

## Review and Analysis of the “15A NCAC 05H Oil and Gas Conservation Rules – Final 2015”

The final 15A NCAC 05H Oil and Conservation Rules, as published in 2015, was reviewed and analyzed in May 2019. The findings and recommendations are presented herein and can be categorized as follows:

- a) Correction of typographical errors
- b) Clarification of wording and meaning
- c) Additional topics not addressed

These are addressed in order below:

### Typographical Errors

There are six typographical errors in the online document 15A NCAC 05H Oil and Gas Conservation Rules – 2015.

#### Typo #1

15A NCAC 05H .1602 PRODUCTION FACILITY SAFETY SETBACK DISTANCES

- (a) **A the** closest edge of a pit, tank, or tank battery shall be a minimum of 75 feet from the center of any wellhead.
- (b) A tank edge shall be a minimum of five feet from another edge.
- (c) A mechanical separator or compressor shall be located the minimum distance from any of the following:

#### Typo #2

15A NCAC 05H .1901 WATER MANAGEMENT PLAN REQUIREMENTS

- (a) An applicant or permittee shall submit a Water Management Plan for proposed oil or gas well(s) to be located at the well pad. This plan shall be submitted to the Department for review and approval in accordance with Rule .1304 of this Subchapter and with the rules of this Section prior to the commencement of activities covered **und er** the Form 2 – Oil or Gas Well Permit Application.

#### Typo #3

- (b) A Form 4 – Water Management Plan shall include:
  - (9) a description of all potential sources of water, including flowback and produced water, that were evaluated for this application and the reasons for rejecting those **s** **ources** as required by Rule .1905 of this Section;”

Typo #4

15A NCAC 05H .1902 SURFACE WATER SOURCE DOCUMENTATION

(a) For surface water sources, the applicant or permittee shall consult with the Department to determine and evaluate the limits of the affected reach. The exact delineation of the affected reach shall be determined in consultation with and the approval of the Department and shall depend on factors including:

- (1) the cumulative amount of water to be withdrawn when the proposed withdrawal is combined with existing withdrawals;
- (2) the hydrologic characteristics of the stream;
- (3) the presence or absence of downstream point source discharges; and
- (4) the potential effects on other users and instream flow.

(b) Following a determination of the limits of the affected each, the following information shall be provided by the permittee to the Department:

Typo #5

15A NCAC 05H .2002 EXPLORATION AND PRODUCTION WASTE MANAGEMENT PLAN REQUIREMENTS

(a) An E & P Waste Management Plan, approved by the Department in accordance with this Rule, is required prior to the generation of E & P wastes from the drilling, producing, plugging, or any other activity associated with an oil or gas well.

(b) The E & P Waste Management Plan shall identify the management, control, reuse, and disposal methods for E & P wastes.

(c) The E & P Waste Management Plan shall address the storage and handling of wastewater, residuals, solid wastes, and any other non-hazardous and hazardous wastes related to exploration and production activities from the point of initial generation of E & P wastes onsite to final disposal of the E & P waste.

(d) The E & P Waste Management Plan shall include the following form, documentation, and plan des ign sheets:

Typo #6

15A NCAC 05H .2007 MONITORING AND REPORTING

(a) The permittee shall monitor all onsite E & P waste storage and disposal structures and facilities for compliance with the approved E & P Waste Management Plan.

(b) The permittee shall inspect all pits or open tanks after a rain event of one half inch or more in a 24-hour period to ensure structures have not been impaired and have the required freeboard. If impairment of a pit or open **tan k** is noted during the course of inspection, the impairment shall be recorded on a monitoring and maintenance log. The log shall include:

### **Clarification of wording and meaning**

The discussion of Clarification of wording and meaning is structured in the following manner:

1. First, the rule and title of the rule is referenced (e.g. 15A NCAC 05H .0102)
2. Next the line item of the subject rule being discussed is presented (e.g. (a) (1))
3. Next, there is a brief discussion on interpretation of how it may be read and the possible meanings
4. Finally, an alternative wording or suggestion for changes is presented.

#### 15A NCAC 05H .0102 Terms of Reference and Definitions

“(30) Conventional reservoir means an accumulation of hydrocarbons that are localized in structural or stratigraphic traps”

The current definition of conventional reservoir is incomplete, vague and somewhat ambiguous compared to current usage in science and business organizations.

Suggested new definition:

A reservoir that is porous and permeable rock with buoyancy pressure equilibrium, trapped in discrete accumulations related to a localized geological structural and/or stratigraphic condition. Typically, each accumulation is bounded by a downdip contact with an aquifer and is significantly affected by hydrodynamic influences such as buoyancy of petroleum in water.

#### 15A NCAC 05H .0102 Terms of Reference and Definitions

“(46) "Flow rate" means the volume per unit of time of a fluid moving past a fixed point.”

Since an accurate measurement of flow rate would be possible only by using an instrument such as a gauge, it is suggested that the new definition read:

“Flow rate" means the volume per unit of time as measured by a gauge.

#### 15A NCAC 05H .0102 Terms of Reference and Definitions

“(81) "Production zone" means the rock stratum that will yield hydrocarbons.”

Production zone implies that there is actual production and usage of “that will yield” means that it is not currently producing. The suggested new definition is:

"Production zone" means the rock stratum from which hydrocarbons are produced.

#### 15A NCAC 05H .0102 Terms of Reference and Definitions

“(95) "Spud" means to start the oil or gas well drilling process by removing rock, dirt, and other sedimentary material with the drill bit.”

When defining spud, the common oil field terminology uses the word “commence” drilling instead of “start”. The suggested change is definition is:

"Spud" means to commence drilling the oil or gas well by removing rock, dirt, and other sedimentary material with the drill bit.

#### 15A NCAC 05H .0102 Terms of Reference and Definitions

“(106) "Unconventional reservoir" means a resource whose porosity, permeability, fluid trapping mechanism, or other characteristics differ from conventional reservoirs.”

The current definition is incomplete, vague and somewhat ambiguous compared to current usage in science and business organizations.

The suggested new definition is:

A reservoir that is pervasive or continuous throughout a large area and lacks a well-defined oil-water contact or gas-water contact. Resources in such reservoirs cannot be recovered using traditional recovery methods owing to fluid viscosity (e.g., oil sands) and/or reservoir permeability (e.g., tight gas/oil/CBM) that impede natural mobility. Unconventional shale reservoirs typically have low permeability (generally less than 0.1 millidarcy).

#### 15A NCAC 05H .0102 Terms of Reference and Definitions

“(122) "Workover" means the performance of one or more of a variety of operations on a producing oil or gas well to attempt to increase production.”

Wells are “worked over” for other reasons than just increasing production. Such other actions include repair, commingling, plugging back, setting and retrieving pressure gauges, running tubing, running cased hole logs and more. The suggested new definition is:

“Workover” means to perform one or more operations on a producing oil or gas well for various reasons such as improving production, commingling, setting plugs or obtaining additional data.

#### 15A NCAC 05H .0707 FORM AND CONTENTS OF REQUEST TO MAINTAIN CONFIDENTIAL INFORMATION

This rule addresses the petitioning for and granting of Confidential Status for certain information. The entire discussion of this topic centers around chemicals and chemical formulas. The rule states that, upon satisfactory review, the Commission and Department can grant confidentiality.

What is troubling about this rule is that it does not establish an end to the time for which information will be considered confidential. The only portion of the rule which addresses an end to the status is

paragraph (d) (4) (C) which demands that the petitioner must notify the Commission if the information loses confidential status. This places the trust into the hands of the petitioner and removes control from the Commission and Department.

It is suggested is that a time period be established for the confidential status. A suggested amendment to the rule is:

If granted Confidential Status, the information will be held confidential for a period of 5 years, after which, the applicant must reaffirm the merits of maintaining confidential status, or the information will automatically become public.

In so doing, the Department and Commission would maintain control over the confidential status of information and not rely solely on the petitioner to remember to send notification once the information loses its proprietary status.

#### 15A NCAC 05H .1202 DRILLING UNIT APPLICATION AND REVIEW

In this portion of the rules, .1202 (e) states:

(e) The application for the creation of a drilling unit or modification of an existing drilling unit shall include the following information:

- (1) a statement describing the intent of the application;
- (2) a list of mineral rights owners within the land area of the proposed drilling unit. The list of mineral rights owners shall include the name, physical address, and mailing address for each owner;

“A list of mineral rights owners” is not well enough defined to achieve the desired amount of information. What is needed when forming a drilling unit is mineral interest by owner and depth and by stratigraphic horizon. Knowing that a party owns mineral interest would not answer questions such as do they own mineral interest in the horizon(s) being unitized and do they own mineral interest in the up-hole portion above the target horizon.

A suggested revision would be:

- (2) a list of mineral rights owners within the land area of the proposed drilling unit. The list of mineral rights owners shall include their interests by depth, and stratigraphic horizon, as well as the name, physical address, and mailing address for each owner;

In .1202 (e) (7), the rule currently reads:

“(7) a written statement signed by the applicant, supported by geological and engineering data, that the proposed drilling unit would result in optimal and efficient recovery of hydrocarbons;”

Standard convention in other States requires that any maps, cross sections, documents, statements, calculations and the like that pertain to hydrocarbon reserves, recovery efficiencies or other matters of

oil and gas conservation must be prepared by a licensed professional engineer or geologist. The current wording of this rule is not nearly stringent enough to ensure confidence in the technical data of what is being represented by the applicant.

The suggested new wording is:

(7) a written document, supported by technical data, generated by a licensed, professional geologist or engineer, that the proposed drilling unit would result in optimal and efficient recovery of hydrocarbons;

#### 15A NCAC 05H .1203 DRILLING UNIT PUBLIC NOTIFICATION REQUIREMENTS

In .1203 (a) (2), the rule currently reads:

“(2) providing actual notice to all surface owners and mineral rights owners within the land area of the proposed or existing drilling unit;”

Standard convention in other states uses the phrase “within ½ mile radius” when providing notice to affected parties or who may have standing in the matter.

The suggested new wording is:

(2) providing actual notice to all surface owners and mineral rights owners within ½ mile radius of the proposed or existing drilling unit.

#### 15A NCAC 05H .1205 WELL SPACING REQUIREMENTS FOR RESOURCES IN UNCONVENTIONAL RESERVOIRS

.1205 (a) is currently worded:

“(a) The drilling of a new oil or gas well in an unconventional reservoir, the reopening of an oil or gas well temporarily abandoned pursuant to Rule .1621 of this Subchapter, the deepening, plugging back, or sidetracking of an existing oil or gas well shall conform to the requirements of this Section.”

If the rule so stated applies only to unconventional reservoirs, it would be less confusing to rewrite as such:

(a) In an unconventional reservoir, the drilling of a new oil or gas well, the reopening of an oil or gas well temporarily abandoned pursuant to Rule .1621 of this Subchapter, the deepening, plugging back, or sidetracking of an existing oil or gas well shall conform to the requirements of this Section.

Likewise, for the next rule, .1206 (a), it would be less confusing to say:

(a) In a conventional reservoir, the drilling of a new oil or gas well, the reopening of an oil or gas well temporarily abandoned pursuant to Rule .1621 of this Subchapter, the deepening, plugging

back, or sidetracking of an existing oil or gas well shall conform to the requirements in this Section.

#### 15A NCAC 05H .1304 CONTENTS OF OIL OR GAS WELL PERMIT APPLICATION

In this section, (a) stipulates what the permit application shall include. Items 1-9 are very straight forward and specific as to what shall be in the application. However, items 10-15 are not specific in that each line item begins with the phrase “and indication that...”. Arguably, more direct instructions would use terms like “shall provide”, “show evidence that”, “document”, “provide proof” or “state”.

The suggested new wording for items 10-15 is:

- (10) **show evidence** that the local emergency management coordinator has received an emergency response plan in accordance with Rule .1305 of this Section;
- (11) **a statement** that the applicant or permittee will scan all equipment at the well site to measure for methane emissions;
- (12) **a commitment** that the applicant or permittee will address methane emissions detected;
- (13) **agreement** that the applicant or permittee will provide an estimate of the number and type of engine(s) to be used onsite, the size of engine(s), and the fuel source of engine(s) that will be used during drilling or completion activities;
- (14) **evidence** that the applicant or permittee has a proppant-related dust management and mitigation plan; and
- (15) **a statement** of whether pits are to be constructed and, if so, for what purpose.

Further down in .1304 (b), in which there are instructions for which plats and maps shall be attached to Form 2, item (4) currently reads:

- (4) The total estimated true vertical and measured depths of the wellbore and proposed well path report showing inclination and azimuth every 100 feet with the North American Vertical Datum of 1988 (NAVD88) as the vertical control.

The wording could be modified to use standard wellbore drilling terminology by inserting “wellbore path diagram”. The suggested revision would read:

- (4) A wellbore path diagram showing the total estimated true vertical depth (TVD) and measured depth (MD) of the proposed well showing inclination and azimuth every 100 feet with the North American Vertical Datum of 1988 (NAVD88) as the vertical control.

#### 15NCAC 05H .13049

In (a) (11) and (c) (10) the word “scan” is used in reference to detecting methane emissions. The instructions would be more clear if scan was defined or qualified. For example, “scan using laser

methane detection equipment”, “scan using a mechanical or electrical gas detection equipment”. Use of the word scan leaves open how rigorously the measurement and detection system is.

#### 15A NCAC 05H .1607 WELL INSTALLATION

This rule concerns well installation and notice. The notification instructions for both spudding the well (b) and cementing the well (c) seem to be at odds for when the telephone or email is noticed versus submittal of Form 11. In each case, the permittee is instructed to notify the Department “at least 48 hours” prior to spudding or cementing the well. However, Form 11 is required to be submitted within “five calendar days of the telephone or email notice” and in it, is: “(5) the scheduled date and approximate time for spudding the well”.

In one possible scenario, the well notice of spudding could be telephoned in and then five calendar days later Form 11 could be submitted. In that case, the actual spud date and time of day would be known and could be so stipulated in the form.

A way to clear this up would be to require the form to be submitted prior to spud and only require the 48-hour notice time. In other states, all necessary forms are filed in advance of spudding and the telephone notice is followed by a simple form that states when the well was spud or cemented.

#### 15A NCAC 05H .1609 WELL INSTALLATION FOR SURFACE CASING

Line item (e) states that:

(e) The permittee shall collect correlation logs, core samples, and drill cutting samples to identify groundwaters, zones of formational instability, and competent bedrock to submit to the Department with the Form 12 – Well Drilling Report required in Rule .1623 of this Section.

In matters of surface casing, operators may or may not choose to begin mudlogging until after surface casing is set. Cased hole logs can be used to detect presence of water. Cores are not usually collected unless there is a reason related to evaluating oil and gas potential. The way (e) is currently written, the rule instructs the operator to do all three actions to identify groundwaters. If the primary objective of the rule is to identify groundwater, then at the very least, it should have specificity of what will adequately answer the question. For example, cores are not necessary to identify groundwater; logs will suffice. Open hole electric logs with an SP curve is a good way to identify aquifer zones.

#### 15A NCAC 05H .1610 WELL INSTALLATION FOR INTERMEDIATE CASING

The same comments apply here to this rule (3) as discussed above in the circumstance of Surface Casing. As written, all three actions are required, whereas, the objective of identifying groundwaters may be achieved by one means, such as open hole logs.

In rule (4),

(4) if the intermediate wellbore penetrates one or more potential flow zones, the cement used to control annular gas migration from the potential flow zones shall be designed to comply with

API Standard 65-Part 2 "Isolating Potential Flow Zones During Well Construction," which is incorporated by reference, including subsequent amendments and editions. This document may be viewed online for no charge at <http://publications.api.org/>;

"flow zone" should be clarified as to whether the rules apply to water, gas or oil flow zones.

Rule (6) states:

"(6) if there is a failure to isolate groundwater zones, the permittee shall submit a plan of remediation to the Department for approval and implement such plan by performing remedial operations prior to continuing drilling operations. If the deficiencies cannot be remedied, the oil or gas well shall be plugged and abandoned in accordance with Rule .1618 of this Section;"

There should be some discussion about whether a plugback and sidetracking of the well would be an acceptable remedy for failure to isolate groundwater zones. It is conceivable that the surface casing and the upper portion of intermediate casing may effectively isolate some, but not all, groundwater zones. If so, the operator should be allowed to utilize those upper portions of the wellbore to plugback and sidetrack to depth and set another string of casing to isolate the groundwater zones which were not adequately isolated during the first attempt.

#### 15A NCAC 05H .1611 WELL INSTALLATION FOR PRODUCTION CASING

Rule (a) states:

(a) Production casing shall be installed and cemented from the bottom to 200 feet above the base of the previous casing string. Notwithstanding the foregoing, a production zone may be completed using a non -cemented production liner in accordance with Paragraph (c) of this Rule.

For clarity, the phrase "from bottom to 200 feet", should be changed to read: "from bottom of the wellbore to 200 feet MD".

Rule (b) (1) states:

(b) Installation of production casing or installation of production liners shall comply with the following:

(1) logging of the wellbore shall be performed prior to installation of the production casing to measure and evaluate the rock sections;

To conform with standard oilfield terminology, the wording should be changed to:

(1) logging of the wellbore shall be performed prior to installation of the production casing for stratigraphic correlation and to evaluate the hydrocarbon potential of the interval drilled;

#### 15A NCAC 05H .1613 WELL STIMULATION REQUIREMENTS

Rule (b) states:

- (b) The production casing shall withstand the maximum anticipated treating pressure of the proposed well stimulation operations. The maximum anticipated treating pressure shall not exceed 80 percent of the minimum internal yield pressure for such production casing.

Typically, when stipulating production casing safety requirements, the phrase “shall exceed” is used, instead of “shall withstand”. By using “shall exceed”, it declares that an added level of safety is mandatory. Although the next sentence places an 80 percent limit of the minimal internal yield, it would be better overall to reword this section for clarity.

#### 15A NCAC 05H .1616 WELL-CONTROL AND BLOWOUT PREVENTION

Rule (b) and rule (b) (5) have the same potential date conflict that was discussed earlier regarding 15A NCAC 05H .1607 WELL INSTALLATION. Refer to that discussion.

#### 15A NCAC 05H .1617 VISUAL IMPACT MITIGATION

In rule (b), the discussion about means by which the visual impact may be mitigated lists the following options:

- (1) zoning of the area;
- (2) surface use agreements;
- (3) land use;
- (4) topography; and
- (5) configuration of the well pad.

Another effective means of visual mitigation quite commonly used is color of tanks and equipment to allow them to blend more smoothly into the surroundings. Color can be used as a form of camouflage, thereby mitigating the visual impact.

#### 15A NCAC 05H .1618 REQUIREMENTS FOR PERMANENT CLOSURE OF OIL OR GAS WELLS

This rule stipulates that all lost holes, dry holes and oil and gas wells incapable of production shall be plugged and abandoned. This is certainly true for lost holes, but dry hole and oil and gas wells incapable of production often have a usefulness in the interim. For example, dry holes often can be studied further to assess the oil and gas potential of the area. One means is the use of the wellbore as a pressure monitoring well. Another use is to utilize the wellbore for downhole seismic monitoring during vibroseis or shothole dynamite seismic acquisition. Ultimately, the state wants all wells having no further value to be plugged and abandoned appropriately. However, there should be some discussion in this rule or a reference to another discussion about these possible alternative temporary uses.

#### 15A NCAC 05H .1623 WELL DRILLING REPORT

Rule (13) stipulates that the drilling report for the well shall include the following logs:

(13) a paper and digital copy of all electrical, radioactive, or other standard industry logs:

(a) standard electric log with curve data shall be submitted in LAS digital data format and as a .pdf, .tiff, or .pds;

(b) specialty logs with array data shall be submitted in LIS or DLIS digital data format and as a .pdf, .tiff, or .pds; and

(c) cement bond logs shall be submitted as a .pdf, .tiff, or .pds; with the casing collars, centralizers, and top of cement located;

The standard log suite that is run on exploratory wells, in particular, is an electric log, porosity log, mudlog, and cement bond log. It is suggested that this rule be modified to include “porosity log” and “mudlog”. As a general comment, the hydrocarbon potential of rock is best evaluated by acquiring a Gamma Ray curve, porosity curve (either sonic or density or neutron), resistivity curve, Spontaneous Potential curve and mudlog.

Rule (14) states:

(14) a drilling log that includes the name, depth, and thickness of formations penetrated from the surface to total depth. The drilling log shall also include the depth of oil or gas producing zone(s), depth of groundwater and brines, and the source of the information. The report shall also contain other data recorded about groundwater zones, anomalous pressure zones, zones with corrosive fluids, lost circulation zones, and other zones with fluids capable of annular flow and how the casing and cementing program was modified in response to the information;

A distinction should be made about the drillers “drilling log” and the mudlog. The drillers log records rate of penetration (ROP), gas readings, pressure zones, lost circulation zones, annular flow zones, bits, TVD and MD and casing details. The mudlogger obtains much of the drillers information and adds this information to their mudlog. Additional data that the mudlogger contributes is drill cuttings description, gas chromatography, oil show data, stratigraphic correlation and tops. So, there will be in reality, two drilling logs necessary to satisfy all the state requirements for the drilling report rule. It might be more thorough to use the phrase driller’s log and mudlogger’s log or something similar.

Rule (20) mentions some of the traditional data provided in the mudlog report, such as “lithologic log or sample description”. Rules (14) and (20) should be checked against each other to avoid redundancy and ensure completeness.

## SECTION .1800 – ENVIRONMENTAL TESTING

### 15A NCAC 05H .1801 PURPOSE AND SCOPE

This section addresses the testing of “water supplies” prior to drilling and after production has occurred. The Department no doubt is concerned with establishing baseline water quality and monitoring for

changes in water quality after production commences. To the operator, however, “water supplies” usually mean the source of water accessed and stored for mixing with drilling mud and for use in cementing and hydraulic fracturing. Therefore, a distinction should be made as to what the meaning is.

The rule currently reads:

The rules in this Section establish requirements for the pre-drilling testing of water supplies, the testing of water supplies after production has commenced, and the reporting of data collected.

A suggestion is to insert a qualifier such as “public water supplies” or something that conveys the intent. Consideration should also be given to insert the word “known”, because there are no doubt water supplies yet unknown. It should also be made clear as to whether the testing is for surface waters, groundwater or both.

#### 15A NCAC 05H .1802 WATER SUPPLY TESTING NOTIFICATIONS

The rule currently reads, in part:

- (a) The permittee shall provide written notice to all surface owners or owners of a water supply, as defined in G.S.113-389, prior to all water supply testing within one-half mile of the proposed wellhead. The permittee shall pay the costs involved in testing all water supplies as required by G.S. 113-423(f). In addition to the requirements of G.S.113-420(a), the written notice shall include the following:

Standard convention in other states uses the phrase “within one-half mile radius” of the proposed wellhead. The way the rule is currently written it allows for three-dimensional interpretation; meaning one-half mile in the subsurface beneath the wellsite. Is this the intent? If not, it should be clarified by some means. G.S. 113-421(a5) also uses the term “within a one-half mile radius of the wellhead”.

In (a) (b), the rule reads:

- (b) The permittee shall provide written notice to the Department if a surface owner or water supply owner refuses to conduct testing of the water supply. The written notice shall be submitted to the Department as an attachment to Form 22 – Water Supply Testing Report and include the following:

Since the permittee is responsible for the testing of the water supplies, this should be changed to read:

- (c) The permittee shall provide written notice to the Department if a surface owner or water supply owner refuses to *allow the permittee* to conduct testing of the water supply. The written notice shall be submitted to the Department as an attachment to Form 22 – Water Supply Testing Report and include the following:

#### 15A NCAC 05H .1803 WATER SUPPLY TESTING PROCEDURES

The same comments discussed above apply to rule (a), wherein the term water should be qualified as to whether the intent is for surface and subsurface, drinking water, public water or other. Also, the term one-half mile should be changed to one-half mile radius, as it is referred to in G.S. 113-421(a5).

Rule (a) as currently written:

- (a) All water supplies located within one-half mile of the proposed wellhead shall be tested prior to initial drilling activities and after production has commenced. All water supplies shall be tested according to the following:

Further down, Rule (c) currently reads:

The permittee shall replace a water supply pursuant to G.S. 113-421(a5) if the investigation and analytical results indicate that the water supply is contaminated due to the activities of the permittee.

Referring to the statute G.S. 113-421(a5), it seems that a surface owner or third party's water supply would be a well. The way the rule currently reads, it leaves open the interpretation that the groundwater or stream is supposed to be replaced, which would be impossible. It seems that the rule could be clarified by explaining that the water supply really means something specific and not something overly broad like the entire volume of groundwater or surface stream.

#### 15A NCAC 05H .2005 SPILLS AND RELEASES

Rule (f) (5) reads:

- (5) an 8 1/2 by 11 inch topographic map showing the location of the spill;

As currently written, the rule stipulates what size of paper the map should be but does not state what the scale of the map shall be. Since the intent is to accurately depict where the spill is, and it infers that the spill is somewhere on the well location, a scale should be specified. The USGS 7.5 minute standard topographic map is at 1:24,000.

#### **Additional topics not addressed**

Commonly, operators, science organizations and agencies desire to drill a stratigraphic test, not to establish hydrocarbon production, but to acquire scientific data for study. In the case of oil and gas operators, they are willing to incur the costs of drilling a stratigraphic test hole but want a period to keep the information confidential so that they can evaluate the data and decide whether or not they wish to pursue further drilling plans. Some analyses may take months and then the operator needs a period of time to assess the findings.

In practice, other states allow the drilling of stratigraphic tests and will hold the information confidential for a year to accommodate the party that drilled the well. There does not appear to be anything in the current North Carolina 15A NCAC 05H Oil and Gas Conservation Rules – Final 2015 rules that addresses this topic.

Respectfully submitted by:

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Commissioner

North Carolina Oil and Gas Commission

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