

August 17, 2007

Mr. William C. Liedtke
Vice President and General Counsel
Windsor Energy Group, LLC
14313 N. May Avenue, Suite 100
Oklahoma City, OK 73134

RE: WDEQ Review of *Remedial Investigation Work Plan – Amended Draft, July 2, 2007*
Crosby 25-3 Natural Gas Well Blowout; Clark, Wyoming

Dear Mr. Liedtke:

The Wyoming Department of Environmental Quality (WDEQ), Voluntary Remediation Program (VRP) has reviewed the Windsor Energy Group, LLC (Windsor) draft *Remedial Investigation Work Plan – Amended Draft, July 2, 2007* (work plan) for the Crosby 25-3 well blowout (site). The amended draft work plan incorporated the WDEQ's June 25, 2007 comments generated from a review of the initial draft work plan.

The WDEQ has completed review of the amended draft work plan. In addition, the WDEQ has received and reviewed the public comments on the work plan. Attached is a list of items that incorporate both the WDEQ review comments and the pertinent public comments.

Please address the attached items and incorporate them into the draft final work plan. Once the draft final work plan is completed, please forward to the WDEQ and to everyone on the interested parties mailing list. If you have any questions, please feel free to contact me at (307) 335-6949.

Sincerely,

Kathy Brown, P.G.
Voluntary Remediation Program
Solid and Hazardous Waste Division

ATT: 08/18/06 Line Creek Anticline Field Development MEMO
7 Public Comment Letters

CC: Lander VRP File 58.093 (w/out attachments) Carl Anderson, WDEQ/Cheyenne;
VRP File 58.093 (w/out attachments)
Michael Bullock, Terracon, 2110 Overland Ave., Suite 124, Billings, MT 59102

**WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY
SOLID AND HAZARDOUS WASTE DIVISION
VOLUNTARY REMEDIATION PROGRAM**

**REVIEW COMMENTS FOR
REMEDIAL INVESTIGATION WORK PLAN – AMENDED DRAFT**

July 2, 2007
Windsor Energy Group, L.L.C.
Crosby 25-3 Natural Gas Well Release

1. Section 1.2, Site History (page 1): Please use the attached Memo dated 08/18/06, *Line Creek Anticline, (Bennett Creek) Field Development* to add more information to this section of the work plan.
2. Section 1.3, Chronology of Release (page 2, 6th paragraph): This paragraph discusses the petroleum impacted soils at the site. Revise this paragraph to include information on any sampling, treatment, or excavation of impacted soils at the site conducted under the jurisdiction of the Wyoming Oil and Gas Conservation Commission (WOGCC).
3. Section 1.4, Terracon Activities – Report of Investigation (page 4, 1st paragraph): This paragraph elaborates on Terracon’s opinion that there is relic groundwater contamination from previous oil and gas activities at the site. Include a statement that the WDEQ does not believe that there is sufficient data to distinguish between relic contamination and contamination related to the August 2006 well blowout.
4. Section 1.5, Terracon Activities – Monitoring Report – April 2007 (page 4, 1st paragraph): This paragraph refers to the changes in concentrations of petroleum contaminants in the groundwater monitoring wells. Add a sentence indicating that the noted changes are subjective and qualitative and not based on any type of statistical analysis.
5. Section 1.6, Terracon Activities – Monitoring Report – May/July Sampling (page 5, 1st paragraph): Add 2007 to the title of this section. Update the paragraph to contain the information from the Interim Monitoring Report dated July 10, 2007. In addition, the same comment from number 4. above applies to this paragraph.
6. Section 2.0, Scope of Work (page 6): Add a paragraph here that states the goals and objectives of the investigation and who is responsible for implementation of the work plan. Include a reference to the Sampling and Analysis Plan (SAP) and include the SAP in the appendix.
7. Section 2.3, Subsurface Explorations (page 7-9): Add a figure which shows Line Creek, the boundary of the Line Creek Subdivision Common Ground, and the proposed well points MW-R and MW-S. Revise the table to include any changes made on nested versus single wells based on the drawdown tests conducted on August 16, 2007. In addition, provide a detailed description of how the drawdown tests were conducted and the results.

Include information on how groundwater contamination through drilling activities will be prevented. For the discussion on the soil cores, include how the cores will be logged including such items as lithology, fracture patterns, photo documentation, and how/where the cores will be handled for long term storage.

8. Section 3.1, Soil/Bedrock Sampling (page 10, 1st paragraph): Include information on where in the core the samples will be collected (i.e. inner versus outer portion of core). It is stated that samples will be taken based on the field screening results and the location of confining layers. Include the core length per run and a minimum number of samples that will be taken per core run, assuming full recovery of the core.
9. Section 3.2, Monitoring Well Construction (page 11): Provide a discussion on the length of screens used on the previously installed groundwater monitoring wells and the rationale for the screen lengths chosen. Include a discussion on how screen lengths will be chosen for the proposed groundwater monitoring wells.
10. Section 3.4, Monitoring Well Sampling (pages 12-14): This section states that a low-flow bladder pump will be used to purge and sample the wells and that at least 3 casing volumes will be purged from each well before a sample is collected. Low-flow sampling does not require that 3 casing volumes be purged prior to sampling. Revise this section to include what parameters will be used to determine if the well has been adequately purged prior to sampling. In addition, include a more detailed description of the low-flow sampling technique to be employed (this can be included in the SAP) and include how it will be determined where the discrete sampling point will be located in the wells. This section states that selected groundwater samples may be submitted for forensic analyses in an effort to substantiate the theory that some of the impacted groundwater is from releases prior to the blowout. Include a statement that the WDEQ has not approved any sampling and evaluation plan to use forensic analyses to support the theory of relic contamination.
11. Section 3.5, Domestic Water Well Sampling (pages 14-15): Windsor recently surveyed the domestic water wells. Include this information in the work plan. In addition, include any well construction (well depth, screen location) details and water levels that can be obtained from the available well logs for the domestic water wells. The future site characterization report detailing the results of the proposed investigation should attempt to determine what aquifer the domestic water wells are producing from. In addition, the follow-up report should construct groundwater elevation contour maps for all domestic water wells which are completed in the same aquifer as the one identified at the site with groundwater contamination. Please note that the site characterization report should include all items outlined in the final Preliminary Remediation Agreement dated May 14, 2007.
12. Section 3.6, Drilling Water Sampling (page 15, 2nd paragraph): This paragraphs states that random samples will be taken of the drilling water imported to the site from each contractor employed. However, the water will be used for drilling before the analytical results are obtained from the water. The WDEQ does not believe that it is prudent to drill groundwater monitoring wells with water potentially exceeding the groundwater drinking

standards. Revise this section to utilize a procedure which will ensure that only potable water will be used to drill the monitoring wells.

13. Section 3.7, Spring Sampling (page 16, 3rd paragraph): Provide an explanation of how biogenic interference is likely to be present in the springs and how this could affect methane analysis.
14. Section 3.8, Surface Water (Line Creek) Sampling (pages 17-18): Include a statement on how the proposed well points located next to Line Creek will be used to help monitor the surface water.
15. Section 4.0, Proposed Sampling Schedule (page 18): Include a reference to identify what standards will be used for comparison to the groundwater sampling results. The standards should be in accordance with VRP Fact Sheet #13, *Groundwater Cleanup Levels*.
16. Section 4.0, Proposed Sampling Schedule (page 19, table): Due to the proximity of the following wells to the site, the WDEQ recommends that these domestic water wells be tested on a quarterly basis until more information on the extent of the contamination has been obtained: McNabb, King, Hutton, Sonderman (#1 and #2), Linebaugh, Thomas, Dickson, Hammer, and the Bennett Pad water well. The WDEQ recommends that the following domestic water wells be tested semiannually due to the distance of the wells from the site and number of wells already being tested quarterly that are located upgradient of these wells: Hager, Woolard, Waldron, Brown, and McCoy (#1 and #2). If contamination is detected in any of the private wells upgradient of these wells, sampling should be increased to monthly for all domestic water wells. Revise Figure 3 to indicate where the Waldron and McCoy wells are located or include an additional figure.
17. Section 6.0, Additional Analytical Testing Evaluation (pages 22-24): Revise this section to include the complete chemical make-up of the products used for both drilling the Crosby 25-3 and for killing the Crosby 25-3 during the blowout. Include volumes and concentrations of the chemicals used and any information on the toxicity or environmental risks that these chemicals pose. Based on this information, add any chemicals to the constituents of concern where there are laboratory testing methods and cleanup levels available for those constituents.
18. A section should be added to the work plan stating that an Ecological Risk Assessment will be conducted in accordance with VRP Fact Sheet #14 (*Steps 1 and 2, Ecological Exclusion and Scoping Assessments*).
19. A figure(s) should be added showing the groundwater level contours for any applicable aquifers at the site.