



PDC
ENERGY

ODOR MITIGATION PLAN KENOSHA OGDG

DRAKE 4N64W17 1-24
GEORGE 4N64W21 1-24
HEN 4N64W8 1-22

RULE 304.C.(4)

SUBSTANTIALLY EQUIVALENT INFORMATION: One Odor Mitigation Plan for the Kenosha OGDG is being submitted to satisfy the three locations within. The sources of odor and best management practices remain the same for the individual locations. However, site specific information for each location is included to identify the receptors in which the mitigation measures are in place to protect from any potential impacts.

Kenosha OGD Site Specific Concerns:

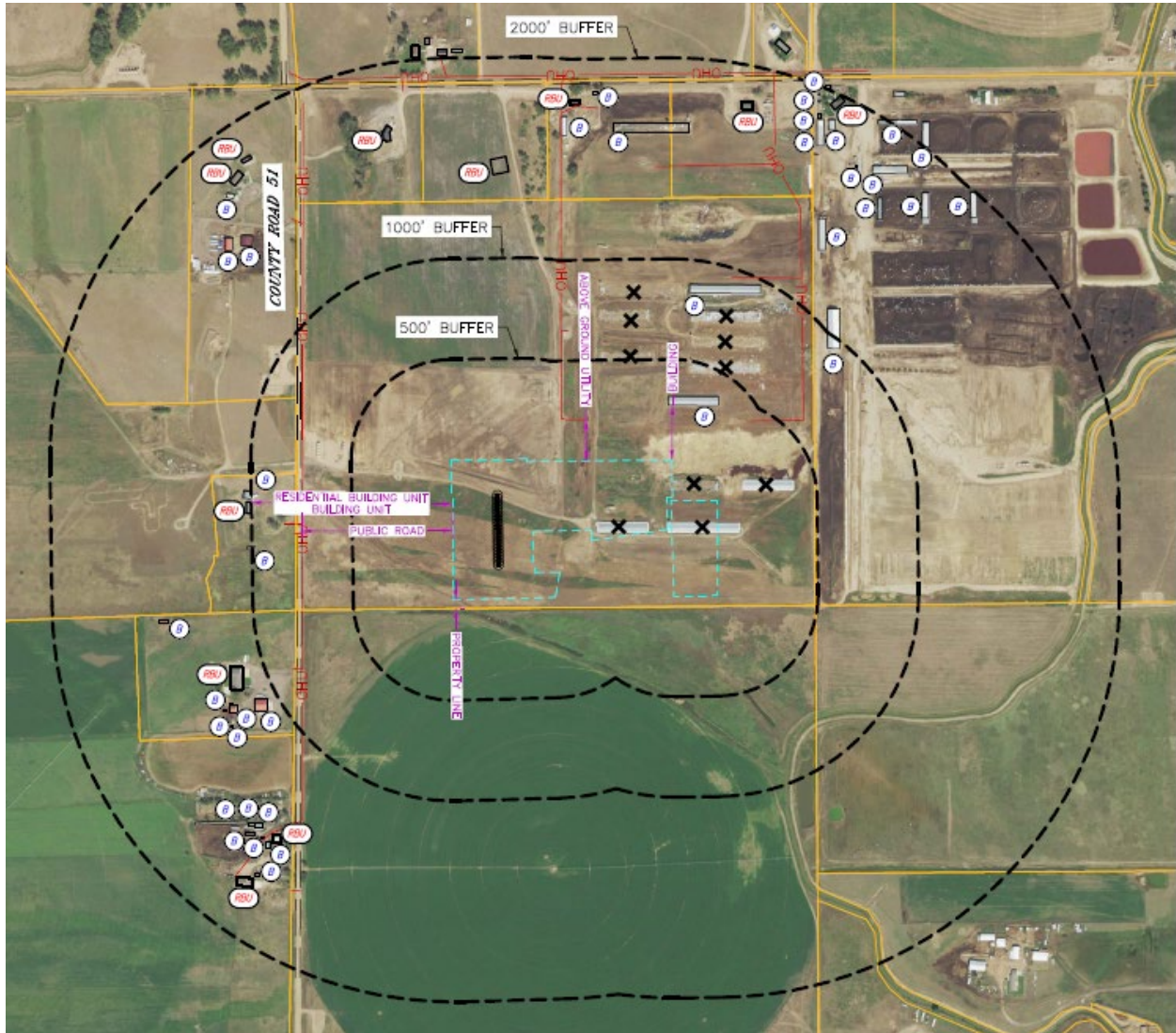
Hen 4N64W8 1-22 Pad

- As per Rule 426, the Odor Mitigation was developed to mitigate any potential impacts to the 11 Residential buildings units as depicted below within 2,000 feet of the Hen 4N64W8 1-22 Working Pad Surface:



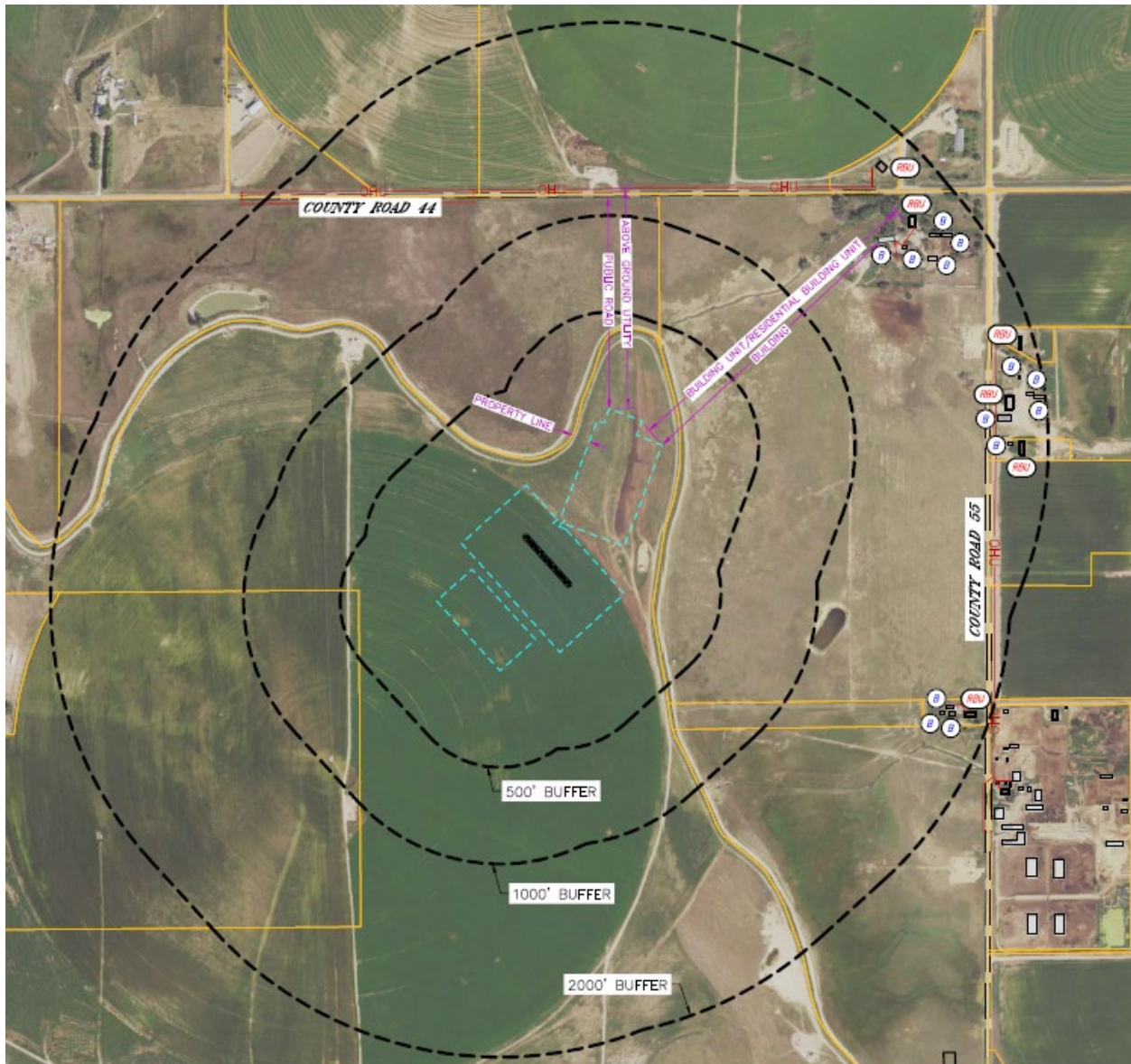
Drake 4N67W17 1-24 Pad

- As per Rule 426, the Odor Mitigation was developed to mitigate any potential impacts to the 11 Residential buildings units as depicted below within 2,000 feet of the Drake 4N67W17 1-24 Working Pad Surface:



George 4N64W21 1-24 Pad

- As per Rule 426, the Odor Mitigation was developed to mitigate any potential impacts to the 6 Residential buildings units as depicted below within 2,000 feet of the George 4N64W21 1-24 Working Pad Surface:



Potential Sources of Odor:

Drilling mud, mud pits, cuttings, 3-sided bins for cuttings storage, centrifuge solids, transfer area for hauling, produced fluids, emissions

Best Management Practices:

- Oil and gas operations will be in compliance with the Department of Public Health and Environment, Air Quality Control Commission, Regulation No. 2 Odor Emission, 5 C.C.R. 1001-4, Regulation No. 3 (5 C.C.R. 1001-5), and Regulation No. 7 Section XVII.B.1 (a-c) and Section XII.
- Fresh water mud system will be utilized for surface hole.
- PDC will be using Group III Oil Based Mud for drilling of the production string which readily biodegrades, is non-toxic in the water column and has low sediment toxicity.
- Polycyclic Aromatic Hydrocarbon content <1 mg/kg or ~0.02 % mass.
- Due to the extremely low VOC and BTEX counts of the Group III system, odor neutralizer is not anticipated. Oil based drilling fluid not being used in the active mud system shall be stored in closed, upright tanks.
- In an effort to keep odor from oil base cuttings as low as possible, PDC continuously hauls cuttings to an approved disposal facility throughout the drilling process. PDC shall not stockpile cuttings or store any large amount of cuttings on location. Trucks run continuously during daylight hours to keep the volume of cuttings on location at a bare minimum.
- Upon tripping out of the hole, the OD and ID of the drillpipe will be wiped to remove any residual mud.
- A catch can system mounted around the BOP to catch any mud that falls through the rotary table preventing any spillage and source of odor.
- Tanks will be gauged using infrared; thief hatches will not be opened for these purposes.

- Vapor recovery systems will be installed on storage tanks.
- Truck loadouts, well unloads, and swabbing will be controlled eliminating high pressure venting or flaring.
- Emission testing on all natural gas powered engines to ensure the emission control devices are operating properly.