

Postgraduate Certificate in ESG Reporting for the Oil and Gas Industry

Water Management and Reporting

Water management and reporting are crucial aspects of environmental, social, and governance (ESG) reporting in the oil and gas industry. Proper water management can help companies reduce costs, minimize environmental impacts, and ensure compliance with regulations. Here are some key terms and vocabulary related to water management and reporting in the oil and gas industry:

1. **Water Management:** The process of planning, developing, distributing, and monitoring the use of water resources to ensure sustainability, equity, and efficiency. In the oil and gas industry, water management involves the handling of produced water, which is water that comes to the surface during oil and gas production.
2. **Produced Water:** Water that is brought to the surface during oil and gas production. Produced water can contain a variety of contaminants, including dissolved solids, hydrocarbons, and naturally occurring radioactive material (NORM).
3. **Water Treatment:** The process of removing contaminants from produced water to make it reusable or safe for disposal. Water treatment methods in the oil and gas industry include filtration, chemical treatment, and thermal treatment.
4. **Water Reuse:** The practice of treating produced water and reusing it in oil and gas operations. Water reuse can help companies reduce freshwater usage and disposal costs.
5. **Water Disposal:** The process of injecting produced water into underground wells for permanent storage. Water disposal is a common practice in the oil and gas industry, but it can be expensive and can lead to environmental concerns.
6. **Regulatory Compliance:** Adherence to laws, regulations, and industry standards related to water management and reporting. Regulatory compliance is essential for oil and gas companies to avoid fines, penalties, and reputational damage.
7. **Water Footprint:** The amount of freshwater used in oil and gas operations, including production, processing, and transportation. Water footprint is an important metric for ESG reporting and can help companies identify opportunities to reduce water usage and improve efficiency.
8. **Water Balance:** The difference between the amount of water used in oil and gas operations and the amount of water produced. A positive water balance indicates that more water is being produced than used, while a negative water balance indicates the opposite.
9. **Fracking:** The process of injecting high-pressure fluids into underground rock formations to extract oil and gas. Fracking can generate large volumes of produced water, which must be managed and reported.
10. **Produced Water Management Plan (PWMP):** A plan that outlines how a company will manage and report produced water in its operations. A PWMP should include information on water sources, treatment methods, reuse and disposal practices, and regulatory compliance.
11. **Water-Energy Nexus:** The interdependence between water and energy resources. In the oil and gas industry, the water-energy nexus is an important consideration, as energy is required to treat and dispose of produced water, while water is required for energy production.

12. **Circular Economy:** An economic system that is restorative and regenerative by design. In the context of water management in the oil and gas industry, a circular economy approach would involve minimizing water usage, maximizing water reuse and recycling, and reducing water disposal.
13. **Stakeholder Engagement:** The process of engaging with stakeholders, including communities, regulators, and investors, on water management and reporting issues. Stakeholder engagement can help companies build trust, improve transparency, and identify opportunities for collaboration.
14. **Life Cycle Assessment (LCA):** A methodology for evaluating the environmental impacts of a product or process throughout its entire life cycle, from raw material extraction to end-of-life disposal. LCA can be used to evaluate the water footprint of oil and gas operations and identify opportunities for improvement.
15. **Materiality:** The concept of identifying and reporting on ESG issues that are most significant to a company's stakeholders and operations. Water management and reporting are often considered material issues for the oil and gas industry due to the large volumes of water used and the potential environmental impacts.

Challenges in Water Management and Reporting in the Oil and Gas Industry

While water management and reporting are important aspects of ESG reporting in the oil and gas industry, there are several challenges that companies must address. These include:

1. **Regulatory Complexity:** Water management and reporting regulations can be complex and vary by jurisdiction. Companies must stay up-to-date on regulatory requirements and ensure compliance.
2. **Data Management:** Collecting, analyzing, and reporting water data can be challenging, particularly for companies with operations in multiple jurisdictions. A robust data management system is essential for accurate and reliable water reporting.
3. **Water Scarcity:** Water scarcity is a growing concern in many regions, and oil and gas companies must balance their water needs with those of other users. Companies must consider water availability and potential impacts on local communities and ecosystems.
4. **Public Perception:** Water management and reporting issues can be controversial, and companies must be prepared to address public concerns and misperceptions. Transparent and proactive communication can help build trust and credibility.
5. **Technological Innovation:** Technological innovation is changing the way that companies manage and report water. Companies must stay up-to-date on new technologies and best practices to remain competitive and sustainable.

Examples and Practical Applications

Here are some examples and practical applications of water management and reporting in the oil and gas industry:

1. **Water Reuse:** Shell has implemented water reuse projects in several of its operations, including in the Permian Basin in Texas. By treating and reusing produced water, Shell has reduced freshwater usage and disposal costs.
2. **Produced Water Management Plan:** Chevron has developed a produced water management plan for its operations in the San Joaquin Valley in California. The plan includes information on water sources, treatment

methods, and disposal practices, and is designed to ensure regulatory compliance and minimize environmental impacts.

3. Data Management: BP has implemented a water data management system to collect and analyze water data from its operations around the world. The system provides real-time data on water usage, treatment, and disposal, and helps BP identify opportunities for improvement.

4. Water Footprint: ExxonMobil has published a water footprint report for its operations in the United States. The report provides detailed information on water usage, sources, and impacts, and highlights the company's efforts to reduce water usage and improve efficiency.

5. Stakeholder Engagement: ConocoPhillips has established a stakeholder engagement program to engage with communities, regulators, and investors on water management and reporting issues. The program includes regular meetings, public reports, and opportunities for feedback and input.

Conclusion

Water management and reporting are critical aspects of ESG reporting in the oil and gas industry. Companies must develop and implement robust water management plans, collect and analyze water data, and engage with stakeholders to ensure transparency and accountability. While there are challenges to water management and reporting, there are also opportunities for innovation and improvement. By addressing these challenges and opportunities, oil and gas companies can reduce costs, minimize environmental impacts, and build trust with stakeholders.