

**DEPARTMENT OF THE INTERIOR**

**Bureau of Land Management**

**43 CFR Part 3160**

**[WO-300-L13100000.FJ0000]**

**RIN 1004-AE26**

**Oil and Gas; Well Stimulation, Including Hydraulic Fracturing, on Federal and Indian Lands.**

**AGENCY:** Bureau of Land Management, Interior.

**ACTION:** Proposed rule.

**SUMMARY:** “Hydraulic fracturing,” a process used to stimulate production from oil and gas wells, has been a growing practice in recent years. Public awareness of fracturing has grown as new horizontal drilling technology has allowed increased access to shale oil and gas resources across the country, sometimes in areas that have not previously experienced significant oil and gas development. The extension of the practice has caused public concern about whether fracturing can allow or cause the contamination of underground water sources, whether the chemicals used in fracturing should be disclosed to the public, and whether there is adequate

management of well integrity and the “flowback” fluids that return to the surface during and after fracturing operations.

The Bureau of Land Management (BLM) oversees oil and gas operations on approximately 700 million subsurface acres of Federal mineral estate and 56 million subsurface acres of and tribal mineral estate across the United States. The BLM proposes to modernize its management of well stimulation activities, including hydraulic fracturing, to ensure that fracturing operations conducted on the public mineral estate (including split estate where the Federal Government owns the subsurface mineral estate) follow common sense best practices, including: the public disclosure of chemicals used in hydraulic fracturing operations on Federal lands; confirmation that wells used in fracturing operations meet appropriate construction standards; and a requirement that operators put in place appropriate plans for managing flowback waters from fracturing operations. The BLM proposes to apply the same rules and standards to tribal lands so that these lands and communities receive the same level of protection provided for Federal lands. Most of these requirements can be satisfied by submitting additional information during the process that the BLM currently applies to operators who are drilling on the public lands. The proposed rule would require that disclosure of the chemicals used in the fracturing process be provided to the BLM after the fracturing operation is completed. This information is intended to be posted on a public web site, and the BLM is working with the Ground Water Protection Council to determine whether the disclosure can be integrated into the existing website known as FracFocus.org.

The BLM has developed the draft with an eye toward improving public awareness and oversight

without introducing complicated new procedures or delays in the process of developing oil and gas resources on public and tribal lands. Some states have started requiring similar disclosures and oversight for oil and gas drilling operations under their own jurisdiction. This proposal seeks to create a consistent oversight and disclosure model that will work in concert with other regulators' requirements while protecting Federal and tribal interests and resources.

The BLM proposes these changes to existing well stimulation oversight partly in response to recommendations put forward by the Secretary of Energy's Energy Advisory Board in 2011. Also, current BLM regulations governing hydraulic fracturing operations on public lands are more than 30 years old and were not written to address modern hydraulic fracturing activities. In preparing this proposed rule, the BLM has consulted broadly with members of the public, stakeholders, and tribal representatives. The BLM is looking forward to obtaining additional public input regarding the specific proposed provisions that are set forth herein.

**DATES:** Send your comments on this proposed rule to the BLM on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. The BLM need not consider, or include in the administrative record for the final rule, comments that the BLM receives after the close of the comment period or comments delivered to an address other than those listed below (see ADDRESSES). If you wish to comment on the information collection requirements in this proposed rule, please note that the Office of Management and Budget (OMB) is required to make a decision concerning the collection of information contained in this proposed rule between 30 to 60 days after publication of this document in the Federal Register. Therefore, a comment to OMB is best assured of having its full effect if OMB receives

it by [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** Mail: U.S. Department of the Interior, Director (630), Bureau of Land Management, Mail Stop 2134 LM, 1849 C St., NW, Washington, DC 20240, Attention: 1004-AE26. Personal or messenger delivery: Bureau of Land Management, 20 M Street, SE, Room 2134 LM, Attention: Regulatory Affairs, Washington, DC 20003. Federal eRulemaking Portal: <http://www.regulations.gov>. Follow the instructions at this Website.

Comments on the information collection requirement: Fax: Office of Management and Budget (OMB), Office of Information and Regulatory Affairs, Desk Officer for the Department of the Interior, fax 202-395-5806. Electronic mail: [oira\\_docket@omb.eop.gov](mailto:oira_docket@omb.eop.gov). Please indicate “Attention: OMB Control Number 1004-XXXX,” regardless of the method used to submit comments on the information collection burdens. If you submit comments on the information collection burdens, please provide the BLM with a copy of your comments, at one of the addresses shown above.

**FOR FURTHER INFORMATION CONTACT:** Steven Wells, Division Chief, Fluid Minerals Division, 202-912-7143 for information regarding the substance of the rule or information about the BLM’s Fluid Minerals Program. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1-800-877-8339 to contact the above individual during normal business hours. FIRS is available 24 hours a

day, 7 days a week to leave a message or question with the above individual. You will receive a reply during normal business hours.

## **SUPPLEMENTARY INFORMATION:**

- I. Public Comment Procedures
- II. Background
- III. Discussion of the Proposed Rule
- IV. Procedural Matters

### **I. Public Comment Procedures**

If you wish to comment, you may submit your comments by any one of several methods: Mail:

You may mail comments to U.S. Department of the Interior, Director (630), Bureau of Land Management, Mail Stop 2134LM, 1849 C Street, NW, Washington, DC 20240, Attention: 1004-AE26. Personal or messenger delivery: Bureau of Land Management, 20 M Street, SE, Room 2134 LM, Attention: Regulatory Affairs, Washington, DC 20003. Federal eRulemaking Portal: <http://www.regulations.gov>. Follow the instructions at this Website.

You may submit comments on the information collection burdens directly to the Office of Management and Budget, Office of Information and Regulatory Affairs, Desk Officer for the Department of the Interior, fax 202-395-5806, or [oir\\_a\\_docket@omb.eop.gov](mailto:oir_a_docket@omb.eop.gov). Please include “Attention: OMB Control Number 1004-XXXX” in your comments. If you submit comments

on the information collection burdens, please provide the BLM with a copy of your comments, at one of the addresses shown above.

Please make your comments as specific as possible by confining them to issues directly related to the content of this proposed rule, and explain the basis for your comments. The comments and recommendations that will be most useful and likely to influence agency decisions are:

1. Those supported by quantitative information or studies; and
2. Those that include citations to, and analyses of, the applicable laws and regulations.

The BLM is not obligated to consider or include in the Administrative Record for the rule comments received after the close of the comment period (see **DATES**) or comments delivered to an address other than those listed above (see **ADDRESSES**).

Comments, including names and street addresses of respondents, will be available for public review at the address listed under **ADDRESSES** during regular hours (7:45 a.m. to 4:15 p.m.), Monday through Friday, except holidays.

Before including your address, telephone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

## **II. Background**

Well stimulation techniques, such as hydraulic fracturing, are used by oil and natural gas producers to increase the volumes of oil and natural gas that can be extracted from wells. Hydraulic fracturing techniques are particularly effective in enhancing oil and gas production from “shale” gas or oil formations. Until quite recently, shale formations rarely produced oil or gas in commercial quantities because shale does not generally generate flow of hydrocarbons to well bores unless mechanical changes to the properties of the rock can be induced. The development of horizontal drilling, combined with hydraulic fracturing, have made the production of oil and gas from shale possible. Hydraulic fracturing involves the injection of fluid under high pressure to create or enlarge fractures in the reservoir rocks. The fluid that is used in hydraulic fracturing is usually accompanied by proppants, such as particles of sand that are carried into the newly fractured rock and help keep the fractures open once the pressure from the fracturing operation is released. The proppant-filled fractures become conduits for fluid migration from the reservoir rock to the wellbore and the fluid is subsequently brought to the surface. In addition to the water and sand (which together typically make up 98 to 99 percent of the materials pumped into a well during a fracturing operation), chemical additives are also frequently used. These chemicals can serve many functions in hydraulic fracturing, including limiting the growth of bacteria and preventing corrosion of the well casing. The exact formulation of the chemicals used varies depending on the rock formations, the well, and the requirements of the operator.

The BLM estimates that about 90 percent (approximately 3,400 wells per year) of wells currently drilled on Federal and Indian lands are stimulated using hydraulic fracturing techniques. Over the past 10 years, there have been significant technological advances in horizontal drilling, which is frequently combined with hydraulic fracturing. This combination, together with the discovery that these techniques can release significant quantities of oil and gas from large shale deposits, has led to production from geologic formations in parts of the country that previously did not produce significant oil or gas. The resulting expansion of oil and gas drilling into new parts of the country as a result of the availability of new horizontal drilling technologies has significantly increased public awareness of hydraulic fracturing and the potential impacts that it may have on water quality and water consumption.

The BLM's existing hydraulic fracturing regulations are found at 43 CFR 3162.3-2. These regulations were established in 1982 and last revised in 1988, long before the latest hydraulic fracturing technologies became widely used. In response to public interest in hydraulic fracturing and in the BLM's regulation of hydraulic fracturing, in particular, the Department of the Interior (Department) held a forum on hydraulic fracturing on November 30, 2010 in Washington, DC, attended by the Secretary of the Interior and more than 130 interested parties. The BLM later hosted public forums in Bismarck, North Dakota on April 20, 2011; Little Rock, Arkansas on April 22, 2011; and Golden, Colorado on April 25, 2011, to collect broad input on the issues surrounding hydraulic fracturing. More than 600 members of the public attended the April forums. Some of the comments frequently heard during these forums included concerns about water quality, water consumption, and a desire for improved environmental safeguards for surface operations. Commenters also strongly encouraged the agency to require public disclosure of the chemicals used in hydraulic fracturing operations on Federal and tribal lands.



Around the time of the BLM's forums, at the President's direction, the Secretary of Energy's Advisory Board convened a Natural Gas Subcommittee (Subcommittee) to evaluate hydraulic fracturing issues. The Subcommittee met with industry, service providers, state and Federal regulators, academics, environmental groups, and many others stakeholders. Initial recommendations were issued by the Subcommittee on August 18, 2011. Among other things, the report recommended that more information be provided to the public, including disclosure of the chemicals used in fracturing fluids. The Subcommittee also recommended the adoption of progressive standards for wellbore construction and testing. The initial report was followed by a final report that was issued on November 18, 2011. The final report recommended, among other things, that operators engaging in hydraulic fracturing prepare cement bond logs and undertake pressure testing to ensure the integrity of all casings. These reports are available to the public from the Department of Energy's web site at <http://www.shalegas.energy.gov>.

The BLM's proposed rule is consistent with the American Petroleum Institute's (API) guidelines for well construction and well integrity (see API Guidance Document HF 1, Hydraulic Fracturing Operations—Well Construction and Integrity Guidelines, First Edition, October 2009).

Based on the input provided from a broad array of sources, including the individuals who spoke at the BLM's public forums and the recommendations of the Subcommittee, the BLM is proposing to make critical improvements to its regulations for hydraulic fracturing. The proposed regulations would be applied to all wells administered by the BLM, including those on Federal, tribal, and individual Indian trust lands.

The BLM has initiated government-to-government consultation with tribes on this proposal and has offered to hold follow-up consultation meetings with any tribe that desires to have an individual meeting. The BLM held four tribal consultation meetings, to which over 175 tribal entities were invited. The consultations were held in Tulsa, Oklahoma on January 10, 2012; in Billings, Montana on January 12, 2012; in Salt Lake City, Utah on January 17, 2012; and in Farmington, New Mexico on January 19, 2012. Eighty-one tribal members representing 27 tribes attended the meetings. One of the outcomes of these meetings is the proposed requirement in this proposed rule that operators certify that operations on tribal lands comply with tribal laws. Comments from tribes will be accepted and considered throughout the rule making process. Tribal governments, tribal members, and individual Native Americans are also invited to comment directly on this proposed rule through the process described in the Public Comment Procedures section of this document.

Over the past few years, in response to strong public interest, several states—including Colorado, Wyoming, Arkansas, and Texas—have substantially revised their state regulations related to hydraulic fracturing. One of the BLM’s key goals in updating its regulations on hydraulic fracturing is to complement these state efforts by providing a consistent standard across all public and tribal lands. The BLM is also actively working to minimize any duplication between the reporting required for state regulations and for this regulation and to make reported information consistent and easily accessible to the public. For instance, the BLM is working closely with the Ground Water Protection Council and the Interstate Oil and Gas Commission in an effort to integrate the disclosure called for in this rule with the existing program known as FracFocus. The FracFocus.org website is already well established and used by many states. This online database includes information from oil and gas wells in roughly 12 states and

includes information from over 206 companies. The BLM understands that the database is in the process of being improved and will in the near future have enhanced search capabilities and allow for easier reporting of information.

The BLM is also focused on coordinating closely with individual state governments. The agency has a long history of working cooperatively with state regulators in order to responsibly share resources and to avoid duplication of effort. The BLM is applying the same approach to this effort and will work closely with individual states on the implementation of the proposed regulation.

### **III. Discussion of the Proposed Rule**

The BLM proposes to revise its hydraulic fracturing regulations, found at 43 CFR 3162.3-2, and adding a new section 3162.3-3. Existing section 3162.3-3 would be retained and renumbered. The Federal Land Policy and Management Act (FLPMA) directs the BLM to manage the public lands so as to prevent unnecessary or undue degradation, and to manage lands using the principles of multiple use and sustained yield. FLPMA declares multiple use to mean, among other things, a combination of balanced and diverse resource uses that takes into account long-term needs of future generations for renewable and non-renewable resources. FLPMA also requires that the public lands be managed in a manner that will protect the quality of their resources, including ecological, environmental, and water resources. The Mineral Leasing Act and the Mineral Leasing Act for Acquired Lands authorize the Secretary to lease Federal oil and gas resources, and to regulate oil and gas operations on those leases, including surface-disturbing activities. The Indian Mineral Leasing Act assigns regulatory authority to the Secretary over Indian oil and gas leases on trust lands (except those excluded by statute). As stewards of the public lands, and as the Secretary's regulator for oil and gas leases on Indian lands, the BLM has

evaluated the increased use of well stimulation practices over the last decade and determined that the existing rules for well stimulation require updating.

The current regulations make a distinction between routine fracture jobs and nonroutine fracture jobs. However, the terms “routine” and “nonroutine” are not defined in 43 CFR 3162.3-2 or anywhere else in BLM regulations, making this distinction functionally difficult to apply and confusing for both the agency and those attempting to comply with the regulations. As previously stated, the regulations are now 30 years old and need to be updated to keep pace with the many changes in technology and current best management practices. As discussed in the background section of this document, the increased use of well stimulation activities over the last decade has also generated concerns among the public about well stimulation and about the chemicals used in hydraulic fracturing. The proposed rule is intended to increase transparency for the public regarding the fluids used in the hydraulic fracturing process, in addition to providing assurances that well bore integrity is maintained throughout the fracturing process and that the fluids that flow back to the surface from hydraulic fracturing operations are properly stored and disposed of or treated.

The following chart explains the major changes between the existing regulation(s) and the proposed regulation(s).

Existing Regulation	Proposed Regulation	Substantive changes
43 CFR 3160.0-5 Onshore oil and Gas	43 CFR 3160.0-5 Onshore oil and Gas	This proposal would replace the current definition of usable water found in 43 CFR

Operations: General Definitions	Operations: General Definitions	3162.5-2(d) and define six other terms used in the oil and gas drilling industry to make the rule clearer and easier to understand. The definitions would be consistent with those used in the BLM's Oil and Gas Onshore Orders and by industry.
43 CFR 3162.3-2(a) Subsequent Well Operations	43 CFR 3162.3-2(a) Subsequent Well Operations	This proposal would remove the phrase "performing nonroutine fracturing jobs."
43 CFR 3162.3-2(b) Subsequent Well Operations	43 CFR 3162.3-2(b) Subsequent Well Operations	This proposal would remove the phrase "routine fracturing or acidizing jobs, or . . ."
No existing regulation	43 CFR 3162.3-3(a) through (j)	This proposal would add provisions addressing well stimulation operations, would require disclosure of well stimulation fluids, and would require approval of well stimulation operations. The proposed rule would also require that mechanical integrity tests be conducted before well stimulation activities are conducted and would require full reporting of the results of the well stimulation activity within thirty days of its

		completion. This proposal would also add a section allowing the authorized officer to grant a variance to specific conditions of these rules if the operator can demonstrate that alternative procedures would meet or exceed the intent of the minimum standards in this rule. This variance language is consistent with that found in the BLM’s Oil and Gas Onshore Orders.
43 CFR 3162.5-2(d) Protection of fresh water and other minerals	43 CFR 3162.5-2(d) Protection of fresh water and other minerals	This proposal removes the definition of usable water from this section. The new definition of usable water would be placed in 43 CFR 3160.0-5.

**Section-by-section discussion of proposed changes**

As an administrative matter, the proposed rule would amend the authorities section for the BLM’s oil and gas operations management regulations at 43 CFR 3160.0-3 to include FLPMA. Section 310 of FLPMA authorizes the Secretary of the Interior to promulgate regulations to carry out the purposes of FLPMA and other laws applicable to the public lands. See 43 U.S.C. 1740. This amendment would not be a major change and would have no effect on lessees, operators, or the public.

The proposed rule would remove the terms “nonroutine fracturing jobs,” “routine fracturing jobs,” and “acidizing jobs” from 43 CFR 3162.3-2(a) and 43 CFR 3162.3-2(b). It would add a new section, 43 CFR 3162.3-3, for well stimulation activities. In the proposed rule, there would be no distinction drawn between what was previously considered nonroutine or routine well stimulations. Prior approval would be required for well stimulation activities, generally in connection with the prior approval process that already is in place for general well drilling activities through the Application for Permit to Drill (APD) process. Operators also will be required to submit cement bond logs before fracturing operations begin. The running of cement bond logs on surface casing, which is currently an optional practice, would now be required for new wells. Existing wells would require mechanical integrity testing prior to hydraulic fracturing.

The proposed rule would include six new definitions for technical terms used in the proposed rule. These definitions will improve readability and clarity of the regulations.

The proposed rule intends to add the following definitions:

- Annulus means the space around a pipe in a wellbore, the outer wall of which may be the wall of either the borehole or the casing; sometimes also called the annular space.
- Bradenhead means a heavy, flanged steel fitting connected to the first string of casing that allows suspension of intermediate and production strings of casing, and supplies the means for the annulus to be sealed off.
- Proppant means a granular substance (most commonly sand, sintered bauxite, or ceramic) that is carried in suspension by the fracturing fluid and that serves to keep the cracks open when fracturing fluid is withdrawn after a hydraulic fracture treatment.

- Stimulation fluid means the liquid or gas, and any accompanying solids, used during a treatment of oil and gas wells, such as the water, chemicals, and proppants used in hydraulic fracturing.
- Usable water means water containing up to 10,000 ppm of total dissolved solids.
- Well stimulation means those activities conducted in an individual well bore designed to increase the flow of hydrocarbons from the rock formation to the well bore by modifying the permeability of the reservoir rock. Examples of well stimulation operations are acidizing and hydraulic fracturing.

The proposed rule would delete the definition of “fresh water.” The BLM has maintained a definition of fresh water in its oil and gas operating regulations since 1988. However, in its onshore orders, the BLM has sought to protect all usable waters during drilling operations, not just fresh water. This distinction has led to confusion in the regulations. Usable water includes fresh water and water that is of lower quality than fresh water. The BLM intends to be more protective when it seeks to protect all usable water during drilling operations, not just fresh water. Therefore, the BLM proposes to delete the definition of fresh water.

Revised section 3162.3-2(a) would remove the phrase “perform nonroutine fracturing jobs” from the current 43 CFR 3162.3-2(a). The phrase “routine fracturing jobs or acidizing jobs, or” would also be removed from existing section 3162.3-2(b). Well stimulation activities would be addressed under the new proposed 43 CFR 3162.3-3.

Proposed section 3162.3-3(a) would make it clear that this section applies only to well stimulation activities and that all other injection activities must comply with section 3162.3-2.



This language is necessary to make the distinction between well stimulation activities and other well injection activities, such as secondary and tertiary recovery operations.

Proposed section 3162.3-3(b) would require the BLM's approval of all well stimulation activity. For new wells, the operator has the option of applying for the BLM's approval in its application for permit to drill (APD). For wells permitted prior to the effective date of this section or for wells permitted after the effective date of this section, the operator would submit a Sundry Notice and Report on Wells (Form 3160-5) for the well stimulation proposal for the BLM's approval before the operator begins the stimulation activity. This section would supersede and replace existing section 3162.3-2(b) that states that no prior approval is required for routine fracturing. This reference in the existing section would be deleted. Also, an operator must submit a Sundry Notice prior to well stimulation activity if the BLM's previous approval for well stimulation is more than five years old, or if the operator becomes aware of significant new information about the relevant geology, the stimulation operation or technology, or the anticipated impacts to any resource. The five-year period is consistent with common state practices, including those of Montana, Wyoming, and Colorado, which require that operators reconfirm well integrity for fracturing operations through a pressure test every five years.

The BLM does not anticipate that the submittal of additional well stimulation-related information with APD applications will impact the timing of the approval of drilling permits. The BLM believes that the additional incremental information that would be required by this rule would be reviewed in conjunction with the APD and within the normal APD processing time frame. Also, the BLM anticipates that requests to conduct well stimulation activities on existing wells that have been in service more than five years will be reviewed promptly.

Proposed section 3162.3-3(c)(1) would require a report that includes the geological names, a geological description, and the depth of the top and the bottom of the formation into which well stimulation fluids would be injected. The report is needed so that the BLM may determine the properties of the rock layers and the thickness of the producing formation and identify the confining rocks above and below the zone that would be stimulated.

Proposed section 3162.3-3(c)(2) would require the operator to submit information in the form of a cement bond log, which will help the BLM in its efforts to make sure that water resources are protected. A cement bond log is a tool used to gauge the extent to which water bearing formations are isolated from the casing string. The log is a document that reports the data from a probe of the wellbore that uses sonic technology to detect gaps or voids in the cement and the casing. This log would be used to verify that the operator has taken the necessary precautions to prevent migration of fluids in the annulus from the fracture zone to the usable water horizons. The proposed regulation allows for the use of other evaluation tools acceptable to the BLM in order to allow the substitution of equally effective tools or procedures. For example, an operator could request a variance from the requirements of proposed section 3162.3-3(c)(2) that it submit cement bond logs to prove that the occurrences of usable water have been isolated to protect them from contamination. The BLM could grant a variance to allow for the use of logs other than cement bond logs (e.g., slim array sonic tool, ultrasonic imager tool) if it was satisfied that the alternative logs would meet or exceed the objectives of section (c)(2). The BLM recognizes that the cement bond log would not be available prior to drilling a well. Therefore, when the operator takes advantage of the option to submit its well stimulation information as part of its APD, the

cement bond log would be required after approval of the permit to drill and prior to commencing well stimulation activities. Many operators routinely perform cement bond logs for the zones of interest, so the BLM does not expect this step to be a burden for operators. The best available means for the BLM to help ensure that well stimulation activities do not contaminate aquifers is to require cement bond logs for the cement behind the pipe along all areas intersecting useable water, including running cement bond logs on the surface casing.

Proposed section 3162.3-3(c)(3) would require reporting of the measured depth to the perforations in the casing and uncased hole intervals (open hole). This proposed section would also require the operator to disclose specific information about the water source to be used in the fracturing operation, including the location of the water that would be used as the base fluid. The BLM needs this information to determine the impacts associated with operations and the need for any mitigation applicable to Federal and Indian lands. This section would also require the operator to disclose the type of materials (proppants) that would be injected into the fractures to keep them open and the anticipated pressures to be used in the well stimulation operation.

Proposed section 3162.3-3(c)(4), consistent with protecting public health and safety and preventing unnecessary or undue degradation to the public lands, would require operators to certify in writing that they have complied with all applicable Federal, tribal, state, and local laws, rules, and regulations pertaining to proposed stimulation fluids. The BLM will use this information to make an informed decision on the proposed action. This section also would require the operator to certify that it has complied with all necessary permit and notice requirements. The BLM acknowledges that other Federal, state, tribal, and local agencies may

have regulatory requirements that would apply to chemical handling, injecting fluids into the subsurface, and the protection of groundwater. It remains the responsibility of the operator to be aware of and comply with these regulatory requirements. The BLM will rely on the operator's certification that it has complied with all of the laws and regulations that apply to its operation.

Proposed section 3162.3-3(c)(5) would require the operator to submit a detailed description of the well stimulation engineering design to the BLM for approval. This information is needed in order for the BLM to be able to verify that the proposed engineering design is adequate for safely conducting the proposed well stimulation.

Proposed section 3162.3-3(c)(5)(i) would require the operator to submit to the BLM an estimate of the total volume of fluid to be used in the stimulation.

Proposed section 3162.3-3(c)(5)(ii) would require the operator to submit to the BLM a description of the range of the surface treating pressures anticipated for the stimulation. This information is needed by the BLM to verify that the maximum wellbore design burst pressure will not be exceeded at any stage of the well stimulation operation.

Proposed section 3162.3-3(c)(5)(iii) would require the operator to submit to the BLM the proposed maximum anticipated injection pressure for the stimulation. This information is needed by the BLM to verify that the maximum allowable injection pressure will not be exceeded at any stage of the well stimulation operation.

Proposed section 3162.3-3(c)(5)(iv) would require the operator to submit to the BLM the estimated or calculated fracture length and height anticipated as a result of the stimulation, so that the BLM can verify that the intended effects of the well stimulation operation will remain confined to the petroleum-bearing rock layers and will not have unintended consequences on other rock layers, such as aquifers.

Proposed section 3162.3-3(c)(6) would require the operator to provide information pertaining to the handling of recovered fluids that will be used for the stimulation activities for approval. This information is being requested so that the BLM has all necessary information regarding chemicals being used in the event that the information is needed to help protect health and safety or to prevent unnecessary or undue degradation of the public lands.

Proposed section 3162.3-3(c)(6)(i) would require the operator to submit to the BLM an estimate of the volume of fluid to be recovered during flow back, swabbing, and recovery from production facility vessels. This information is required to ensure that the facilities needed to process or contain the estimated volume of fluid will be available on location.

Proposed section 3162.3-3(c)(6)(ii) would require the operator to submit to the BLM the proposed methods of managing the recovered fluids. This information is needed to ensure that the handling methods will adequately protect of public health and safety.

Proposed section 3162.3-3(c)(6)(iii) would require the operator to submit to the BLM a description of the proposed disposal method of the recovered fluids. This is currently required

by existing BLM regulations (i.e., Onshore Order Number 7, Disposal of Produced Water, (58 FR 47354). This information is requested so that the BLM has all necessary information regarding disposal of chemicals used in the event it is needed to protect the environment and human health and safety and to prevent unnecessary or undue degradation of the public lands. The BLM specifically requests comments on whether the operator should be required to submit as part of the Sundry Notice application additional information about how it will dispose of waste streams not specifically addressed in this proposal.

Proposed section 3162.3-3(c)(7) would require the operator to provide, at the request of the BLM, additional information pertaining to any facet of the well stimulation proposal. For example, the BLM may require new or different tests or logs in cases where the original information submitted was inadequate, out of date, or incomplete. Such information may include, but is not limited to, tabular or graphical results of a mechanical integrity test, the results of logs run, the results of tests showing the total dissolved solids in water proposed to be used as the base fluid, and the name of the contractor performing the stimulation. This provision would allow the BLM to obtain additional information about the proposed well stimulation activities.

Proposed section 3162.3-3(d) would require the operator to perform a successful mechanical integrity test before beginning well stimulation operations. This requirement is necessary to help ensure the integrity of the wellbore under anticipated maximum pressures during well stimulation operations.

Proposed section 3162.3-3(d)(1) would require the mechanical integrity test to emulate the pressure conditions that would be seen in the proposed stimulation process. This test would show that the casing is strong enough to protect water and other subsurface resources during well stimulation activities.

The proposed section 3162.3-3(d)(2) would establish the engineering criteria for using a fracturing string as a technique during well stimulation. The requirement to be 100 feet below the cement top would be imposed to ensure that the production or intermediate casing is surrounded by a competent cement sheath as required by Onshore Order Number 2. The 100 foot requirement is required by some state statutes (e.g., Montana Board of Oil and Gas Conservation, section 36.22.1106, Hydraulic Fracturing) and is a generally accepted standard in the industry. Testing would emulate the pressure conditions that would be seen in the proposed stimulation process in order to ensure that the casing used in the well would be robust enough to handle the pressures.

Proposed section 3162.3-3(d)(3) would require the use of the pressure test time requirement of holding pressure for 30 minutes with no more than 10 percent pressure loss. This requirement is the same standard applied in Onshore Order Number 2, Drilling, (53 FR 46790) Section III.B.h., to confirm the mechanical integrity of the casing. This language does not set a new standard in the BLM's regulations. This test, together with the other proposed requirements, would demonstrate if the casing is strong enough to protect water and other subsurface resources during well stimulation activities. The BLM believes that all of these tests are important to show that

reasonable precautions have been taken to ensure the protection of other resources during well stimulation activities.

Proposed section 3162.3-3(e)(1) would require the operator to continuously monitor and record the pressure(s) during the well stimulation operation. The pressure during the stimulation should be contained in the string through which the stimulation is being pumped. Unexpected changes in the monitored and recorded pressure(s) would provide an early indication of the possibility that well integrity has been compromised. This information is needed by the BLM to ensure that well stimulation activities are conducted as designed. This information would also show that stimulation fluids are going to the formation for which they were intended.

Proposed section 3162.3-3(e)(2) would require the operator to orally notify the BLM as soon as possible, but no later than 24 hours following the incident, if during the stimulation operation the annulus pressure increases by more than 500 pounds per square inch over the annulus pressure immediately preceding the stimulation. Within 15 days after the occurrence, the operator must submit a Subsequent Report Sundry Notice (Form 3160-5, Sundry Notices and Report on Wells) to the BLM containing all details pertaining to the incident, including corrective actions taken. This information is needed by the BLM to ensure that stimulation fluids are going into the formation for which they were designed. The BLM also needs to obtain reasonable assurance that other resources are adequately protected. An increase of pressure in the annulus of this amount could indicate that the casing had been breached during well stimulation. Consistent with the BLM's Onshore Order Number 2, Drilling Operations, the operator must repair the casing should a breach occur.



Proposed section 3162.3-3(f) would require the operator to store recovered fluids in tanks or lined pits. The BLM is proposing this requirement because flowback fluids could contain hydrocarbons from the formation and could also contain additives and other components that might degrade surface and ground water if they were to be released without treatment.

Additional conditions of approval for the handling of flowback water may be placed on the project by the BLM if needed to ensure protection of the environment and other resources. The BLM specifically requests comments on whether this rule should impose additional requirements that would require tanks or lined pits for drilling fluids and any other fluids associated with well stimulation operations.

Proposed section 3162.3-3(g) would require the operator to submit to the BLM the post-operation data on a Subsequent Report Sundry Notice (Form 3160-5, Sundry Notices and Report on Wells) following the completion of the stimulation activities. The BLM would determine if the well stimulation operation was conducted as approved. This information would be retained by the BLM as part of the individual well record and would be available for use when the well has been depleted and the plugging of the well is being designed.

Proposed section 3162.3-3(g)(1) would require reporting of the actual measured depth to the perforations and open hole interval. This information identifies the producing interval of the well and will be available for use when the well has been depleted and plugging of the well is being designed. Specific information as to the actual source of water, including location of the water being used as the base fluid, is required because the BLM needs the information to

determine the impacts associated with operations and the need for any mitigation applicable to Federal and Indian lands.

Proposed section 3162.3-3(g)(2) would require the operator to submit to the BLM the actual total volume of fluid used, including water, proppants, chemicals, and any other fluid used in the stimulation(s) in order for the BLM to maintain a record of the stimulation operation as actually performed.

Proposed section 3162.3-3(g)(3) would require the operator to submit to the BLM a report of the surface pressure at the end of each stage pumped and the rate at which the fluid was pumped at the completion of each stage (i.e., just prior to shutting down the pumps). In addition to the information provided for the individual stages, the pressure values for each flush stage must also be included. This information is needed by the BLM for it to ensure that the maximum allowable pressure was not exceeded at any stage of the well stimulation operation.

Proposed sections 3162.3-3(g)(4) and (5) would require the operator to identify to the BLM the stimulation fluid by additive trade name and additive purpose, the Chemical Abstracts Service Registry Number, and the percent mass of each ingredient used in the stimulation operation. This information is needed in order for the BLM to maintain a record of the stimulation operation as performed. The information is being required in a format that does not link additives (required by 3162.3-3(g)(4)) to chemical composition of the materials (required by 3162.3-3(g)(5)) to minimize the risk of disclosure of any formulas of additives. This approach is similar to the one the State of Colorado adopted in 2011 (Colorado Oil and Gas Conservation

Commission Rule 205A.b2.ix – xii). The BLM intends to place this information on a public web site and is working with the Ground Water Protection Council in an effort to integrate this information into the existing website known as FracFocus.org. The disclosure of the fluids used in hydraulic fracturing would only be required after the fracturing operation has taken place.

Proposed section 3162.3-3(g)(6) would require the actual, estimated, or calculated fracture length and height of the stimulation(s) to be reported to the BLM so that it can verify that the intended effects of the well stimulation operation remain confined to the petroleum-bearing rock layers and will not have unintended consequences on other rock layers or aquifers. This section would require the operator to show that the well stimulation activity was successfully implemented as designed and that the integrity of the well was maintained during stimulation.

Proposed section 3162.3-3(g)(7) would allow the operator flexibility to report online the information listed in proposed sections 3162.3-3(g)(1) through 3162.3-3(g)(6) by attaching a copy of the service company contractor's job log or report, provided the information required is adequately addressed. The operator is responsible for ensuring the accuracy of any information provided to the BLM, even if originally drafted by a third party.

Proposed section 3162.3-3(g)(8), would require operators to certify they have complied with all applicable Federal, state, tribal, and local laws, rules, and regulations pertaining to the stimulation fluids that were actually used during well stimulation operations. The proposed section would also require that the operator certify that it has complied with all necessary permit and notice requirements. This information would be retained by the BLM as part of the well

record and be available for use when the well has been depleted and closure of the well is being designed. The information is also needed for the BLM to fulfill its obligation to prevent unnecessary or undue degradation of the public land.

Proposed section 3162.3-3(g)(9) would require operators to certify that wellbore integrity was maintained throughout the operation. This information is needed because the BLM has a mandate to protect human health and safety and prevent contamination of the environment.

Proposed section 3162.3-3(g)(10) would require the operator to provide information describing the handling of the fluids used for the stimulation activities, flow-back fluids, and produced water. The operator must also report how it handled those fluids after operations were completed.

Proposed section 3162.3-3(g)(10)(i) would require the operator to report the volume of fluid recovered during flow back, swabbing, or recovery from production facility vessels.

Proposed section 3162.3-3(g)(10)(ii) would require the operator to report the methods of managing the recovered fluids.

Proposed section 3162.3-3(g)(10)(iii) would require the operator to report the disposal method of the recovered fluids. This section also makes it clear that the fluid disposal methods must be consistent with Onshore Order Number 7, Disposal of Produced Water (58 FR 47353). This information is needed so that the BLM can help protect human health and safety and prevent the

contamination of the environment. The BLM also needs to confirm that the disposal methods used are those that were approved and conform to the regulations.

Proposed section 3162.3-3(g)(11) would require the operator to submit documentation and an explanation if the actual operations deviated from the approved plan. Understanding the complexities of well stimulation, the BLM expects there to be slight differences between the proposed plan and the actual operation.

Proposed sections 3162.3-3(h) and (i) would notify the operator of procedures it needs to follow to identify information required to be submitted under this section that the operator believes to be exempt, by law, from public disclosure. If the operator fails to specifically identify information as exempt from disclosure by Federal law, the BLM will release that information. The BLM may also release information which the operator has marked as exempt if the BLM determines that public release is not prohibited by Federal law after providing the operator with no fewer than 10 business days' notice of the determination. All other information submitted by the operator will become a matter of public record.

Proposed section 3162.3-3(j) would provide the operator with a process for requesting a variance from the minimum standards of this regulation. Variances apply only to operational activities and do not apply to the actual approval process. The proposed regulation would make clear that the BLM has the right to rescind a variance or modify any condition of approval due to changes in Federal law, technology, regulation, field operations, noncompliance, or other reasons. The BLM must make a determination that the variance request meets or exceeds the objectives of the

regulation. For example, an operator could request a variance from the requirements of proposed section 3162.3-3(c)(2) that it submit cement bond logs to prove that the occurrences of usable water have been isolated to protect them from contamination. The BLM could grant a variance to allow for the use of logs other than cement bond logs if it was satisfied that the alternative logs would meet or exceed the objectives of section (c)(2). This variance provision is consistent with existing BLM regulation such as Onshore Order Number 1 (see section X. of Onshore Oil and Gas Operations; Federal and Indian Oil and Gas Leases; Onshore Oil and Gas Order Number 1, Approval of Operations (72 FR 10308, 10337).

Revised section 3162.5-2(d) would remove the references to fresh water and remove the phrase “containing 5,000 ppm or less of dissolved solids.” This revision would require the operator to isolate all usable water. This language does not set a new standard in the BLM’s regulations. Since 1988, Onshore Order Number 2, Drilling Operations, (53 FR 46790) Section II.Y. has defined usable water and Onshore Order Number 2, Drilling Operations, Section III.B. has required the operator to “protect and/or isolate all usable water zones.” Section 3162.5(d) was not revised when Onshore Order Number 2, Drilling Operations, was promulgated, which has led to some confusion in implementing and interpreting the regulations.