CAMECO RESOURCES,
CROW BUTTE OPERATION

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March 24, 2010

Mr. Keith I McConnell, Deputy Director
Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental Management Programs
Mailstop T8-F5
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Re: Source Materials License SUA-1534
Docket No. 40-8943
Commercial Evaporation Pond #4 Liner Leak

Dear Mr. McConnell:

On February 24, 2010, routine evaporation pond monitoring results of Cameco Resources, Crow Butte Operation (CBO) Commercial Evaporation Pond #4, water level readings from the southwest underdrain indicated a potential pond liner leak. A sample was collected from the underdrain and analyzed for chloride, alkalinity, conductivity, sodium, and sulfate. The results of this sample indicated that the concentration of the indicator analytes in the underdrain were similar to the pond contents. Based upon these results, it was determined that a liner leak potentially existed in Commercial Evaporation Pond #4.

Mr. Ronald Burrows was notified by phone of the liner leak on February 25, 2010. As required by License Condition 12.3, this report provides analytical data, monitoring results, mitigative actions, and the results of those actions as required in the permit.

Upon confirmation of the liner leak, CBO began weekly sampling of the southwest underdrain. These samples were analyzed for alkalinity, chloride, sodium, conductivity, and sulfate. Attachment #1 contains copies of the Weekly Evaporation Pond Underdrain Analysis Forms and the analytical results from the CBO laboratory. Samples were obtained on February 24, 2010, and March 3, 10, and 17, 2010.

In addition to weekly analysis of the underdrain, CBO obtained non-routine samples from pond monitor wells CPM-1 and CPM-2. CPM-1 and CPM-2 are completed in the first aquifer and are located down gradient of Commercial Evaporation Pond #4 at the fenced restricted area boundary. The samples were obtained and analyzed for the indicator analytes on February 24, 2010 and March 3, 10, and 17, 2010, to ensure that there was no indication of leakage in the secondary liner. Analytical results were consistent with historical sampling results and are contained in Attachment #2.

Upon confirmation of the liner leak, CBO began lowering the level of Commercial Evaporation Pond #4 by pumping water to Commercial Evaporation Pond #3. Concurrently, an immediate visual inspection of the pond liner was performed. Initial efforts to locate the leak were unsuccessful. The level of the pond was lowered .1 feet in the first week of transfer with no increase in the water level in the underdrain, indicating that the leak was now above the water line. Subsequent visual inspections of the liner did not reveal any leaks. CBO believes that the water level in the underdrain is static with the water level in the pond, which prevents the water level in the underdrain from rising. CBO believes that the breach in the liner is below the current water level in the pond, and is continuing to transfer water from Commercial Evaporation Pond #4 to Commercial Evaporation Pond #3. Additionally, CBO is pumping the contents out of the southwest underdrain. When the tear in the liner is located, CBO will contact Colorado Linings to make the necessary repairs.

Following the repair, CBO will continue pumping the affected underdrain until it is dry. The underdrain will then be purged with clean water to lower the concentration of the indicator parameters.

Attachment #3 contains copies of the Commercial Pond Inspection Forms for the period of February 24, 2010 to March 17, 2010. Weekly analysis of the underdrain contents will continue until CBO is confident that all leaks have been located and repaired.

If you have any questions or require any further information, please do not hesitate to call me at (308) 665-2215 ext 114.

Sincerely,
CAMECO RESOURCES
CROW BUTTE OPERATION

Larry Teahon

Larry Teahon
SHEQ Manager

Enclosures: As Stated

cc: Mr. Joe Brister - CBO, Denver
Mr. Ronald Burrows – Program Manager
CBO File

Attachment #1

Commercial Evaporation Pond #4 Underdrain Analysis

24-Feb-10

SM/LT

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Pond 4	3700	63,106	138,800	3427	47,790
Pond 4 SW	4700	101,041	174,200	4948	64,135

3-Mar-10

SM/LT

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Pond 4	4700	93,596	173,900	4498	57,722
Pond 4 SW	4600	96,432	174,600	5388	58,782

10-Mar-10

SM/LT

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Pond 4 SW	4750	90,760	175,600	5009	60,600

17-Mar-10

SM/LT

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	µmhos	mg/L	mg/L
Pond 4 SW	5500	89,342	174,000	4816	59,691

Attachment #2

Pond Monitor Well CPM-1 and CPM-2 Analysis

24-Feb-10

SM/LT

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	umhos	mg/L	mg/L
Commercial Pond Monitor #1	200	5.0	440	15	14
Commercial Pond Monitor #2	190	4.6	420	14	15

3-Mar-10

SM/LT

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	umhos	mg/L	mg/L
Commercial Pond Monitor #1	206	6.0	440	15	15
Commercial Pond Monitor #2	180	6.2	420	14	14

10-Mar-10

SM/LT

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	umhos	mg/L	mg/L
Commercial Pond Monitor #1	199	5.8	440	15	15
Commercial Pond Monitor #2	183	5.9	420	14	15

17-Mar-10

SM/LT

	Alk	Cl	Cond	SO_4	Na
	mg/L	mg/L	umhos	mg/L	mg/L
Commercial Pond Monitor #1	180	4.6	440	14	15
Commercial Pond Monitor #2	200	5.0	420	13	14

Attachment #3

Commercial Pond Inspection Forms

CROW BUTTE RESOURCES, INC.
WEEKLY EVAPORATION POND UNDERDRAIN ANALYSIS

COMMERCIAL PONDS		UNDERDRAIN WATER DEPTH / INCHES	METER READING	TEMP °C	CONDUCTIVITY µmhos/cm	LAB RESULTS µmhos/cm
POND # 1 Depth = 17 feet	POND LEVEL	11.3				
	*FREEBOARD	5.7				
	NE UNDERDRAIN	0				
	NM UNDERDRAIN	0				
	NW UNDERDRAIN	0				
	SE UNDERDRAIN	0				
	SM UNDERDRAIN	0				
	SW UNDERDRAIN	5				
POND # 3 Depth = 17.5 feet	POND LEVEL	* Snow on Liner				
	*FREEBOARD					
	NE UNDERDRAIN	0				
	NM UNDERDRAIN	0				
	NW UNDERDRAIN	0				
	SE UNDERDRAIN	0				
	SM UNDERDRAIN	0				
	SW UNDERDRAIN	0				
POND # 4 Depth = 17.5 feet	POND LEVEL	4.8'				
	*FREEBOARD	12.7'				
	NE UNDERDRAIN	24	90.0ms	1.0		
	NM UNDERDRAIN	14	69.0ms	2.9		
	NW UNDERDRAIN	23	94.2ms	0.8		
	SE UNDERDRAIN	39	96.0ms	1.5		
	SM UNDERDRAIN	17	89.8ms	2.2		
	SW UNDERDRAIN	77	95.7ms	0.9		

R & D POND LEVELS (Depth = 15 ft)
EAST LEVEL: * Snow on Liner
**EAST FREEBOARD:
EAST UNDERDRAIN: 4"
WEST LEVEL: * Snow on Liner
**WEST FREEBOARD:
WEST UNDERDRAIN: 0"

REMARKS: Done Pond Cont on Pond #1 & #4
Pond #3 Frozen at Monthly

*COMMERCIAL POND FREEBOARD = 5 FT MAX
** R&D POND FREEBOARD = 3 FT MAX

SAMPLER: D. Bass / R. Pelton
DATE: 2/24/10

CROW BUTTE RESOURCES, INC.
WEEKLY EVAPORATION POND UNDERDRAIN ANALYSIS

COMMERCIAL PONDS		UNDERDRAIN WATER DEPTH / INCHES	METER READING	TEMP °C	CONDUCTIVITY µmhos/cm	LAB RESULTS µmhos/cm
POND # 1 Depth = 17 feet	POND LEVEL	11.3				
	*FREEBOARD	5.7				
	NE UNDERDRAIN	0				
	NM UNDERDRAIN	0				
	NW UNDERDRAIN	2				
	SE UNDERDRAIN	0				
	SM UNDERDRAIN	0				
	SW UNDERDRAIN	5				
POND # 3 Depth = 17.5 feet	POND LEVEL	8.9				
	*FREEBOARD	8.6				
	NE UNDERDRAIN	1				
	NM UNDERDRAIN	1				
	NW UNDERDRAIN	0				
	SE UNDERDRAIN	0				
	SM UNDERDRAIN	0				
	SW UNDERDRAIN	0				
POND # 4 Depth = 17.5 feet	POND LEVEL	4.7				
	*FREEBOARD	12.8				
	NE UNDERDRAIN	25	91.3 ms	2.1		
	NM UNDERDRAIN	15	67.6 ms	3.2		
	NW UNDERDRAIN	23	96.0 ms	1.5		
	SE UNDERDRAIN	37	97.7 ms	2.0		
	SM UNDERDRAIN	15	91.2 ms	3.1		
	SW UNDERDRAIN	70	99.8 ms	2.3		

R & D POND LEVELS (Depth = 15 ft)
EAST LEVEL: * Froze + Snow Covered
**EAST FREEBOARD:
EAST UNDERDRAIN: 4"
WEST LEVEL: * Froze + Snow Covered
**WEST FREEBOARD:
WEST UNDERDRAIN: 0"

REMARKS: Done Monthly + Pond contents. Pumped CPM1 + CPM2. Took UD sample is SW Pond 4. Waste line from Plant to Pond under construction.

*COMMERCIAL POND FREEBOARD = 5 FT MAX

** R&D POND FREEBOARD = 3 FT MAX

SAMPLER: B Bass

DATE: 3/3/10

CROW BUTTE RESOURCES, INC.

WEEKLY EVAPORATION POND UNDERDRAIN ANALYSIS

COMMERCIAL PONDS		UNDERDRAIN WATER DEPTH / INCHES	METER READING	TEMP °C	CONDUCTIVITY µmhos/cm	LAB RESULTS µmhos/cm
POND # 1 Depth = 17 feet	POND LEVEL	* Snow Covered				
	*FREEBOARD					
	NE UNDERDRAIN	0				
	NM UNDERDRAIN	0				
	NW UNDERDRAIN	2				
	SE UNDERDRAIN	1				
	SM UNDERDRAIN	0				
	SW UNDERDRAIN	5				
POND # 3 Depth = 17.5 feet	POND LEVEL	* Snow Covered				
	*FREEBOARD					
	NE UNDERDRAIN	1				
	NM UNDERDRAIN	1				
	NW UNDERDRAIN	0				
	SE UNDERDRAIN	0				
	SM UNDERDRAIN	0				
	SW UNDERDRAIN	0				
POND # 4 Depth = 17.5 feet	POND LEVEL	* Snow Covered				
	*FREEBOARD					
	NE UNDERDRAIN	28	93.0 ms	3.0		
	NM UNDERDRAIN	15	68.6 ms	3.9		
	NW UNDERDRAIN	23	98.1 ms	2.1		
	SE UNDERDRAIN	37	99.2 ms	2.6		
	SM UNDERDRAIN	17	93.1 ms	3.6		
	SW UNDERDRAIN	68	103.5 ms	3.8		

R & D POND LEVELS (Depth = 15 ft)
EAST LEVEL: * Snow Covered
**EAST FREEBOARD:
EAST UNDERDRAIN: 4"
WEST LEVEL: * Snow Covered
**WEST FREEBOARD:
WEST UNDERDRAIN: 0

REMARKS: * Snow on Liners

*COMMERCIAL POND FREEBOARD = 5 FT MAX

** R&D POND FREEBOARD = 3 FT MAX

SAMPLER: B Bass

DATE: 3/10/10

WW

CROW BUTTE RESOURCES, INC.
WEEKLY EVAPORATION POND UNDERDRAIN ANALYSIS

COMMERCIAL PONDS		UNDERDRAIN WATER DEPTH / INCHES	METER READING	TEMP °C	CONDUCTIVITY µmhos/cm	LAB RESULTS µmhos/cm
POND # 1 Depth = 17 feet	POND LEVEL	11.3				
	*FREEBOARD	5.7'				
	NE UNDERDRAIN	2				
	NM UNDERDRAIN	0				
	NW UNDERDRAIN	0				
	SE UNDERDRAIN	1				
	SM UNDERDRAIN	0				
	SW UNDERDRAIN	5				
POND # 3 Depth = 17.5 feet	POND LEVEL	9.3				
	*FREEBOARD	8.2'				
	NE UNDERDRAIN	1				
	NM UNDERDRAIN	2				
	NW UNDERDRAIN	0				
	SE UNDERDRAIN	0				
	SM UNDERDRAIN	1				
	SW UNDERDRAIN	0				
POND # 4 Depth = 17.5 feet	POND LEVEL	4.4				
	*FREEBOARD	13.1				
	NE UNDERDRAIN	27	93.6 ms	4.0		
	NM UNDERDRAIN	14	69.3 ms	4.7		
	NW UNDERDRAIN	21	98.7 ms	3.3		
	SE UNDERDRAIN	36	100.3 ms	3.2		
	SM UNDERDRAIN	18	95.0 ms	4.3		
	SW UNDERDRAIN	60	106.7 ms	4.5		

R & D POND LEVELS (Depth = 15 ft)	
EAST LEVEL:	8.8'
**EAST FREEBOARD:	6.2'
EAST UNDERDRAIN:	4"
WEST LEVEL:	9.4
**WEST FREEBOARD:	5.6
WEST UNDERDRAIN:	0

REMARKS: Collected pond cont. + SW. U.D. samples on Pond #4. Pumped CPM1+ CPM2.

*COMMERCIAL POND FREEBOARD = 5 FT MAX

** R&D POND FREEBOARD = 3 FT MAX

SAMPLER: B. Bass

DATE: 3/17/10