2017 Public Comment of SASB Provisional Standards

Industry Standard: Oil & Gas Exploration & Production
Disclosure Topic: Water Management
Accounting metric code: EM0101-06
Line of disclosure: 31

In order to better account for water management related to exploration and production, drilled cuttings contain a significant amount of hydrocarbons and should be specifically included when addressing the discharging of hydrocarbons through water runoff.

Proposed addition to line 31 in bold.

31. The registrant shall disclose the amount (in metric tons) of hydrocarbons in produced water, flowback, or other water discharged to the environment.
    - Other water discharges may include process water and storm water.
    - **Volume of storm water and the hydrocarbon content of storm water runoff that has come into contact with drilled cuttings. E.g., stock piles, road applications, land farming, land spreading, etc.**
    - Measurements of hydrocarbon content should be made using test methods required or approved by local regulatory authorities (or equivalent applicable standards).

E&P solid wastes, such as drilled cuttings, can have an impact on water quality. Many E&P companies dispose of their solid wastes on land, either through landfarming, landspreading, or burial. Although legal in many states, these disposal methods can lead to impacts of water quality through seeping, leaching, or overland flow of salts, heavy metals, and hydrocarbons. There are also many unknown and undisclosed additives in drilling muds and drilled cuttings that can find its way to ground or surface water.

Submitted for consideration by Victoria Caylor, FSA Credential Holder, on behalf of Scott Energy Technologies LLC

2017 Public Comment of SASB Provisional Standards

Industry Standard: Oil & Gas Exploration & Production
Disclosure Topic: Biodiversity Impacts
Accounting metric code: EM0101-09

Drilled cuttings are an often overlooked but are an enormous source of biodiversity impacts. In order to adequately capture how companies are handling their drilling waste, we would like to propose a quantitative metric that is easy to gather.

Proposed Metrics to Add at the Topic Level

Metric 1) Volume of drilled cuttings generated and volume of drilled cuttings disposed.
Metric 2) Methods of disposal and volume per method.
Metric 3) Total concentrations of salts, RCRA metals, and hydrocarbons in the drilled cuttings that are disposed of.
Metric 4) Area of land consumed from drilled cuttings disposal if road spreading, land spreading, or land farming.
Metric 5) Proximity of disposal sites to areas with high biodiversity value as defined in line # 47 in EM0101-09.

Waste management can take up a considerable amount of acreage, especially for landfarming or landspreading. Landspreading of drilling mud or drilled cuttings can impact up to 100 acres per well in some cases. There are potential ecological impacts associated with landfarming and landspreading because drilling waste often contains salts, heavy metals and diesel fuel. Drilled cuttings from one horizontal well can contain approximately 20,000 gallons of diesel fuel, which is potentially spread on or near ecological receptors.

Submitted for consideration by Victoria Caylor, FSA Credential Holder, on behalf of Scott Energy Technologies LLC

2017 Public Comment of SASB Provisional Standards

Industry Standard: Oil & Gas Exploration & Production
Disclosure Topic: Biodiversity Impacts
Accounting metric code: EM0101-10

It is not widely known that drilled cuttings contain hydrocarbons, chlorides, and other constituents that overwhelmingly exceed the values of the current EPA definition of a 'spill.' Due to the nature of how they are introduced into the environment, they are not classified as a spill but are potentially more dangerous. In order to provide a complete representation of the hydrocarbons expelled, we propose the below change in terminology.

Proposed Change

Change verbiage from "hydrocarbon spill" to "hydrocarbons released into the environment."

Generally, an "oil spill" is considered a release of over one barrel (forty-two gallons) of hydrocarbon product into the environment. Drilled cuttings, especially oil-based drilled cuttings, often contain hydrocarbons, generally a refined product such as diesel, at concentrations between 100,000 ppm and 200,000 ppm. The volume of hydrocarbons in the waste from one horizontal well drilled with oil-based drilling mud can exceed 20,000 gallons. Many state regulations allow this waste to be spread out over farm land or grassland, spread over roads, or simply buried. Companies who utilize these disposal methods should include, as part of their disclosure, the volume of hydrocarbons released into the environment, whether it be legal, intentional, or accidental.

Submitted for consideration by Victoria Caylor, FSA Credential Holder, on behalf of Scott Energy Technologies LLC

2017 Public Comment of SASB Provisional Standards

Industry Standard: Oil & Gas Exploration & Production
Disclosure Topic: Community Relations
Accounting metric code: EM0101-15

The initial distresses from communities regarding the oil & gas industry was air emissions, closely followed by liquid waste (e.g., fracing fluids). The last piece of the puzzle will be the handling of solid drilling waste (e.g., drilled cuttings). Companies should be able to report they have procedures in place to handle this upcoming topic with the communities they affect.

Proposed Topic for Reporting

Discuss how they involve the communities and what public forums they provide to discuss their drilled cuttings disposal practices.

Drilling mud and drilled cuttings are often disposed of on land, through either on-site burial, landspreading on private land, landfarming at a commercial facility, road spreading on local or county roads, or landfilling. Specifically with burial, landspreading, and roadspreading, companies should involve the communities that will be impacted by these operations, with the risks and environmental concerns disclosed.

Submitted for consideration by Victoria Caylor, FSA Credential Holder, on behalf of Scott Energy Technologies LLC

2017 Public Comment of SASB Provisional Standards

Industry Standard: Oil & Gas Service Companies
Disclosure Topic: Emissions Reduction Services & Fuels Management
Accounting metric code: EM0104-02

Service companies that operate waste disposal facilities or services for the oil and gas industry need to be asked about how their activities are affecting the environment. The oil and gas exploration and production companies are no longer in physical possession of their drilled cuttings once the cuttings are disposed of so the responsibility of reporting will fall to the service companies.

Proposed Topic for Reporting

Discuss plans to address adverse air emissions due to drilled cuttings. Discussion should include commenting on current and historic activities.

Submitted for consideration by Victoria Caylor, FSA Credential Holder, on behalf of Scott Energy Technologies LLC

2017 Public Comment of SASB Provisional Standards

Industry Standard: Oil & Gas Service Companies
Disclosure Topic: Chemicals Management
Accounting metric code: EM0104-08
Line of Disclosure: 34

Drilling mud manufacturers/suppliers keep their formulas and ingredients private to protect their trade secrets. However, a discussion of what chemicals and additives are in the drilling mud would help others understand the potential impact these chemicals could have on our environment.

Proposed addition to line 34 in bold.

34. The registrant shall discuss its short-term and long-term plans related to chemicals management, where:
    - Short-term strategies may include adopting best practices in chemicals re-use, recycling, or efficiency initiatives, ensuring compliance with local chemicals regulation, providing public disclosure of chemicals used, and participating in initiatives such as Responsible Care and the Global Product Strategy (GPS).
    - Long-term strategies may include process redesigns or technological innovations that reduce or eliminate the needs for certain chemicals, replacement of certain chemicals with benign alternatives, or implementation of green chemistry principles in the development of new products and services.
    - **Discuss each chemical and additive that may be found in all types of drilling mud, include short-term and long-term goals for better management methods/materials.**

Drilling fluids, also referred to as drilling muds, are often comprised of an assortment of various chemicals and compounds. These fluids are designed to keep the wellbore stable during drilling, provide lubrication for the drill stem and drill bit, carry drilled cuttings back to the surface, and transfer heat away from the drill bit, among other things. Many of the chemicals used to make drilling fluid are considered proprietary and are not disclosed. These chemicals often consist of various salts, heavy metals, hydrocarbons (diesel), clays, polymers, surfactants, and others. Because disposal methods for drilling muds and cuttings include simple burial, landspreading, landfarming, and landfilling, it is important to disclose the chemicals in the waste so that a proper disposal method can be selected.

Submitted for consideration by Victoria Caylor, FSA Credential Holder, on behalf of Scott Energy Technologies LLC

2017 Public Comment of SASB Provisional Standards

Industry Standard: Oil & Gas Service Companies
Disclosure Topic: Ecological Impact Management
Accounting metric code: EM0104-10
Line of Disclosure: 41

Drilling mud manufacturers/suppliers keep their formulas and ingredients private to protect their trade secrets. However, a discussion of what chemicals and additives are in the drilling mudding would help others understand the potential impact these chemicals could have on our environment.

Proposed addition to line 41 in bold.

41. The registrant shall discuss its short-term and long-term plans related to management of ecological impacts, where:

- Short-term strategies may include efficient use of materials or equipment, use of multi-well pads, increased production efficiencies that reduce drilling and associated wastes, **the volume of waste treated, and disturbed acreage.**
- Long-term strategies may include process redesigns, new rig and equipment designs, advances in geological engineering, and further advances in directional and multilateral drilling that require lower land use and reduce noise and waste generation, natural resource consumption, hazardous chemical usage, ecological and biodiversity impacts, etc.
- **Short-term and long-term plans to reduce the mass of contaminants generated and the mass of contaminants discharged into the environment.**

Drilling fluids, also referred to as drilling muds, are often comprised of an assortment of various chemicals and compounds. These fluids are designed to keep the wellbore stable during drilling, provide lubrication for the drill stem and drill bit, carry drilled cuttings back to the surface, and transfer heat away from the drill bit, among other things. Many of the chemicals used to make drilling fluid are considered proprietary and are not disclosed. These chemicals often consist of various salts, heavy metals, hydrocarbons (diesel), clays, gels, polymers, surfactants, various weighting agents, and other substances. Because disposal methods for drilling muds and cuttings range from burial to landspreading, landfarming, and landfilling, it is important to disclose the chemicals in the waste so that a proper disposal method can be selected, and so that the ecological impact of these methods can be evaluated.

Submitted for consideration by Victoria Caylor, FSA Credential Holder, on behalf of Scott Energy Technologies LLC

2017 Public Comment of SASB Provisional Standards

Industry Standard: Oil & Gas Service Companies
Disclosure Topic: Water Management Services
Accounting metric code: EM0104-02
Line of Disclosure: 18

Another use of water by the oil and gas industry is for construction purposes and dust control. Including a metric to measure this usage would provide investors with a better picture of actual water usage.

Proposed addition to line 18 in bold.

18. Recycled water shall include the amount recycled in closed-loop and open-loop systems, as well as, recycled produced water or flowback.

- Any volume of water reused multiple times shall be counted as recycled each time it is recycled and reused.
- **Total volumes of water used in construction, amount that was recycled, and amount disposed.**

In addition to water that is used for drilling and completion activities, water is also commonly used during facility construction and maintenance activities, as well as to wash equipment, including drilling rigs and dump truck beds. The volume of water used for construction, maintenance and washout activities is significant, and should be reported. Much of this water can be reused and/or recycled.

Submitted for consideration by Victoria Caylor, FSA Credential Holder, on behalf of Scott Energy Technologies LLC

2017 Public Comment of SASB Provisional Standards

Industry Standard: Oil & Gas Service Companies
Disclosure Topic: Chemicals Management
Accounting metric code: TA04-19-01

There are three major parts of the waste issue surrounding the oil and gas industry. First is air emissions, followed by liquid waste (fracing fluid). The third part is drilling waste (e.g., drilling mud and drilled cuttings). To better account for the total amount of waste that is being introduced into the environment, we propose the below adjustment.

Proposed Change

Change verbiage from “frac fluids” to “frac fluids and drilling mud” and “frac waste” to “frac and drilling waste.”

It is estimated that of 392,000,000 bbls of solid drilling waste was generated in US land in 2014 alone. This waste is often buried in reserve pits, spread out over the land, spread on roads, or landfilled. Unlike “frac fluids”, solid waste is not always able to be disposed of downhole, and therefore is most commonly managed at the surface. Companies should account for the volume of drilling waste that is being generated, and report on the disposal method being used, as well as the mass of salts, heavy metals and hydrocarbons disposed of.

Submitted for consideration by Victoria Caylor, FSA Credential Holder, on behalf of Scott Energy Technologies LLC

2017 Public Comment of SASB Provisional Standards

Industry Standard: Oil & Gas Service Companies
Disclosure Topic: Ecological Impact Management
Accounting metric code: TA04-21-01
Line of Disclosure: 38

There are additional components to the total footprint of exploration and production activities. The proposed addition below would specify a few more items to consider.

Proposed addition to line 38 in bold.

38. Disturbed acreage may result from well pads, drilling and production facilities, pipelines, access roads, equipment storage, reserve pits, tailings, produced water impoundments, **waste management methods, aggregate pits, and any other components that are included in the overall footprint of exploration and production activities.**

In addition to the obvious acreage impacts of E&P infrastructure, there are other considerations that should be taken into account. Many E&P operators have their own aggregate mines to supply rock or gravel for their access roads and facilities. The acreage impact of these mines or pits should be reported. Waste management can also take up a considerable amount of acreage, especially for landfarming or landspreading. Landspreading of drilling mud or drilled cuttings can impact up to 100 acres per well in some cases. There are potential ecological impacts associated with landfarming and landspreading.

Submitted for consideration by Victoria Caylor, FSA Credential Holder, on behalf of Scott Energy Technologies LLC

2017 Public Comment of SASB Provisional Standards

Industry Standard: Oil & Gas Service Companies
Disclosure Topic: Management of the Legal & Regulatory Environment
Accounting metric code: TA04-25-01
Line of Disclosure: 70

Companies that have operations in different geographical areas, where they adhere to different criteria, have a specific risk to report that is not currently being captured. For instance, a large exploration and production company may have operations in two different regions and thus dispose of their waste using two different methods. Communities could argue that the company had knowledge of and understood they were disposing of their waste using an inferior method. A valid argument could be made that the company is being willfully negligent in their disposal practices.

Proposed addition to line 70 in bold.

70. The registrant shall identify risks and opportunities it faces related to legislation, regulation, and/or rulemaking, (hereafter referred to collectively as "legal and regulatory environment") related to environmental and social factors which are relevant to the registrant's business.

- The scope shall include existing, emerging, and known future risks and opportunities.
- The scope shall include risks and opportunities that may exist domestically and internationally at the local, state, and federal level.
- **The scope shall include using different criteria for the legal and regulatory environment in different regions/situations that result in varied treatment of the same issue.**
- The regulatory environment related to relevant environmental and social factors include, but is not limited to, those related to non-greenhouse gas air emissions, greenhouse gas emissions, water withdrawals and effluents, chemical use, ecological impacts, employee health and safety, business ethics and payments transparency, **and the trend of increased cohesiveness of regulations across states/regions.**

E&P wastes are exempt from federal hazardous waste rules and are therefore left up to individual states to regulate. Regulations between states can vary drastically depending on the specific waste being disposed. Some states may require testing of wastes prior to disposal, which gives a company the burden of knowledge regarding that waste. For example: when disposing of drilled cuttings in a reserve pit in Louisiana, an operator must test for and meet specific closure criteria for salts, heavy metals, hydrocarbons, and pH before burying the waste

on-site. Companies in Texas are under no regulatory burden to do so, and may bury their waste without testing for these parameters or meeting any chemical criteria.

Submitted for consideration by Victoria Caylor, FSA Credential Holder, on behalf of Scott Energy Technologies LLC