarko does not track water data related to offshore and international 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

Water quality and quantity	Importance rating	Please explain
Direct use: sufficient amounts of good quality freshwater available for use across your own operations		
Direct use: sufficient amounts of recycled, brackish and/or produced water available for use across your own operations	Vital for operations	At this time, drilling and completions (hydraulic fracturing) operations depend on the use of water, although potential alternatives are being analyzed. Water quality is critical to the drilling process (well bore construction), produced water management, and water disposal. Local aquifers must be protected and Anadarko places redundant controls in place to establish wellbore integrity.
Indirect use: sufficient amounts of good quality freshwater available for use across your value chain		
Indirect use: sufficient amounts of recycled, brackish and/or produced water available for use across your value chain		

W1.2

Have you evaluated how water quality and water quantity affects /could affect the success (viability, constraints) of your organization's growth strategy?

Yes, evaluated over the next 5 years

W1.2a

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

Anadarko manages water-related issues at multiple levels. We undertake macro-level analyses of water management to inform decisions about water-related issues and enhance water management, conservation and recycling. Water-related issues are also assessed and managed at the watershed and per-project level, at which environmental impact is a particular concern. Anadarko's Operational, Legal, Regulatory, and HSE (Health, Safety and Environment) teams monitor current and future issues related to water, including tracking total water volume used in operations; sources of water (surface, groundwater, municipal, etc.); volume of water recycled; volume of water discharged; and volume of water injected. Anadarko undertakes rigorous analysis of our water management practices, performance and opportunities for improvements in water-use efficiency.

Anadarko was among the first to implement water recycling programs in the Rockies, Southern and Appalachia regions, and we constantly evaluate opportunities to recycle water in other assets. We comply with local, state, regional and federal requirements regarding water quality, wastewater treatment and the protection of watersheds. As part of our goal to be a leader in environmental stewardship, internationally, we often implement standards more stringent than those of the host nation and require that contractors meet those standards as well. Hydraulic fracturing regulations to protect water sources are closely tracked by the company's Enterprise Risk Management (ERM) function.

On an individual operational asset basis, Anadarko evaluates the overall need and availability of water for operations, based upon drilling and completion plans and schedules. Water contracts are negotiated on a relatively long-term basis and water quality issues are continually evaluated as wells are drilled. Engineering assesses local groundwater aquifers and designs every well bore to protect the ground water. Strategies for sustainable water management at the surface also necessitate long-term planning. Our assets plan and construct water management infrastructure, including the drilling and management of wastewater disposal wells. Permits must be obtained and groundwater disposal zones must be understood for each area in which we operate. The company uses water impoundments and pipeline systems to support drilling and completions.

W1.3

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

Yes

W1.3a

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

Country	River basin	Impact indicator	Impact	Description of impact	Overall financial impact	Response strategy	Description of response strategy
		Physical-Flooding	Closure of operations	In September 2013, the company shut in approximately 675 operated vertical wells in the Greater Wattenberg area in preparation for and during flooding in Colorado. Due to damaged roads, bridges, railways, and other issues impacting the ability to move heavy equipment such as rigs and compression	These disruptions have been resolved and Anadarko does not expect production	Engagement with public policy makers	-Shutting in 675 wells prior to the flood -Operated an incident center to manage stakeholder inquiries - Worked with the State of Colorado on spill response -Vaccinated employees -Held a safety stand down to discuss flood safety - Engineered a new tank anchoring system -Experienced no recordable

			units, Anadarko experienced disruptions to drilling, completion, and construction activities in the area.	volumes to be significantly affected in 2014.	events during the flood -Conducted down and upstream water quality sampling from our operations to ensure no impacts from Anadarko operations.
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Further Information

Module: Risk Assessment

Page: W2. Procedures and Requirements

W2.1

Please select the option that best describes your procedures with regard to assessing water risks and provide an explanation as to why this option is suitable for your organization

Water risk assessments undertaken independently of other risk assessments across some direct operations

W2.1a

You may provide additional information about your approach to assessing water risks here

Analysis of water-related risk is undertaken at multiple levels. A macro-level analysis of water-related risk informs decisions about water-related activities in Anadarko's Enterprise Risk Management Process (ERMP). The methodology used for this analysis begins with an information-gathering process to establish company-wide baseline activities. Risk analysis and management is also sub-divided by region. The regional analysis includes accounting for issues such as water stress, water availability, regional and local regulations, and stakeholder concerns. Water-related risk is also analyzed at the watershed level at which environmental impact is a particular concern. Site surveys and/or sampling are used to collect baseline data, and water-related risk is analyzed on a per-project basis. One methodology used for this level of analysis is the EIA and EIS. Anadarko's Operational, Legal, Regulatory, and HSE departments monitor current and future issues related to water risk and management.

W2.2

Please state how frequently you undertake water risk assessments, what geographical scale and how far into the future you consider

Frequency	Geographic scale	Timeframe
At least annually for key assets.	Business unit	Some assets evaluate water risk on an annual or more frequent basis, depending on the operational phase of the asset. Typically, the assessment is conducted for a fiscal year as part of the budgeting process.

W2.3

Please state the methods used to assess water risks

Method
Other: Internal process is used to identify and evaluate risk

W2.4

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 for some facilities/suppliers	Water is a precious resource and water-related risk is a factor in all operations. We analyze risks related to water availability, potential impact on watersheds and water sources, legal and regulatory issues, and stakeholder concerns for all plays. The level and type of risk varies by region and activity.
Current water regulatory frameworks and tariffs at a local level	Relevant, included for some facilities/suppliers	Water is a precious resource and water-related risk is a factor in all operations. We analyze risks related to water availability, potential impact on watersheds and water sources, legal and regulatory issues, and stakeholder concerns for all plays. The level and type of risk varies by region and activity.
Current stakeholder conflicts concerning water resources at a local level		
Current implications of water on your key commodities/raw materials		
Current status of ecosystems and habitats at a local level		
Estimates of future changes in water availability at a local level		
Estimates of future potential regulatory changes at a local level		
Estimates of future potential		

stakeholder conflicts at a local level		
Estimates of future implications of water on your key commodities/raw materials		
Estimates of future potential changes in the status of ecosystems and habitats at a local level		
Scenario analysis of availability of sufficient quantity and quality of water relevant for your operations at a local level		
Scenario analysis of regulatory and/or tariff changes at a local level		
Scenario analysis of stakeholder conflicts concerning water resources at a local level		
Scenario analysis of implications of water on your key commodities/raw materials		
Scenario analysis of potential changes in the status of ecosystems and habitats at a local level		
Other		

W2.4a
Which of the following stakeholders are always factored into your organization's water risk assessments?

Stakeholder	Choose option	Please explain
Customers		
Employees		
Investors		
Local communities	Relevant, included for some facilities/suppliers	Anadarko considers the quantity of water that water suppliers and utilities can provide its operations in evaluating risk. Thus, water suppliers are considered in any risk assessment regarding water availability. Regulators at a state and local level are considered when Anadarko evaluates risk in certain basins.
NGOs		
Other water users at a local level		
Regulators at a local level	Relevant, included for some facilities/suppliers	Anadarko considers the quantity of water that water suppliers and utilities can provide its operations in evaluating risk. Thus, water suppliers are considered in any risk assessment regarding water availability. Regulators at a state and local level are considered when Anadarko evaluates risk in certain basins.
Statutory special interest groups at a local level		
Suppliers		
Water utilities/suppliers at a local level	Relevant, included for some facilities/suppliers	Anadarko considers the quantity of water that water suppliers and utilities can provide its operations in evaluating risk. Thus, water suppliers are considered in any risk assessment regarding water availability. Regulators at a state and local level are considered when Anadarko evaluates risk in certain basins.
Other		

W2.5
Do you require your key suppliers to report on their water use, risks and management?

No

W2.5b
Please choose the option that best explains why you do not require your key suppliers to report on their water use, risks and management

Primary reason	Please explain
Other:	Anadarko's key suppliers are drilling and completion companies that operate under contract on behalf of Anadarko. Anadarko is responsible for providing water for operations, thus the suppliers are not responsible to provide water. Anadarko currently does not have information regarding water use throughout its supply chain, however, the company is reviewing this matter. The company is working on strategies to assess and manage supply chain issues as part of its overall water management strategy.

Further Information

Anadarko is committed to constructing wells in a manner that often exceeds regulatory requirements and industry standards. In drilling wells, multiple protective layers of steel pipe (casing) are used and cement can be set several hundred feet below the deepest known aquifer and cemented to surface. These redundant protective boundaries are used to establish wellbore integrity and protect local groundwater aquifers.

Module: Implications**Page: W3. Water Risks****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

W3.2

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

Anadarko needs water for drilling and completions operations. Without an adequate supply of water, Anadarko will need alternatives, resulting in a substantive change in operations.

W3.2a

Please complete the table below providing information as to the number of facilities in your direct operations exposed to water risks that could generate a substantive change in your business, operations, revenue or expenditure. Please also provide either the proportion of cost of goods sold, global revenue or global production capacity that could be affected across your entire organization at the river basin level

Country	River basin	Number of facilities within the river basin exposed to water risk	Reporting metric	Proportion of chosen metric that could be affected within the river basin
United States of America	Other: Missouri River Basin	18	% global production capacity	91-100
United States of America	Other: Middle Atlantic River Basin	13	% global production capacity	91-100
United States of America	Other: West Gulf River Basin	32	% global production capacity	91-100
United States of America	Other: Colorado River Basin	31	% global production capacity	91-100
United States of America	Other: Arkansas Red River Basin	6	% global production capacity	91-100

W3.2b

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 impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
United States of America	Other: Multiple	Physical-Flooding	Closure of operations	Damage to transportation infrastructure and facilities. Interruption of production.	Current-up to 1 year	Probable	Low-medium	Infrastructure investment	Medium-high	Ensure systems are capable of being proactively and quickly shut down.
United States of America	Other: Multiple	Physical-Drought	Higher operating costs	Temporary water stress translating to decreased supply, and likely impacts to	1-3 years	Probable	Low-medium	Alignment of public policy positions with water stewardship goals	Medium	Continued evaluation and investment in water management strategies, technologies and systems that allow the company to

				transportation infrastructure.						decrease the use of fresh water in completions.
United States of America	Other: Multiple	Physical-Seasonal supply variability/Inter annual variability	Higher operating costs	Seasonal water stress translating to decreased supply, and likely impacts to transportation infrastructure.	1-3 years	Probable	Low-medium	Alignment of public policy positions with water stewardship goals	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.
United States of America	Other: Multiple	Physical-Increased water scarcity	Higher operating costs	Possible limitations on groundwater withdrawal could lead to project delays	1-3 years	Probable	Medium	Alignment of public policy positions with water stewardship goals	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
United States of America	Other: Watersheds worldwide	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. More stringent regulatory standards could cause project delays and increase costs.	Current-up to 1 year	Probable	Low-medium	Engagement with public policy makers	Medium-high	Effective policy analysis and involvement in legislation/regulatory rule/law-making Dedicated pre-compliance preparation for requirements as well as robust compliance assurance
United States of America	Other: Watersheds worldwide	Regulatory-Statutory water withdrawal limits/changes to water allocation	Higher operating costs	Regulatory risk could lead to project delays due to limited water sources and permitting requirements	1-3 years	Probable	Medium	Engagement with public policy makers	Medium	Effective policy analysis and involvement in legislation/regulatory rule/law-making. Dedicated pre-compliance preparation for requirements as well as robust compliance assurance
United				Community opposition of the use of water in				Engagement		Effective policy analysis and involvement in legislation/regulatory rule/law-making.

States of America	Other: Multiple	Reputational-Community opposition	Constraint to future growth	completions could lead to restriction or loss of Anadarko's ability to operate.	1-3 years	Probable	Low-medium	with public policy makers	Medium	Dedicated pre-compliance preparation for requirements as well as robust compliance assurance
United States of America	Other: Watersheds worldwide	Other: Reputational damage	Constraint to future growth	Reputation risk could lead to increased regulatory oversight, fewer exploration opportunities and/or project delays	Current-up to 1 year	Probable	Medium	Alignment of public policy positions with water stewardship goals	Medium	Efficient and focused external stakeholder engagement with local communities, state and federal agencies, NGOs, and resident groups that begins with project conception continues through the life and decommissioning of the producing well.
	Other: Watersheds in developing countries	Other: Litigation	Decrease in shareholder value	Litigation and associated legal fees or fines related to water contamination is potentially costly to company	Current-up to 1 year	Unlikely	Unknown	Comply with local legal requirements or company own internal standards, whichever is more stringent	Medium-high	Continuous focus on safety and environmental impact minimizes this risk

W3.2c

Please list the inherent 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 impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
United States of America	Other: Multiple	Physical-Drought	Higher operating costs	Possible restrictions of surface and ground water use if regulators prioritize water use in a basin due to drought	1-3 years	Probable	Low-medium	Alignment of public policy positions with water stewardship goals	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.
United States of America	Other: Multiple	Physical-Projected water scarcity	Higher operating costs	Possible restrictions on groundwater and surface water withdrawal could lead to project delays	1-3 years	Probable	Low-medium	Alignment of public policy positions with water stewardship goals	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.
United States of America	Other: Multiple	Regulatory-Regulatory uncertainty	Higher operating costs	More stringent regulatory standards could cause project delays and increase	Current-up to 1 year	Probable	Low-medium	Engagement with public policy makers	Medium	Effective policy analysis and involvement in legislation/regulatory rule/law-making. Dedicated pre-compliance preparation for

costs.

requirements as well as robust compliance assurance

Further Information**Page: W4. Water Opportunities****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	Please explain
Company-wide	Cost savings	Innovative recycling and treatment could reduce costs of disposal	>6 years	Anadarko is currently assessing technologies and opportunities for water recycling and treatment
United States of America	Cost savings	Innovative recycling and treatment could reduce the amount of water purchased for operations	>6 years	Anadarko is currently assessing technologies and opportunities for water recycling and treatment
United States of America	Improved water efficiency	The increase of water reuse and recycling is resulting in improved water efficiency	Current-up to 1 year	Anadarko is currently installing and operating equipment and systems to increase water recycling and anticipates that it will continue to do so into the future
United States of America	Other: Improved water measurement	Improving the ability of the natural gas industry to account for total life cycle water use and generation	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 over 11 million gallons, or nearly 42 megaliters of water as vapour, a volume which is not typically accounted for in the measurement of life cycle water management for the oil and gas industry. Anadarko will work with industry to develop a valid approach to evaluating this aspect of the use of natural gas.

Further Information**Module: Accounting****Page: W5. Water Accounting (I)****W5.1****Please report the total withdrawal, discharge, consumption and recycled water volumes across your operations for the reporting period**

Water use	Quantity (megaliters)
Total volume of water withdrawn	19140
Total volume of water discharged	3965
Total volume of water consumed	15175
Total volume of recycled water used	951

W5.2**For those facilities exposed to water risks that could generate a substantive change in your business, operations, revenue or expenditure, the number of which was reported in W3.2a, please detail which of the following water aspects are regularly measured and monitored and an explanation as to why or why not**

Water aspect	% of facilities	Please explain
Water withdrawals- total volumes	26-50	The total volume of water withdrawals are not consistently required to be reported by regulators.
Water withdrawals- volume by sources	26-50	The total volume of water withdrawals are not consistently required to be reported by regulators.

Water discharges- total volumes	76-100	The total volume of water discharges are reported, since discharges to surface water are required to be tracked by discharge permits. The only assets that direct discharge are in Wyoming.
Water discharges- volume by destination	76-100	The total volume of water discharges by destination (discharge point) are reported, since discharges to surface water is required to be tracked by discharge permits. The only assets that direct discharge are in Wyoming.
Water discharges- volume by treatment method	76-100	The total volume of water discharged by treatment method is reported, since discharges to surface water are required to be tracked by discharge permits. The only assets that direct discharge are in Wyoming.
Water discharge quality data-quality by standard effluent parameters	76-100	The total volume of water discharges are reported, since discharges to surface water are required to be tracked by discharge permits. The only assets that direct discharge are in Wyoming.
Water consumption- total volume	1-25	Not all operations regularly track water consumption, but can provide aggregated numbers.
Water recycling/reuse-total volume	1-25	Not all operations that reuse and recycle water regularly track volumes, but can provide aggregated numbers.

W5.3

Water withdrawals: for the reporting period, 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 period?	Please explain the change if substantial
Facility 1	United States of America	Other: Missouri River Basin	Wattenberg (South Platte River)	4647	Much higher	Increased level of production activity.
Facility 2	United States of America	Other: Missouri River Basin	Wyoming CBM	533	Much higher	Increased level of production activity.
Facility 3	United States of America	Other: Middle Atlantic River Basin	Marcellus (Susqueanna)	1109	Lower	Reduced production activity due to low gas price margins.
Facility 4	United States of America	Other: Rio Grande/ Pecos	Permian/ Eagle Ford	10977	Much higher	Increased level of production activity.
Facility 5	United States of America	Other: Red/ Trinity/ San Jacinto	Austin Chalk/ Woodbine	435	Much higher	Increased level of production activity.
Facility 6	United States of America	Other: Colorado River Basin	Uintah Powder River/ Green River	1436	About the same	
Facility 7	United States of America	Other: Arkansas Red River Basin	Hugoton - Mississippian Mid-Continent Conventional (OK)	3	About the same	
Facility 8	United States of America	Other: Lower Mississippi and Ohio	Haynesville, CBM Alabama, Fayetteville, CBM Mississippi, CBM Tennessee, CBM West Virginia	1	About the same	

Further Information

Page: W5. Water Accounting (II)

W5.3a

Water withdrawals: for the reporting period, please provide withdrawal data, in megaliters per year, for the water sources used for all facilities reported in W5.3

Facility reference number	Surface water	Groundwater (renewable)	Groundwater (non-renewable)	Municipal water	Recycled water	Produced/process water	Wastewater	Brackish/salt water

Facility 1									
Facility 2									
Facility 3									
Facility 4									
Facility 5									
Facility 6									
Facility 7									
Facility 8									

W5.4

Water discharge: for the reporting period, please provide the water accounting data for all facilities reported in W5.3

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 period?	Please explain the change if substantive
Facility 1	916	Higher	Increased level of production activity.
Facility 2		Higher	Value is included in the 916 reported for Facility 1, increased level of production activity.
Facility 3	0	About the same	No discharge
Facility 4	3141	Much higher	Increased level of production activity.
Facility 5		Much higher	Value is included in the 3141 reported for Facility 4, increased level of production activity.
Facility 6	410	About the same	
Facility 7	1	About the same	
Facility 8	1	About the same	

W5.4a

Water discharge: for the reporting period, please provide water discharge data, in megaliters per year, by destination for all facilities reported in W5.3

Facility reference number	Surface water	Municipal Treatment Plant	Saltwater	Injection for production/disposal	Aquifer recharge	Storage/waste lagoon
Facility 1			916			
Facility 2						
Facility 3	0					
Facility 4	25		3116			
Facility 5						
Facility 6	203		5	202		
Facility 7			1			
Facility 8			1			

W5.5

Water consumption: for the reporting period, please provide water consumption data for all facilities reported in W5.3

Facility reference number	Consumption (megaliters/year)	How does this compare to the last reporting period?	Please explain the change if substantive
Facility 1	4264	Higher	Increased level of production activity.
Facility 2			
Facility 3	1109	About the same	Reduced activity due to low gas price margins.
Facility 4	8271	Much higher	Increased level of production activity.
Facility 5			
Facility 6	1026	Higher	Increased level of production activity.
Facility 7	2	About the same	
Facility 8	1	About the same	

W5.6

For the reporting period, please provide any available water intensity values for your organization's products or services across its operation

Country	River basin	Product name	Product unit	Water unit	Water intensity (Water unit/Product unit)	Water use type	Comment
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W5.7

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

Water aspect	% verification	What standard was used?
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Water withdrawals- total volumes	Not verified	
Water withdrawals- volume by sources	Not verified	
Water discharges- total volumes	Not verified	
Water discharges- volume by destination	Not verified	
Water discharges- volume by treatment method	Not verified	
Water discharge quality data- quality by standard effluent parameters	Not verified	
Water consumption- total volume	Not verified	
Water recycling/reuse-total volume	Not verified	

Further Information

Module: Response

Page: W6. Governance and Strategy

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
Senior Manager/Officer		The Vice President of HSE has convened a corporate water strategy team to evaluate and assess water strategies and risk for the company.

W6.2

Is water management integrated into your business strategy?

Yes

W6.2a

Please choose the option(s) below that best explain 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 to continuous improvement, Anadarko has worked to decrease fresh water use in its operations by increasing the reuse and recycling of flowback and produced water.

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
Closure of operations	In certain assets, Anadarko has seen an increase in capital expenditures while it develops the necessary infrastructure to better manage water. For example, in West Texas in 2013, Anadarko developed brackish water wells and storage reservoirs to supplement existing infrastructure and improve logistic of water delivery.
Increased capital expenditure	In Colorado, flooding in 2013 resulted in Anadarko shutting-in affected operations to avoid impacts to water quality.

W6.3

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

Yes, a company-wide water policy

W6.4

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

Water-related spending: % of total CAPEX during this reporting period compared to last reporting period	Water-related spending: % of total OPEX during this reporting period compared to last reporting period	Motivation for these changes

Further Information

Page: W7. Compliance**W7.1**

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

Yes, not significant

W7.1a

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

Facility name	Incident description	Financial penalty or fine	Currency	Incident resolution
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W7.1b

Please indicate the total of all penalties and/or fines for breaches of abstraction licenses, discharge consents or other water and wastewater related regulations as a percentage of total operating expenditure (OPEX) compared to last year

About the same

Further Information**Page: W8. Targets and Initiatives****W8.1**

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

Yes, goals only

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 plan	Water stewardship	Assessing Anadarko's water management strategies region-by-region, in order to report on and share strategies and lessons learned.	Anadarko recognizes that proper water management and water conservation are essential in developing energy resources for our world. The availability of water combined with varying municipal, industrial, agricultural and other demands affect governments, businesses and individuals worldwide. Anadarko has initiated a Strategic Water Committee to develop goals, visions and strategies for strategic water management within the company. This group meets several times in a calendar year.
Other: Internal strategic water plan	Water stewardship	Implement strategies to increase water-related efficiency and conservation.	Anadarko has increased its water use and management tracking, including total water volume used, sources of water, volume recycled, volume discharged, and volume injected. Using this data, we expect to assess newly initiated water recycling and conservation programs to expand these programs company-wide. This data will also inform current analysis of water-related risk throughout our operations.
Other: Internal strategic water plan	Water stewardship	Continually improve Anadarko's technological approaches to protect water quality	GOM: isolated tubing leaks allowing the flow back of fluids without overboard water issues; improved gas lift process to minimize slugging and water quality issues; increased line size to the float cell to maintain pressure for better water handling capabilities CO: enhanced bradenhead monitoring program to increase groundwater protection UT: developed leak detection system, 17 miles of pipeline, monitored 24/7 TX: initiated groundwater protection effort
Engagement with suppliers to help them improve water stewardship	Shared value	Motivate suppliers to address water risk	As part of Anadarko's commitment to be a leader in environmental stewardship, when operating internationally, the company undertakes a comprehensive bridging process to assess differences among company, contractor and national standards, including those related to water. To the extent practicable, we implement more stringent standards than those of the host nation's requirements, and require that its contractors also meet those standards.
Other: Internal strategic water plan	Recommended sector best practice	Protection of water sources in hydraulic fracturing operations	Anadarko constructs wells in a manner that often exceeds regulatory requirements and industry standards. Multiple protective layers of casing and cement are set several hundred feet below the deepest known aquifer. The cement must meet certain quality requirements and extend the full length of the casing to establish wellbore integrity. Cement quality and placement is checked and pressure gauges are installed to monitor mechanical integrity once production begins.
Engagement with public policy makers to advance sustainable	Recommended sector best	Support local communities with	Anadarko supported local communities with water-related issues in 2013, including contributing to Weld and Greeley counties Community Foundation for flood relief, the American Red Cross Flood Victims Relief Fund, United Way Foothills Flood Relief, Weld County Food Bank, and Children's Hospital Toy Drive. We provided water and food, more

water policies and management	practice	water issues	than 40 hotel rooms to dislocated families, support to ranchers with livestock, street and debris clean-up crews, and volunteers.
Engagement with public policy makers to advance sustainable water policies and management	Recommended sector best practice	Be transparent in the use of hydraulic fracturing materials	We support public sharing of information regarding additives used in hydraulic fracturing and were instrumental in developing FracFocus to publicly share ingredients used on an individual-well basis. FracFocus is a cooperative effort among producers, the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission. Anadarko took a leading role in designing and coordinating this website and is the most active participant, with data uploaded for over 5,000 operated wells.
Other: Reclaiming water	Water stewardship	Increase capture of water for proper management, including reuse	TX: capture rainwater and wastewater for disposal downhole WY: discharge directly into the Powder River without extra treatment CO: Water on Demand and pipeline-to-rail car loadout systems eliminated 215,000 truck trips PA: water withdrawal and reuse project to reduce fresh water use and water trucking, eliminating about 22,000 truckloads TX: integrated water management plan includes water impoundments and pipeline system, eliminated 438,000 truckloads
Other: Internal strategic water plan	Recommended sector best practice	Improve internal water measurement and reporting	Anadarko measures the following: water consumption in all hydraulic fracturing operations; water discharged volumes to surface; all water injected; quality of water discharged; produced; and volumes of water recycled.
Increase access to Safe Water, Sanitation, and Hygiene (WASH)	Water stewardship	Increase access to fresh drinking water	Anadarko has installed drinking wells in several areas in the Cabo Delgado province of Mozambique, and has plans to install additional wells in 2014.
Other: Internal strategic water plan	Water stewardship	Create Environmental and Social Management Plan (ESMP)	In Mozambique, Anadarko developed an ESMP that includes a range of topical areas that impact water quantity and quality, including: labor, camp management, community health, waste management, pollution prevention, and stakeholder engagement.
Watershed remediation and habitat restoration, ecosystem preservation	Shared value	Protect wildlife habitat	In order to meet the goal of protecting wildlife habitat, Anadarko: -Donated funds to Ducks Unlimited in Wyoming. -Volunteered to clean up a local recreational area waterway (adopt a pond) in Kansas. -In Pennsylvania, the company conducted a creek mitigation project as an offset for pipeline impacts and reducing agricultural impacts, which resulted in improved trout habitat and reduced sediment load in the waterway.
Other: Spill prevention and reduction	Water stewardship	Enhance spill prevention and reduction practices and approaches	-Implementing Eyes On spill awareness campaign ensuring human oversight at all fluid transfer locations -WY: decommissioning 260,000 ft of aging production lines, shut in 132 wells, and enhancing 188 previously shut-in wells; removed 46 underground water tanks; installed new PD pumps -NM: increasing frequency of SPCC inspections -TX: created Task Force to enhance root cause analysis, identify spill prevention actions, improve recovery, and evaluate success; reached out to oil and water haulers
Watershed remediation and habitat restoration, ecosystem preservation	Water stewardship	Improve water treatment for discharge or reuse	Anadarko continues to invest in technologies and practices that improve water quality to allow for more efficient use, including: -In New Mexico, installing a reverse osmosis (RO) unit to reduce chlorine levels to allow land application to improve habitat.

Further Information

www.FracFocus.org

Module: Sign Off

Page: Sign Off

W9.1

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

Name	Job title	Corresponding job category
David McBride	VP, Health, Safety & Environment	Environment/Sustainability manager

Further Information

CDP