

BONANZA CREEK ENERGY OPERATING COMPANY LLC.
EXPLORATION AND PRODUCTION WASTE MANAGEMENT PLAN
(DRILLING, COMPLETION, AND PRODUCTION ACTIVITIES)

Water-Based and Oil-Based Drilling Fluids

Bonanza Creek Energy Operating Company LLC. (BCEOC) uses both water-based and oil-based fluids for drilling horizontal wells. Currently, water-based drilling fluid is used for drilling the surface casing set in the vertical portion of the borehole. Once the surface casing is set, BCEOC switches to oil-based drilling fluid to complete the remaining lateral borehole. The wells are drilled using pitless “closed loop” mud handling systems. Drilling fluid is contained in a series of metal tanks associated with the drilling rig and does not contact the ground surface. Approximately 400-500 barrels (bbls) of water-based drilling fluid waste is produced during water-based drilling of the surface casing borehole(s). The water-based drilling fluid is reused for each surface casing borehole on a well pad. After the surface casing installation is completed, the used water-based drilling fluid is transported to a permitted disposal facility via vacuum truck and transport tanker trucks on an as-needed basis. Upon completion of the surface casing borehole(s), BCEOC will switch to oil-based drilling fluid. BCEOC will use oil-based drilling fluid to drill the remaining lateral borehole(s). Oil-based drilling fluid can be recycled much longer than water-based drilling fluid. The oil-based drilling fluid is transported to the next drilling location and reused. Only small quantities of the oil-based drilling fluid will be transported to a permitted disposal facility, if necessary. All drilling fluid is transported to permitted disposal facilities under waste manifest to ensure chain of custody control.

Drill Cuttings

Approximately 400 - 500 cubic yards of drill cuttings are produced during the drilling of a typical Wattenberg Field horizontal well. The wells are drilled using pitless “closed loop” mud handling systems. Drill cuttings are mechanically separated and stored in a 20 cubic yard metal roll-off container. The cuttings are transferred from the roll-off container to a 14 cubic yard standard dump truck and hauled to a permitted disposal facility. Drill cuttings are transported to permitted disposal facilities under waste manifest to ensure chain of custody control.

Flowback Fluid

During well stimulation, water is injected into the formation. After conclusion of completions activity, the injected water and formation fluid are temporarily produced by the well (flowback fluid) and diverted to onsite tanks and temporarily stored onsite. At the completion of flowback operations on a typical horizontal well, approximately 13,000 bbls of fluid are recovered. Recovered flowback fluids are then transported to a permitted water recycling/disposal facility via vacuum truck or transport tanker truck. Flowback water is transported to permitted recycling/disposal facilities under waste manifest to ensure chain of custody control.

Produced Water

Water produced from an operating Wattenberg Field horizontal well is separated from other produced fluids via a three phase separator and diverted to a cement, fiberglass, or steel

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produced water storage vessel. Produced water storage tanks are emptied on a routine basis and the produced water is transported to a permitted water recycling/disposal facility via vacuum truck or transport tanker truck. Produced water is transported to a permitted recycling/disposal facility under waste manifest to ensure chain of custody control. On a limited number of locations produced water is piped directly to the permitted water recycling/disposal facility via BCEOC pipeline.

Tank Bottoms

Liquid wastes consisting of Sand/Bacteria/Water, resulting from cleaning an oil production tank or produced water tank are transferred via hydro-vac truck to a permitted water recycling/disposal facility via vacuum truck or transport tanker truck. Liquid waste is transported to permitted recycling/disposal facilities under waste manifest to ensure chain of custody control.

Solid wastes at the bottom of oil production tanks and produced water tanks including, but not limited to, sand, sludge, and other solids are transported to a permitted disposal facility via transport truck. Solid waste is transported to permitted disposal facilities under waste manifest to ensure chain of custody control.

Oily Trash

During operations and maintenance of production facilities, various types of exploration and production (E&P) exempt trash are generated. This includes oily gloves, rags, absorbent pads, rod packing, and spent bags filters. These items are used in the maintenance of E&P exempt oil and produced water process equipment. BCEOC has installed centralized disposal locations throughout the operations area for disposal of this waste. The covered waste containers are emptied on an as needed basis. The oily trash is transported to a permitted disposal facility under waste manifest to ensure chain of custody control.