Data Submitted (UTC 11): 5/29/2014 12:00:00 AM
First name: Jason
Last name: Gerdes
Organization: U.S. Environmental Protection Agency
Title:
Comments: Mr. Jonathan Schwartz
Los Padres National Forest 1190 East Ojai Avenue Ojai, California 93023

MAY 29 2004

Subject: Notice oflntent to Prepare an Environmental Assessment for Seneca Resources Plan to Drill Eight New Oil and Gas Wells and Install New Facilities on Los Padres National Forest Service Land, Ventura County, CA.

Dear Mr. Schwartz:

The U.S. Environmental Protection Agency has reviewed the above-referenced document. We appreciate the opportunity to provide our recommendations on the scope of the upcoming Environmental Assessment. Our comments are provided pursuant to the National Environmental Policy Act and the Council on Environmental Quality regulations (40 CFR Parts 1500-1508).

The scope of subjects that the EPA recommends be included in the Draft Environmental Assessment is described in the enclosed detailed comments. Topics include air quality, water resources, climate change, vegetation and wildlife, cumulative impacts, and induced seismicity. We also recommend that the DEA discuss the connection between the analysis of hydraulic fracturing and the BLM statewide study regarding planning and science review of oil and gas development on public lands.

We appreciate the opportunity to review this scoping notice and look forward to working with you on this project. When the DEA is released for public review, please send one hard copy and one electronic copy to the address above. Ifyou have any questions, please contact Scott Sysum, the lead reviewer for this project, at (415) 972-3742 or sysum.scott@epa.gov. You may also contact me at (415) 947-4221.

Sincerely,

Jason Gerdes
Environmental Review Section (ENF-4-2)

Enclosure:EPA's Detailed Comments

US EPA DETAILED COMMENTS ON THE NOTICE OF INTENT TO PREPARE AN ENVIRONMENTAL ASSESSMENT FOR SENECA RESOURCES PLAN TO DRILL EIGHT NEW OIL AND GAS WELLS AND INSTALL NEW FACILITIES ON LOS PADRES NATIONAL FOREST SERVICE LAND, VENTURA COUNTY, CA., MAY 29, 2014

Hydraulic Fracturing Studies in California:

The oil and gas sector has utilized hydraulic fracturing in California for decades. Its possible expansion, however, presents a management challenge, to both state and federal regulators, to proactively plan for this possible boom. The EPA recommended - in comment letters submitted in 2011 for Draft EISs developed for the Bakersfield and South Coast resource management plans - that the Bureau of Land Management prepare for this possible expansion by assessing the scope of, and potential impacts associated with, hydraulic fracturing activities. We are aware that the BLM is undertaking a statewide study regarding planning and science review of oil and gas development on public lands, and that the State is conducting an assessment pursuant to California's well stimulation permitting law, SB 4.

Recommendations:
*The Forest Service should coordinate with the teams that will prepare the statewide hydraulic fracturing assessments, for both the BLM and State of California, to inform the analysis and alternatives developed for the Sespe Oilfield environmental analysis.

Air Quality MOU for Oil and Gas Decisions on Federal Lands

On June 23, 2011, the U.S. Department of the Interior, the U.S. Department of Agriculture and the EPA signed a Memorandum of Understanding that established a common process for the agencies to follow in analyzing the potential air quality impacts of proposed oil and gas activities on federally managed public lands. 1 The EPA has begun to use this helpful tool to ensure effective and efficient NEPA air quality evaluations for federal oil and gas decisions. The EPA is committed to working productively with our federal partners on this effort.

Recommendation:
*The DEA should describe the selected methods for protecting air quality (which can include emission standards or limitations, best management practices, control technologies, and considerations of the pace of development) and the regulatory mechanisms the Forest Service will use to ensure their implementation (including lease stipulations and conditions of approval, notices to lessees, and permit terms and conditions).

Groundwater and Surface water Resource Protection

Characterize Water Resources

The water used in drilling and hydraulic fracturing can come from a variety of sources. It may be: purchased or leased from municipal supplies; transferred as water rights, such as agriculture water rights; fully consumable water (leased or purchased effluent); or produced water (non-tributary). The amount of water used in oil and gas operations depends largely upon the type of well being drilled.

Recommendations:
*The DEA should present baseline data on the condition and quality of groundwater and surface water resources and, where appropriate and possible, reasons why these resources have been impacted (e.g., oil and gas development, mining), including:
oLists of any Clean Water Act impaired or threatened waterbody segments within, or downstream of, the project area, including the designated uses of the waterbodies and the specific pollutants of concern.
oInventories and maps of existing wetlands and waters of the U.S. within the planning area, including wetlands that are regulated under Section 404 of the CWA and wetlands that are determined to be non-jurisdictional and protected under Executive Order 11990 -Protection of Wetlands (May 24, 1977), and, where applicable, acreages and channel lengths, habitat types, values, and functions of these waters.
*The DEA should discuss groundwater resources, with particular emphasis on:
oThe major aquifers in the basin, their three dimensional extent, the physical and chemical characteristics of their

groundwater, estimates of the quantity of water in the aquifers and aquifer recharge rates.
oThe location and extent of the groundwater recharge areas.
oThe location of shallow and sensitive aquifers that are susceptible to contamination from surface activities.
oThe location of existing and potential underground sources of drinking water. Underground sources of drinking water include not only those formations that are presently being used for drinking water, but also. those that can reasonably be used in the future.2

Hydraulic Fracturing and Potential Impacts on Water Quantity

The technique of hydraulic fracturing and completion of each well may require the consumption of 2 to 4 million gallons of water.3 Though recycling is being used in some oil and gas fields, most of the water used is consumed. The fracturing fluids used consist mostly of freshwater amended with chemical additives. Between 25 and 100 percent of the fracturing fluid may be returned to the surface as "flowback" and eventually transitions to "produced" water, which must then be treated or disposed. In addition to chemical additives, the flowback water from hydraulic fracturing typically contains high levels of total dissolved solids, hydrocarbons, heavy metals and radionuclides and must be properly managed. This flow back water is either treated or disposed of in deep injection wells.

Recommendations:
*The DEA should disclose, to the extent that information is available, the water needs and anticipated sources for projected oil and gas development in the planning area. The EPA recommends reuse of produced water for these*activities to reduce the use of drinking water resources and help ensure the long term sustainability of these operations.
*Further, because availability of freshwater could be a concern for future oil and gas development projects in the planning area, we recommend that the DEA confirm that future projects will need a water resource management plan to address water consumption and produced water disposal, including identifying water recycling opportunities.
*The DEA should include a comprehensive analysis of potential impacts to the quality of surface water and groundwater resources and evaluate the following activities for their impacts:
oWaste management, including use, reuse, recycling and disposal of oil and gas produced and flowback water.
oImpacts to shallow aquifers from oil and gas well drilling, well completion and production.
oManagement of spills or leaks from surface impoundments, oil and gas pits, or produced water evaporation ponds.
oErosion and sedimentation impacts associated with surface disturbance, including those associated with roads, well pad construction, well drilling and completion, and pipelines.
*As part of completing the aforementioned evaluation, the following resource impacts should be discussed, including disclosure of which waters may be impacted, the nature of potential impacts, and specific pollutants likely to impact those waters:
oGroundwater: Potential impacts to groundwater, including municipal or private water supplies. We recommend that this include an analysis of the management of any fluids that will be injected underground for well completion, including the toxicity and fate of these fluids, with a focus on avoiding surface spills or leaks of these fluids.
oImpaired Waterbodies: Potential impacts to impaired waterbodies, including waterbodies listed on the CWA § 303(d) list and waterbodies with completed Total Maximum Daily Loads (TMDLs).
oSurface Water Quality and Sedimentation: Potential impacts to water quality from runoff associated with surface disturbance. Erodible soils can represent a significant nonpoint source, and runoff could introduce sediments, as' well as salts, selenium and other heavy metals into surface waters. To ensure sufficient information is included about the potential impacts of soil disturbance, we recommend that the DEA include an estimate of erosion rates for each alternative in tons per year based on amount of surface disturbance, soil types, topography and slope, to avoid significant sedimentation.

Mitigation of Potential Water Quality Impacts

The EPA recommends that the DEA identify and discuss how surface water and groundwater quality would be protected during the oil and gas development activities and how significant impacts would be mitigated . This can be accomplished by developing specific stipulations for avoiding wells and surface disturbing activities in sensitive resources areas. Once the impact analysis is complete, the EPA would like to work with BLM in on the identification of appropriate strategies to mitigate significant impacts.

Recommendations:
*Include, in the DEA, a list of BMPs that may be required to protect surface water and groundwater resources, and the circumstances under which the BMPs would be applied (e.g., proximity to surface water resources, presence of erosive soils, slope, shallow water aquifers, proximity of water wells, etc.).
Explain, in the DEA, how the BLM would ensure that the BMPs would be monitored and enforced.
*We recommend following CEQ's guidance, Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact, when addressing mitigation of any impacts identified in the DEA.
*In order to protect surface water and groundwater resources, the DEA should include a requirement for fracture monitoring. Fracture monitoring can be accomplished with Tiltmeter Monitoring and/or Microseismic Monitoring. The purpose of these monitoring techniques is primarily to locate the vertical extent of the newly created fractures and verify that the vertical extent of fracturing does not reach any aquifers.
*In the absence of groundwater modeling to determine the distance from the project at which impacts may occur, the EPA recommends that the BLM adopt a requirement for monitoring to occur in private wells within one mile of an oil and/or gas project area. This monitoring will help assure mitigation measures are adequate and that water resources are being fully protected.

The challenges associated with conventional drilling containment basins/reserve pits include the volume of drilling wastes; drill site installation and restoration costs; pollution of land and/or surface water due to failure of pits and/or containment system and associated cleanup costs; management and inspection/monitoring costs; potential for mortality to birds and other animals that may be attracted to the water; and potential for subsurface pollution due to downward migration from pits and/or surface soil permeability. An alternative is pitless or closed loop drilling methods, which do not require the construction and management of a reserves pit, and storage of produced fluids in Baker Tanks. A closed loop system offers a drilling site both de-watering and wastewater management. The process involves separating solids from liquids, using both mechanical means (shaking and screens) and chemical means. A centrifuge spins the water out of the solids. The gravel-like solids, drill cuttings, are dried and then if they are not contaminated -used to construct access roads or new well pads. The water is stored for
re-use in the drilling process.

Recommendation:
*The EPA recommends that the DEA discuss the use of pitless drilling. The BLM "Gold . Book", which provides Best Management Practices for drilling, endorses this zero discharge process.4

Indirect and Cumulative Impacts

The cumulative impacts analysis should provide the context for understanding the magnitude of the impacts of the alternatives by analyzing the impacts of other past, present, and reasonably foreseeable projects or actions and then considering those cumulative impacts in their entirety (CEQ's Forty. Questions, #18). The DEA should clearly identify the resources that may be cumulatively impacted, the time over which impacts would occur, and the geographic area that would be impacted by the proposed projects. The DEA should focus on resources of concern -those resources that are "at risk" and/or are significantly impacted by the proposed projects, before mitigation. In the introduction to the Cumulative Impacts Section, identify which resources are analyzed, which

ones are not, and why.

Recommendations:
*Identify the current condition of the resource as a measure of past impacts. For example, the percentage of species habitat lost to date.
*Identify the trend in the condition of the resource as a measure of present impacts. For example, the health of the resource is improving, declining, or in stasis.
*Identify all on-going, planned, and reasonably foreseeable projects in the study area that may contribute to cumulative impacts.
*Identify the future condition of the resource based on an analysis of impacts from reasonably foreseeable projects or actions added to existing conditions and current trends.
*Assess the cumulative impacts contribution of the proposed alternatives to the long-term health of the resource, and provide a specific measure for the projected impact from the proposed alternatives.
*Disclose the parties that would be responsible for avoiding, minimizing, and mitigating those adverse impacts.
*Identify opportunities to avoid and minimize impacts, including working with other entities.

Climate Change and Greenhouse Gas Emissions

Oil and natural gas systems are one of the largest contributors to anthropogenic methane emissions in the U.S., according to EPA's 2011 U.S. Greenhouse Gas Inventory Report5* Pursuant to the Council on Environmental Quality's "Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions," and Executive Order 13514, the EPA recommends that the BLM include, in the DEA, an assessment of the projected GHG emissions for this action, a description of how these emissions would impact climate change, and how climate change may affect oil and gas activities in the planning area.

Recommendations:
*Describe the potential range of GHG emissions that may be associated with lifecycle commercial oil and gas development under each alternative, to help Forest Service decision makers and the public understand how GHG emissions scenarios may vary. We
*recommend that GHG emissions be quantified in C02-equavalent terms and translated into equivalencies that are easily understood from the public standpoint (e.g., annual GHG emissions from x number of motor vehicles, see
http://www.epa.gov/ cleanenergy/energy-resources/calculator.html). In addition, because information on the "downstream" indirect GHG emissions from activities such as refining may be of interest to the public in obtaining a complete picture of the GHG
emissions associated with the proposed project, it may be helpful to estimate and disclose such information.
*Describe any existing Regional, Tribal or State climate change plans or goals that cover the oil and gas development area as well as the extent to which the Forest Service would reconcile, through mitigation or otherwise, its proposed action with such plans.
*Qualitatively discuss the link between GHGs and climate change, and the potential impacts of climate change. Include a summary discussion of ongoing and projected regional climate change impacts relevt to the planning area.
*Identify any potential impacts from the proposed action that may be exacerbated by climate change (e.g., reclamation could become more difficult with climate change, or the impacts of water consumption could increase). We recommend that the Forest Service
*.assess and implement measures to reduce GHG emissions associated with the proposed project, including alternatives and/or potential means to mitigate emissions..We recommend considering mitigation measures from the EPA's Natural Gas STAR Program as examples of cost-effective technologies and practices to reduce GHG emissions (www.epa.gov/gasstar/).

Threatened and Endangered Species

The project area may contain numerous special status species, including Endangered Species Act listed species.

Recommendation:
*The USFS and BLM should engage the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife as early in the analysis as possible to ensure that this topic is adequately analyzed during the NEPA review. Generally, we suggest the analysis include a summary of the status and trends of analysis area ESA-listed species and potential suitable habitat; disclosure of potential impacts to these resources; and the results of USFWS/CDFW coordination, including any recommended design criteria, monitoring and mitigation requirements.

Invasive Species

Executive Order 13112, Invasive Species (February 3, 1999), mandates that federal agencies take actions to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause. Executive Order 13112 also calls for the restoration of native plants and tree species. In addition, we encourage alternative management practices that limit herbicide use, focusing instead on other methods to limit invasive species vegetation and decrease fire risk, and using herbicides only as a last resort.

Recommendations:
*The DEA should describe the invasive plant management plan used to monitor and control noxious weeds. Ifherbicides will be used to manage vegetation, the DEA should disclose the projected quantities and types of chemicals. The invasive plant management plan should identify methods that can be used to limit the introduction and spread of invasive species during and post-construction. These measures can include marking and avoidance of invasives, timing construction activities during periods that would minimize their spread, proper cleaning of equipment, and proper disposal of wooy material removed from the site.
*Because construction measures may not be completely effective in controlling the introduction and spread of invasives, the DEA should describe post-construction activities that will be required, such as surveying for invasive species following restoration of the construction site and measures that will be taken if infestations are found.

Induced Seismicity

Induced seismicity in oil and gas production has been observed ever since the 1930s. In the last decade, a number of examples of earthquake activity related to oil and gas production, as well as injection of liquids under high pressure, have been observed. Almost all induced seismicity associated with petroleum extraction can be traced to either fluid injection or extraction. In some recent cases, injection of produced water (excess water extracted during oil and gas extraction) has produced significant seismic activity. Examples are in Colorado and Texas, where gas and oil production yield large volumes of water that must be put back underground. Mitigation can be achieved through abatement and/or redistribution of the fluids to different areas or depths.

Recommendations:
*The DEA should discuss the potential for geological hazards such as induced seismicity or subsidence.
*The DEA should discuss how geological hazards would be monitored, and mitigation measures employed, if detrimental geological hazards are manifested by the exploration and well completion activities, as well as by underground injection of produced water or flowback water.