

Docket 070-00925
License SNM-928

CIMARRON CORPORATION

P O BOX 315 ♦ CRESCENT, OK 73028

January 26, 2011

Mr. Robert Evans
U.S. NRC Region IV
Texas Health Resources Tower
612 E. Lamar Blvd., Suite 400
Arlington, TX 76011-4125

Re: Docket No. 70-925; License No. SNM-928
NRC Inspection Question Regarding Well #1315R

Dear Mr. Evans:

Tronox offers the following to assist you in your evaluation and observations during the recent inspection. As you are aware, we are within negotiations to transfer the Cimarron license to the new Trustee within the coming weeks. It is our hope that we can resolve your questions through the discussion below.

Introduction

An inspection performed by NRC concluded on October 19, 2010 with an open question regarding changes made to Section 15 of the Radiation Protection Plan (RPP) and whether those changes were required to be approved by the NRC. Specifically, you questioned the deletion of wells from the program (RPP Section 15.2) and asked for an assessment which would show the basis for the well deletions. Specific wells identified were those at locations 1315R, 1316R, 1349, 1353, and 1355. In recent telephone conversations, you stated that the questions regarding all wells had been resolved, with the exception of well 1315R.

As we understand it, the specific issue identified regarding well 1315R is based upon the wording of license condition (LC) 27(e), which points to the requirement that all changes made by the licensee must also be consistent with the conclusions of actions analyzed in the Environmental Assessment (EA) and Safety Evaluation Report (SER).

LC 27(e) states, in part:

"The licensee is authorized to make certain changes to the NRC-authorized Decommissioning Plan (DP) and Radiation Protection Plan (RPP) without NRC's approval, if these changes are consistent with the ALARA principle and the decommissioning process. All changes shall be approved by the Cimarron ALARA Committee, subject to the following:

1. The licensee may, without prior NRC approval, and subject to the specified in Parts 2 and 3 of this condition:

- a. Make changes in the facility or process, as presented in the NRC-approved DP and RPP;
 - b. Conduct tests or experiments not present in the NRC-approved DP applicable license conditions.
2. The licensee shall not be required to file an application for an amendment to the license when the following conditions are satisfied;
- a. The change, test, or experiment does not conflict with the requirements specifically stated in the license (excluding those aspects addressed in Part 1 of this condition), or impair the licensee's ability to meet all applicable NRC regulations;
 - b. There is no degradation in safety or environmental commitments addressed in the NRC-approved DP or RPP, or have a significant adverse effect on the quality of the work, the remediation objectives, or health and safety; and
 - c. The change, test, or experiment is consistent with the conclusions of actions analyzed in the Environmental Assessment (dated July 29, 1999) and Safety Evaluation (dated August 20, 1999)."

You identified a paragraph on page 39 of the SER and stated that the actions of the ALARA Committee may not be consistent with the requirements of the paragraph. Page 39 of the SER states, in part:

"Cimarron has proposed to take quarterly samples from the wells that currently exceed the proposed groundwater standard of 6.7 Bq/l (180 pCi/l) for total uranium until eight successive samples are below the standard. In addition, Cimarron's March 4, 1999, submittal included a contingency plan for dealing with wells, that may unexpectedly exceed the proposed standard for a period of 1 year or more. It should be noted that in consideration of past variability in groundwater monitoring results, NRC will not terminate Cimarron's license until it has been demonstrated that the concentrations in all wells have been below the proposed standard for eight consecutive samples (the past 2 years). Also, ODEQ may require continued groundwater monitoring of non-radioactive components under its authority."

The purpose of this letter is to provide Cimarron's interpretation of the LC 27(e) and to provide justification for removal of the well from the environmental monitoring program contained in RPP Section 15.

Discussion

A precise reading of LC 27(e)2.c. indicates that changes to the RPP are allowable when they are consistent with the *conclusions* of actions analyzed in the EA and SER. It is our interpretation, therefore, that the review of the SER 'Conclusions' section appears to be more appropriate for resolving whether an action is allowable under LC 27(e). Page 42 within the conclusions section of the SER states, in part:

"In its "Groundwater Evaluation Report" dated July 30, 1998, and supplemented by letter of March 4, 1999, Cimarron proposed a groundwater standard of 6.7 Bq/l (180

pCi/l) total uranium and committed to continue to monitor groundwater in burial area 1. Cimarron also committed to retain control of the property licensed under NRC Radioactive Material License SNM-928 until the proposed criteria are met. In consideration of past variability in groundwater monitoring results, NRC will not terminate Cimarron's license until it has been demonstrated that the concentrations in all wells have been below the proposed standard for eight consecutive samples (the past 2 years). Therefore NRC will add the following license condition:

The release criteria for groundwater at the Cimarron site is 6.7 Bq/l (180 pCi/l) total uranium. NRC will not terminate Radioactive Material License SNM-928 until Cimarron demonstrates that the total uranium concentrations in all wells have been below the groundwater release criteria for eight consecutive quarterly samples (the past 2 years). Cimarron will retain control of the property licensed under NRC Radioactive Material License SNM-928 until the groundwater release criteria are met."

Cimarron has always remained committed to continue to monitor groundwater in burial area 1. The action to modify the environmental monitoring program by use of a 27(e) change involved experienced hydrologists and geologists. The intent of the action was to improve the monitoring program leading up to the remediation of the area. The LC 27(e) change instituted by Cimarron in September, 2008 deleted wells 1315R and 1316R from the BA #1 monitoring program and added 12 wells (02W06, 02W08, 02W09, 02W16, 02W17, 02W27, 02W28, 02W32, 02W35, 02W42, 02W43, and 02W44), a net increase of 10 wells for the area of interest. These decisions were not to improve the economy of the program, but were made to enhance the understanding of contaminant flow and hydrology; their intent was to improve the existing program. Attachment 1 provides a summary of wells present in the Section 15 of the environmental monitoring program from revision 7 of the RPP up to and including the present revision 11. Attachment 2 is a map from the 2006 license amendment request for bioremediation showing the locations of the monitoring wells in Burial Area #1.

The EA contains a 'Summary and Conclusions' section at the beginning of the report. Based upon our interpretation of the wording of LC 27(e), changes to the RPP must also conform with conclusions stated in this section of the EA. While all of the conclusion statements are important and must be evaluated for any LC 27(e) change, there are several paragraphs and statements within the EA 'Summary and Conclusions' section which might apply more specifically to the action of well removal, as follows:

"The objective of the decommissioning actions is to terminate the license and release the former fuel fabrication facility for unrestricted use."

"Radiation exposures of persons living or traveling near the site because of onsite operations and waste transportation will be well within limits contained in 10 CFR Part 20."

"The potential radiological impacts off-site of potential onsite accidents are well below the radiation dose limit of 1 mSv/yr (100 mrem/yr) to the public and the radiation dose limit of 50 mSv/yr (5 rem/yr) to workers in accordance with 10 CFR Part 20."

"For conservatism, the site use is assumed to be equivalent to the resident farmer scenario described in PG-8-08. Under this scenario, the maximum radiation doses to a hypothetical resident farmer, who might establish a residence on the site, grow and consume food from the site, and consume drinking water from an onsite groundwater well, more than a 1000 year period, were calculated assuming both with a cover and without a cover over the disposal cell. The predicted doses for both scenarios are less than 0.09 mSv/yr (9 mrem/yr), which is below NRC's 10 CFR Part 20 radiation dose for the public of 1 mSv/yr (100 mrem/yr)."

"Radiation doses to a remediation worker onsite from direct exposure are estimated to be less than 0.01 mSv (1 mrem) for a 2000-hour exposure period. Inhalation doses from a 2000-hour exposure would be less than 0.03 Sv (3 mrem). These predicted doses are substantially less than the occupation exposure limit of 50 mSv/yr (5 rem/yr) in 10 CFR Part 20."

"The licensee has a radiation protection program that will maintain radiation exposures and effluent releases within the limits of 10 CFR Part 20 and will maintain exposures as low as is reasonably achievable."

The Cimarron site is a controlled site. All legal entries into the site require authorization from the company or onsite personnel. Currently, the main activities onsite consist of maintenance and environmental sampling of wells and surface water. There are no drinking water wells onsite. Consequently, the dose pathways are limited. ALARA evaluations performed in past several years are applicable to the current situation. These evaluations have determined that the dose to personnel and members of the public are insignificant. The site is in compliance with all aspects of 10 CFR Part 20.

Although well 1315R was removed from the environmental monitoring program in 2008, we continued to obtain samples from the well in both 2009 and 2010. Hence, there was no break in analytical data for total uranium from 2002, when the replacement well was installed, through 2010. Data for well 1315R from the time of its installation in 2002 until the present time are provided in Attachment 3. The data show a clear declining trend.

It is our understanding that the inclusion of LC 27(e) incorporated NRC's concept of "performance based regulation", as defined below¹:

"A regulatory approach that focuses on desired, measurable outcomes, rather than prescriptive processes, techniques, or procedures. **Performance-based regulation leads to defined results without specific direction regarding how those results are**

¹ <http://www.nrc.gov/reading-rm/basic-ref/glossary/performance-based-regulation.html>

to be obtained. At the NRC, performance-based regulatory actions focus on identifying performance measures that ensure an adequate safety margin and offer incentives for licensees to improve safety without formal regulatory intervention by the agency. For additional detail, see Risk Assessment in Regulation.” (emphasis added)

Conclusion

In conclusion, we believe that our interpretation of LC 27(e) is consistent with both the intent of the NRC staff when the SER and EA were issued, and that it also meets the intent of the performance based regulatory approach. Cimarron’s intent has always been to conform to all regulatory requirements and to perform the decommissioning of the site in a manner that is protective of health, safety, and environmental protection.

We consider this an opportunity to make improvements to our program. As a result of the questions raised by the recent inspection, we plan to take the following actions:

- 1) We will open a Corrective Action request in accordance with our Quality Assurance program to follow up on the questions raised by the inspector regarding 27(e) evaluations;
- 2) We commit to modify the existing site ALARA Committee procedure, incorporating changes to ensure that the SER and EA conclusions, as well as all license commitment letters, are fully addressed and properly documented in all 27(e) evaluations; and
- 3) After the above are completed, we will add well 1315R back into the RPP Section 15 environmental monitoring program, using the LC 27(e) process.

If you have any questions, please contact me at 405-775-5443 or Matt.Paque@Tronox.com.

Sincerely yours,



Matt Paque

Cc: Ken Kalman, NRC

ATTACHMENT 1
RPP Section 15 Wells
Cimarron Site

RPP REV. 7 4-10-07	RPP REV. 8 6-30-08	RPP REV. 9 9-24-08	RPP REV. 10 1-29-09	RPP REV. 11 7-02-09					
WELLS LISTED	WELLS LISTED	WELLS LISTED	WELLS LISTED	WELLS LISTED					
1206	1206	1314	BA #1	1201	1201				
1208	1208	1351		1202	1202				
1311	1311	1352		1314	BA #1	1314	BA #1		
1312	1312	1354		1351	1351				
1313	1313	1356		1352	1352				
1314	S of BG-1	1314	S of BG-1	02W06	BA #1	1354	1354		
1320		1320		02W08	BA #1	1356	1356		
1321		1321		02W09	BA #1	02W06	BA #1	02W06	BA #1
1322		1322		02W16	BA #1	02W08	BA #1	02W08	BA #1
1323		1323		02W17	BA #1	02W09	BA #1	02W09	BA #1
1324		1324		02W27	BA #1	02W16	BA #1	02W16	BA #1
1325		1325		02W28	BA #1	02W17	BA #1	02W17	BA #1
1326		1326		02W32	BA #1	02W27	BA #1	02W27	BA #1
1328		1328		02W35	BA #1	02W28	BA #1	02W28	BA #1
1329		1329		02W42	BA #1	02W32	BA #1	02W32	BA #1
1330		1330		02W43	BA #1	02W35	BA #1	02W35	BA #1
1331		1331		02W44	BA #1	02W42	BA #1	02W42	BA #1
1332		1332		MWWA03		02W43	BA #1	02W43	BA #1
1333		1333		MWWA09		02W44	BA #1	02W44	BA #1
1334		1334		T-62		MWWA03		MWWA03	
1315R	N of BG-1	1315R	N of BG-1	T-64		MWWA09		MWWA09	
1316R	NW of BG-1	1316R	NW of BG-1	T-70R		T-62		T-62	
1319B-1		1319B-1		T-76		T-64		T-64	
1319C-1		1319C-1		T-77		T-70R		T-70R	
1327B		1327B		T-79		T-76		T-76	
1335A		1335A		T-82		T-77		T-77	
1336A		1336A		TMW-08	BA #1	T-79		T-79	
TMW-13	N of BG-1	TMW-13	N of BG-1	TMW-09	BA #1	T-82		T-82	
				TMW-13	BA #1	TMW-08	BA #1	TMW-08	BA #1
						TMW-09	BA #1	TMW-09	BA #1
						TMW-13	BA #1	TMW-13	BA #1

1. License inspected June 16-18, 2008
2. 2008 Sampling done June 18-25, 2008 against Sec. 15 Rev. 7 dated 4-10-07
3. Rev. 8 done on 6-30-08
4. Rev. 9 done on 9-24-08
5. 2009 sampling done May 18 - June 1, 2009 against Sec. 15 Rev. 10 dated 1-29-09
6. Rev. 11 done on 7-2-09

ATTACHMENT 2

ATTACHMENT 3

URANIUM DATA for WELL 1315R

Cimarron Site

WELL	SAMPLE DATE	U234 pCi/L	U235 pCi/L	U238 pCi/L
1315R	07/26/02			
1315R	08/27/02	1240.00	121.00	814.00
1315R	09/23/02	1140.00	68.30	737.00
1315R	12/11/02	1470.00	105.00	934.00
1315R	06/24/03	1350.00	90.80	907.00
1315R	09/29/03	975.00	90.10	663.00
1315R	03/15/04	1820.00	169.00	1130.00
1315R	05/25/04	1410.00	114.00	996.00
1315R	08/25/04	847.00	92.00	622.00
1315R	08/25/04	985.00	122.00	686.00
1315R	08/31/04			
1315R	08/31/04			
1315R	05/31/05	881.00	109.00	572.00
1315R	05/23/06	1090.00	82.10	827.00
1315R	04/12/07			
1315R	08/15/07	1047.00	44.68	487.47
1315R	08/16/07	1210.00	99.90	692.00
1315R	08/16/07	1155.00	46.62	523.52
1315R	08/16/07	1260.00	88.80	645.00
1315R	06/25/08	739.00	41.80	388.00
1315R	05/27/09	575.00	22.89	378.97
1315R	05/27/09	691.77	22.89	456.16
1315R	10/26/10	414.00	33.60	270.00

*Chemical data only for dates 7/26/02, 8/31/04, and 4/12/07. Total U not analyzed.