

CMAG Landspraying While Drilling Disposal Operations– Best Management Practice

PURPOSE:

- This document is designed to help landowners understand the process of Landspraying While Drilling and know what to expect and what questions to ask.
- This document is relevant to any landowner being approached for possible landspraying, whether the drilling activity is being conducted on the same land or not.

BACKGROUND:

- Landspraying While Drilling is one method used to dispose of drilling mud used in the process of recovering oil and gas from underground reservoirs.
- Drilling mud, also called drilling fluid, is a lubricant used while drilling oil and natural gas wells and in exploration drilling rigs.
- The two primary purposes of drilling mud or drilling fluids are to remove from the formation the cuttings produced by the bit at the bottom of the hole and carry them to the surface. The other purpose of drilling mud is to maintain hydrostatic equilibrium (enough pressure) so that fluids and gas from the formation do not enter the well bore causing the well to flow, kick or blow out. It physically stabilizes the formation.
- Drilling mud should
 - Be safe for the environment
 - Prevent dispersion of reactive clays (gumbo)
 - Have the ability to seal formation fractures/voids
 - Be non-abrasive to tools and rig equipment
- When appropriate, Landspraying While Drilling can be a good option to reduce the overall impact to the land, practice minimal disturbance operations and ultimately return the land back to the landowner in a similar condition to when it was first accessed.

PRACTICE:

- The landowner where the drilling rig is located should be approached first for water access and mud disposal by a representative of the environmental company contracted to do the landspraying. This initial contact is the start of the process to determine if landspraying is possible in that location. This is called first right of refusal.
- If landspraying is determined to be inappropriate or the landowner chooses not to participate, other neighboring landowners may then be approached.
- If a landowner is interested in having landspraying conducted on his/her property, an initial investigation of the site where spraying is proposed will determine if Landspraying While Drilling is an appropriate option. Also, a review of the drilling program would ensure all mud additives are appropriate for Landspraying While Drilling disposal operations.
- Several factors are considered in determining whether a parcel of land is appropriate for landspraying including slope and proximity to water bodies. These factors also vary depending on the time of year.

	Summer	Winter
Slope	< 5%	< 5%
Proximity to Water Body	> 100 m	>200 m
Spray Rate	40 m ³ per ha (2.4 acres)	20 m ³ per ha (2.4 acres)

- Once a landowner has granted consent for access to his/her land for landspraying operations, a Land Usage Agreement is signed to provide formal consent from the landowner to allow the disposal operations.
- Soil samples are conducted prior to disposal to confirm the soil's chemical suitability.
- Chemical limits of the soil, including levels of electrical conductivity and sodium adsorption ratio, determine if the soil can be sprayed upon. Preliminary testing is undertaken to ensure no negative impacts to the soil occur.
- Only pre-approved (PREAPPROVED BY WHO??) mud products are allowed to be disposed of through Landspraying While Drilling Operations. These include Calcium Nitrate, Calcium Sulfate and GelChem (Bentonite) Slurries.
- If any other additives are used in the mud system, the mud is considered not appropriate for landspraying and alternative disposal plans must be used.
- The Energy and Utilities Board issues compliance consequences to those companies found in contravention of the existing guidelines for drilling waste management as outlined in Directive 50.
- EUB regulations state that drilling waste must be analyzed prior to being disposed of or applied spread through Landspraying While Drilling. The following chart shows _____. (what does it show???)

Salinity Analysis	pH	Electrical Conductivity	Sodium (Na)	Calcium (Ca)	Magnesium (Mg)	Chloride (Cl)
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- The environmental technician from _____ will be actively engaged sampling and testing drilling mud and ensuring the rig crew, foreman and vacuum truck operator comply with the landowners/residents needs and expectations as well as the EUB's regulations throughout the landspraying disposal process.
- The disposal operations are documented and an entire disposal report is provided to the Energy and Utilities Board for their review.

Where does this chart belong?? I don't know what it is referring to or whether it should just be deleted??

APPLICATION RATES	<6 tonnes per ha (2.4 acres) (vegetated lands)	TDS <1800 kg/ha (2.4 acres)	Sodium < 250 kg/ha (2.4 acres)
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- Weather can impact Landspraying While Drilling operations and may dictate that the waste cannot be applied. In that case, the drilling fluid may be contained in on-site tanks or taken to a pre determined storage site.

- After all drilling wastes have been applied to the land, the spray area is inspected and mapped by the environmental technician to further ensure that all activities were done in accordance with the regulatory limits and guidance.
- The Energy and Utilities Board views proper drilling waste management as a priority and conducts field and reporting audits to ensure oil companies and their environmental service providers are adhering to accepted guidelines.

KEY POINTS/CHECKLIST:

- Ensure you have contact information for the **energy company???** as well as all **relevant contractors (including the drilling company and the company doing the landspraying.)**
- Ask for a print off report of the entire analysis of the drilling mud. The mud is sampled continuously during spreading and that information should all be contained in the report. There should be one report for each load of drilling mud.
- Ask for a copy of the soil test conducted prior to the Landspraying.
- As a landowner, keep copies of reports/samples.
- Know that you can request the landspraying be conducted at times least likely to impact farming operations.
- Know that you can request application methods, such as flotation tires, to further reduce impact to the land.
- The landowner has the final choice to decide whether or not to consent to landspraying.
- Compensation is negotiable and is determined between the landowner and the oil company.

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REFERENCES:

Central Mountainview Action Group (CMAG)
AEUB Directive 50
AEUB website
Alberta Farmer's Advocate Office
Alberta Surface Rights Board