

**Attachment 9**

**Draft Rulison Sampling and Analysis Plan**

**Response to Comments**

**from**

**Luke J. Danielson  
(Further Observations Comments)**

## Draft Rulison Sampling and Analysis Plan

The following provides Noble Energy Production, Inc., Williams Petroleum RMT, and EnCana Oil & Gas (USA), Inc. (“the Companies) responses to the Colorado Oil and Gas Conservation Commission (COGCC) general comments to the Companies Draft Rulison Sampling and Analysis Plan (SAP). These further observations comments were prepared and submitted by Luke Danielson and his Expert Group on December 20, 2007. Responses to the comments outlined below will be incorporated into a revised SAP.

Comment 1: 1. This plan is set to be in effect for a very long time, decades at least. There is no way to anticipate all requirements and developments, such as technological monitoring developments, over that period of time. Nor can we anticipate all the advances in scientific knowledge. Therefore, among the most important elements of the plan is to build in some mechanisms capable of adapting to and benefiting from those changes. This really seems to require some sort of ongoing advisory panel, which we urge on you with utmost seriousness.

**Response 1: The Companies recognize that the SAP will be in effect for a long time and that changes in technology as well as an increased understanding of the subsurface in the Rulison area may require that the SAP be modified. For these as well as other currently unrecognized reasons, the Companies recognize that this SAP is a living document and is subject to periodic review and revision in the future.**

Comment 2: 2. One of the weakest elements in this proposal is emergency preparedness and emergency response. As an example of an actual emergency response plan associated with nuclear hazards, the Hanford plan, is illustrative. It is 10 mb so we are not sending on but you can download it here: <http://www.osti.gov/bridge/purl.cover.jsp?purl=/10159070-hQ7k4d/native/>. Of course Hanford has considerably greater potential for environmental harm, so we of course do not propose that the Rulison plan simply be a copy of the Hanford plan. But most of the same subjects and points that are addressed in the Hanford plan should be addressed in the Rulison plan. We think the Table of Contents of the Hanford plan can in effect be a checklist of the issues, that we can use to ensure completeness in the Rulison plan. If we compare the Table of Contents of the Hanford plan with the draft Rulison plan submitted by URS, the deficiencies in the Rulison document are evident. We recommend that this web reference be provided to the participants of the meeting yesterday, with the point carefully made that we are not comparing Rulison to Hanford, nor are we recommending that the approach be identical – only that the points addressed in the Hanford plan are a good checklist and should also be addressed in the Rulison plan.

**Response 2: The Radiological Incident Management Plan was appropriately prepared using guidance from the CDPHE Emergency Preparedness and Response Division and has been expanded based on their comments. The CDPHE**

**Emergency Preparedness and Response Division has stated in a letter dated January 9, 2008 that “... [the Companies] have developed a thorough Incident Management Plan (Appendix A) for the Rulison Project SAP. This revised plan is more complete and consistent with industry and community practices than the previous draft.”**

Comment 3: 3. The data gathered in the process of drilling the wells that have been completed in the Rulison area, especially within the 3-mile radius, can be extremely helpful in understanding the geology of the area and in evaluating some critical assumptions such as the east-west fracture orientation. We think that gamma logging and other borehole data from these wells should be shared to help increase confidence that we are on the right path.

**Response 3: Existing data are available in the COGCC files. A request should be submitted to the COGCC for this information. Future geologic, geophysical, and monitoring data collected within the 3-mile radius will also be provided to the COGCC and will available to the public on the COGCC website.**

Comment 4: 4. The same is true for gamma logging and other borehole data from the Rulison reentry well. These data belong in the public domain and it is hard to have confidence in the geologic assumptions without seeing it.

**Response 4: The gamma logs for the Rulison wells are to be provided by the DOE to the COGCC. COGCC will post the logs on their website. Other borehole data for the Project Rulison wells is available in historical reports (e.g., U.S. Geological Survey, 1969, Geology and Hydrology of the Project Rulison Exploratory Hole, Garfield County, Colorado, USGS Open-File Report 474-16, 17 pp.)**

Comment 5: 5. There almost certainly will need to be some wells drilled for sampling purposes. Sampling at easily accessible existing locations will not be adequate. There need to be wells in strategic location specifically designed and installed for sampling purposes.

**Response 5: The shallow hydrogeologic groundwater flow system is not directly connected to the Williams Fork Formation. Monitoring of produced water and natural gas in the gas well provides the earliest warning of the potential migration of Rulison-related radionuclides in the Williams Fork Formation. Thus, additional shallow groundwater monitoring wells are not necessary at this time.**