



## **Substantially Equivalent Dust Mitigation Plan**

This document is being submitted as a substantially equivalent Dust Mitigation Plan for the Washington Pad Form 2A. This dust mitigation plan was developed as a part of the operator agreement process with City of Thornton. This document complies with all requirements outlined in Colorado Oil and Gas Conservation Commission Rule 304.c.(5). For this reason, Extraction believes this satisfies the substantially equivalent information requirements and requests that it is accepted pursuant to Rule 304.e.

# 3.0 DUST MITIGATION PLAN

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## Dust Mitigation Plan

In accordance with Rule 427, the Operator provides the following information outlining existing conditions at the proposed Oil and Gas Location as well the best practices that will be employed to meet the requirements in the rule.

- NRCS Soil Survey data shows the access road and location consists of the following soil types:
  - Ulm loam (3-5% slopes)
  - Ulm loam (5-9% slopes)
  - Platner loam (0-3% slopes)
  - Platner loam (3-5% slopes)
- Operator will post an access road speed limit not to exceed 15 miles per hour to minimize fugitive dust emissions from vehicle traffic traveling on the access road.
- Estimated truck trips for each phase of development can be summarized as follows:

	Stage	Activity	1-Way Truck Trips	Duration (Days)	Average Truck Trips per Day (by Stage)	Average Truck Trips per Day (by Activity)
Temporary Construction Traffic	Pad Construction	Pad and Road Construction	220	90	11	11
	Facility Construction	Facility Construction	170	60	3	3
	Drilling	Surface Rig	220	60	17	4
		Drilling Rig	100			2
		Drilling Fluid & Materials Drilling Equipment (casing, drill pipe, etc)	720			12
	Completion Operations	Completion Equipment (pump truck, tanks, etc)	86	60	71	1
		Completion Fluids & Materials	200			3
		Sand	3754			63
		Gel & Fuel Loads	200			3
		Flowback water disposal	200	60	8	3
Mill Out/Tubing Equipment		290	5			
Flowback	Flowback (on production)	15	35	15	15	
Interim Reclamation	Pad reclamation	220	30	0	0	
Permanent Traffic	Production	Produced Water	0	on going	0	0
		Produced Oil	0			0

*\*Above-captioned traffic counts are preliminary*

- Operator will perform regular inspections and road maintenance to ensure the integrity of the access road and associated features is maintained throughout the life of this project. Maintenance consists of re-compacting the road base/recycled asphalt mix on an as-needed basis.



## **Well Pad Construction Phase**

Fugitive dust emissions associated with well pad construction are generally caused by soil excavation, earthwork and site development activities. The Operator will minimize dust emissions throughout all phases of well pad construction including dust resulting from the use of unimproved road surfaces. Dust suppression during initial construction will be accomplished by the application of freshwater to the access road(s) and exposed earthen surfaces to reduce the transportability of dust when atmospheric conditions are conducive to sustained winds and/or periodic gusts. All dust suppression efforts will consist of only freshwater unless otherwise requested and approved as applicable.

The surface of the new access road and well pad will be covered with Class 6 aggregate material or recycled asphalt. The use of this material greatly reduces the generation and transport of dust. Additionally, the access road will be improved as a hard surface (i.e., concrete or asphalt) for the first 100 feet from the associated public road (“the Apron”).

Following the terminus of the Apron, Operator will install and maintain vehicle tracking controls (i.e., coarse aggregate, a tracking pad, paved apron, or cattle guard) to further reduce and remove loose mud and dirt on construction equipment and vehicles servicing location. These controls reduce and minimize the tracking of dirt and mud on public roads. The tracking controls are continually maintained and remain in place throughout the lifecycle of the Oil and Gas Location. Topsoil stockpiles will be seeded, straw mulched, and crimped in order to promote the establishment of plants and associated vegetation used to stabilize the stockpiles and prevent the origination of dust and other erosion from occurring.

## **Well Drilling and Completions Phases**

Once the well pad is constructed and covered with aggregate or recycled asphalt, dust emissions will be minimal. Little if any dust emissions are anticipated during the drilling phase. The only notable source of dust during the completions phase is associated with handling of proppant (e.g., north white sand) that is used during hydraulic fracturing.

To minimize sand-related dust emissions, the Operator will be utilizing containerized box technology for sand transport, storage and use during the completions phase. These sand containers (or “sand boxes”) are sealed containers that protect the sand from exposure to wind and prevent dust generation. While fracturing operations are taking place, sand is dispensed from the sand boxes using transport hoses that keep the sand contained with a sealed system and not exposed to the wind or other atmospheric conditions. The sand is then pumped directly down the wellbore. Using this configuration, the Operator avoids using surface stockpiles of unused sand that could generate fugitive dust emissions when subjected to periodic wind events.



## **Interim Reclamation Phase**

Once the wells have been put into production, the Oil and Gas Location will be partially reclaimed to ~3.6 acres; only those areas necessary for production and maintenance operations will remain. During interim reclamation, earthmoving activities will be required to reduce the original footprint of the well pad. The movement of earthen materials may create dust. As described above for well pad construction, dust will be controlled on an as-needed basis through application of freshwater on disturbed soils and exposed surfaces. Those previously disturbed areas that have been graded will be stabilized and revegetated.

## **Production Phase**

During the production phase, traffic in and out of the Oil and Gas Location will be limited. Typical maintenance and production operations require less than 8 small trucks per day. Occasionally, larger trucks and associated equipment may be required for maintenance or workover activities.

As a result, long term traffic-related dust will be minimal if not insignificant. As described above, vehicle tracking control (i.e., coarse aggregate, a paved apron, or cattle guard) will be maintained after the terminus of the Apron to minimize tracking of dirt or mud onto public roads. Should dirt or mud tracking on public roads occur, the Operator will use a street sweeper to clean the road surface and minimize the potential for dust generation from muddy roads.

## **Proposed Best Management Practices**

1. Dust suppression during initial construction will be accomplished by the application of freshwater to the access road and exposed earthen surfaces to reduce the transportability of dust when atmospheric conditions are conducive to sustained winds and/or periodic gusts.
2. To minimize sand-related dust emissions, the Operator will be utilizing containerized box technology for sand transport, storage and use during the completions phase. These sand containers (or “sand boxes”) are sealed containers that protect the sand from exposure to wind and prevent dust generation.
3. Operator will post an access road speed limit not to exceed 15 miles per hour to minimize fugitive dust emissions from vehicle traffic traveling on the access road.
4. Operator will perform regular inspections and road maintenance to ensure the integrity of the access road and associated features is maintained throughout the life of this project. Maintenance consists of re-compacting the road base/recycled asphalt mix on an as-needed basis.
5. Operator will install and maintain vehicle tracking controls (i.e., coarse aggregate, a tracking pad, paved apron, or cattle guard) to further reduce and remove loose mud and dirt on construction equipment and vehicles servicing location.