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Department of Mineral Resources

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North Dakota Industrial Commission

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ADMINISTRATIVE RULES COMMITTEE HEARING

ADDITIONAL TESTIMONY OF BRUCE E. HICKS September 13, 2016

Chairman Devlin and Committee Members:

Issues raised by North Dakota Petroleum Council at September 7, 2016 meeting:

- Perimeter berms around oil facilities—NDAC Section 43-02-03-49
- Perimeter berms around treating plants—NDAC Section 43-02-03-51.3
- Perimeter berms around saltwater handling facilities—NDAC Section 43-02-03-53.3

NDAC Sec 43-02-03-49 (Berms)—Justification of changes

Originally proposal language:

A perimeter berm, at least one foot [30.48 centimeters] in height, shall be constructed of sufficiently impermeable material to provide emergency containment around all storage facilities and production sites and to divert surface drainage away from the site, unless waived by the director.

Thirteen parties submitted comments, nine of which were from industry (see pages 25-26 of the Consideration of Comments). After fully considering the comments, the Commission modified the original language (note yellow-highlighted text):

A perimeter berm, at least six inches [15.24 centimeters] in height, must be constructed of sufficiently impermeable material to provide emergency containment around all storage facilities and production sites and to divert surface drainage away from the site. The director may consider an extension of time to implement these requirements if conditions prevent timely construction; or a modification of these requirements if the site is void of tankage, if the current daily throughput is less than one hundred barrels of fluid per day, if all production equipment and load lines are properly diked, or if other factors are present that provide sufficient protection from environmental impacts.

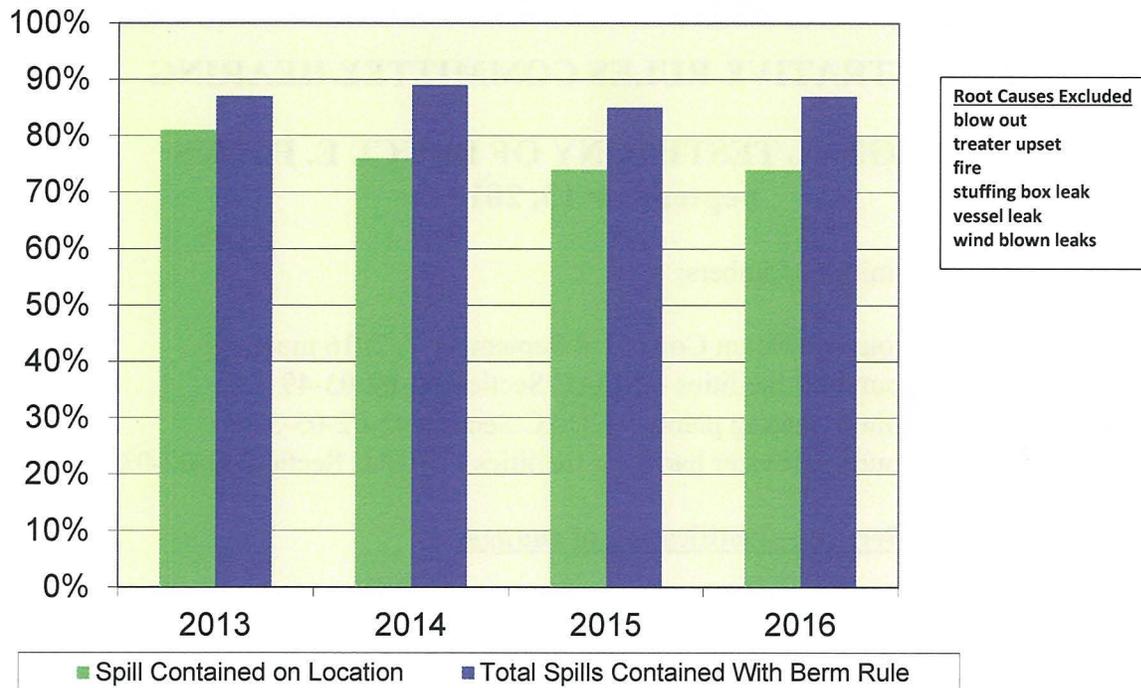
Industry Comments:

- Cost—The Commission modified the berm height from one foot to only six inches and allowed for diking changes and other factors as alternatives
- Grandfather existing sites—Commission spill reports indicate a decreasing percentage of spills are being contained on the site, which may be due to additional infill wells being drilled on the existing pad and aging infrastructure on pre-Bakken wells
- Storm water removal—The North Dakota Department of Health has guidance for water discharge and many existing perimeter berms constructed by industry have discharge pipes w/valves to drain low lying water retention areas
- Deadline to construct the berm—winter construction can be avoided since Director can consider an extension of time



Contained Spills / Berm Effectiveness

The Oil and Gas Division is concerned about the decreasing percentage of spills contained on a location and believes perimeter berms can be an effective tool if implemented in environmentally sensitive areas.



Root Causes Excluded
 blow out
 treater upset
 fire
 stuffing box leak
 vessel leak
 wind blown leaks

The above graph reflects Commission records with respect to surface spills. Spills with a root cause that would travel off-site due to spray or wind, such as blow outs, treater upsets, fires, stuffing box leaks, and vessel leaks, were not included in the analysis. The Commission is concerned about the decreasing percentage of spills being contained on the location (green bars). After reviewing the reports, the Commission has estimated the total number of spills that would have been contained on location if the berms would have been constructed (purple bars).

Berms can be a very cost-effective method of avoiding major incidents. Many instances of berms containing spills have been noted by field inspectors in our Dickinson, Minot, and Williston field districts:

- SWD—700 bbls saltwater; primary dikes failed, although perimeter berm contained spill
- SWD—470 bbls saltwater; perimeter berm contained spill
- Producing Well—800 bbls emulsion (mainly SW); perimeter berm contained spill
- Producing Well—300 bbls emulsion; wellhead failure; perimeter berm contained spill
- Producing Well—113 bbls oil; hose ruptured on transfer pump; berm contained spill
- Producing Well—250 bbls oil; line break; overflowed dikes, perimeter berm contained spill
- Producing Well—oil spill; transfer pump; berm prevented fluid from entering lake
- One operator in Williston district routinely constructs berms & has contained **all** spills on loc

Some major incidents occurred that would have been prevented by constructing a perimeter berm:

- SWD—20 bbls saltwater; traveled off site
- SWD—saltwater; injection pump leak; 80 bbls saltwater traveled off site
- Production facility—120 bbls emulsion—fluids traveled off loc
- CTB—2000 bbls emulsion; power failure & tanks ran over, traveled into nearby cropland
- CTB—250 bbls emulsion; pump failure; fluids flowed into slough (drained slough)
- CTB—500 bbls saltwater; site vandalized—valves opened; fluids flowed to nearby slough
- Production facility—460 bbls saltwater; valve open in berm; fluids flowed to nearby slough