



**Rio Tinto Energy America**  
**Kennecott Uranium Company**  
Post Office Box 1500  
Rawlins, WY 82301-1500  
T: 307-328-1476, 307-324-4924  
F: 307-324-4925

22 August 2007

Mr. Keith I. McConnell, Deputy Director  
Division of Waste Management and Environmental Protection  
Office of Federal and State Materials and Environmental Management Programs  
U.S. Nuclear Regulatory Commission  
11545 Rockville Pike, Mail Stop T7-E18  
Rockville, MD 20852

Dear Mr. McConnell:

**SUBJECT: Sweetwater Uranium Project - Docket Number 40-8584**  
**Source Materials License SUA-1350 - Semiannual 10 CFR 40.65 Report**  
**Airborne Effluents**

Enclosed is Kennecott Uranium Company's Semiannual 10 CFR 40.65 Report for the first half of 2007 for airborne effluents. This report addresses the requirements of License Condition 11.5 of SML #SUA-1350, as well as the requirements of 10 CFR 40.65(a)(1).

Kennecott Uranium Company is only required to monitor for ambient gamma and airborne particulates at the downwind location (Air 4A) and radon at the upwind (Air 2) and downwind (Air 4A) locations as long as operations remain suspended as per License Condition 11.5. Kennecott is not required to perform stack, soil, sediment or vegetation sampling as long as operations remain suspended.

Kennecott Uranium Company has examined the data included in this report, calculated the dose to the nearest resident in millirems per year for the first half of 2007 from the licensed activities and concluded that the dose does not exceed the 100 mrem per year dose limit. A copy of the calculation sheet as well as an explanation of the calculation method is included. This is being done at the request of Elaine Brummett, previously of your staff, in an email dated September 7, 2001.

Should you have any questions, please contact me at (307) 328-1476.

Sincerely yours,

A handwritten signature in cursive script that reads "Oscar Paulson".

Oscar Paulson  
Facility Supervisor

cc: Stephen J. Cohen, Project Manager  
Director - USNRC DMSS, Region IV (w/o enc.)  
John Lucas - RTEA

**KENNECOTT URANIUM COMPANY  
SWEETWATER URANIUM PROJECT  
Source Material License SUA-1350**

**2007  
RadTrak Radon Monitor  
(pCi/L)**

DATE	LOCATION	RADIONUCLIDE	CONCENTRATION	STD DEVIATION/ STD COUNTING ERROR	LOWER LIMIT OF DETECTION (LLD)	
				%	pCi/L-Days	pCi/L
1/2/07 – 4/2/07 1/2/07 – 4/2/07	Downwind - Air 4A Upwind - Air 2	Radon Radon	2.0 pCi/L 16.9 pCi/L <sup>1</sup>	5.5 2.1	6.0 6.0	0.06 0.06
4/2/07 – 7/3/07 4/2/07 – 7/3/07	Downwind - Air 4A Upwind - Air 2	Radon Radon	2.9 pCi/L --- pCi/L Damaged <sup>1</sup>	4.7 N/A	6.0 6.0	0.06 0.06
	Downwind - Air 4A Upwind - Air 2					
	Downwind - Air 4A Upwind - Air 2					

<sup>1</sup> Please see attached information entitled "Upwind RadTrak Radon Monitoring".

## Upwind Radtrak Radon Monitoring Station

**April 2, 2007**

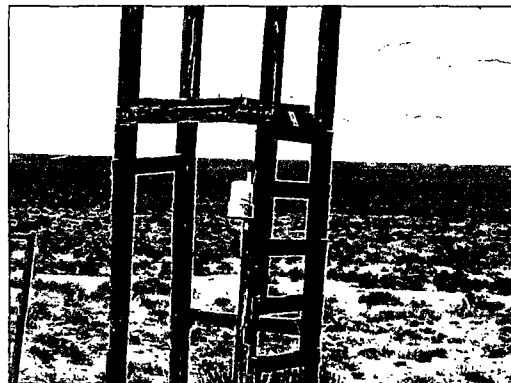
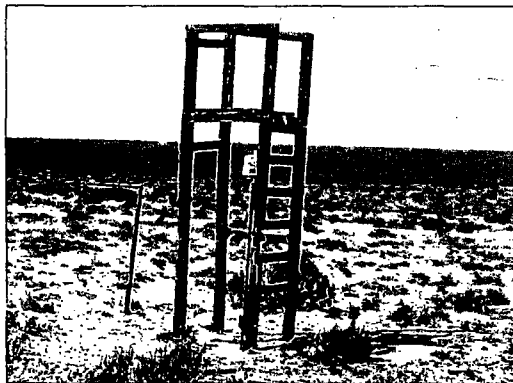
On April 2, 2007 when retrieving the first quarter upwind RadTrak radon monitor at the upwind air monitoring station (Air 2) it was discovered that the steel fence post on which the radon detector was mounted was knocked down. The detector was intact and sent to Landauer, Inc. for reading. The first quarter 2007 detector yielded a high reading of 16.9 picoCuries per liter. This high reading was due to the fact that the detector was lying on the ground. Horse hair was found on the detector post indicating that the unit had been knocked down by a feral horse. The post and detector were reinstalled. The situation was documented in an e-mail to Stephen Cohen of the Nuclear Regulatory Commission (NRC). The e-mail is attached.

**July 3, 2007**

On July 3, 2007 when the second quarter RadTrak detectors were gathered for shipment to Landauer, Inc. the second quarter upwind (Air 2) detector and post were again found on the ground and horse hair found at the scene. The post bearing the detector was then attached to the wooden monitoring stand at the location to prevent further problems. This incident was documented in an e-mail to Stephen Cohen of the Nuclear Regulatory Commission (NRC) dated July 3, 2007. A reply (also attached) was received on July 5, 2007.

Landauer, Inc. returned no result for the second quarter 2007 detector stating that it was Returned Damaged. They were contacted via e-mail about the result and stated that the chip had a lot of static and tracks were clumped together. (Please see attached e-mail.)

The images below show how the fence post supporting the detector is now attached to the wooden monitoring stand.



These images were taken on Sunday, August 12, 2007.

This monitoring area was inspected by Stephen Cohen, Robert Evans, Jason Razo and Douglas Mandeville of the Nuclear Regulatory Commission (NRC) on Tuesday, July 10, 2007. Horse hair was still visible in the area.

Since accurate upwind radon monitoring data is not available for the first and second quarters of 2007, an average of the first and second quarter radon concentrations at the upwind location from January 1992 to December 2006 measured with RadTrak units is being used in place of first and second quarter 2007 upwind data respectively, for the purposes of assessment of dose to the general public.

The RadTrak radon monitoring results used to create the above described first and second quarter averages are included in a spreadsheet entitled "Upwind Radon Data – RadTrak Data Only - Air 2 Monitoring Station".

**Paulson, Oscar (RTEA)**

---

**From:** Oscar Paulson [paulson@tribcsp.com]  
**Sent:** Thursday, April 19, 2007 9:38 AM  
**To:** Stephen Cohen  
**Cc:** shelley@tribcsp.com  
**Subject:** SUA-1350/Sweetwater Uranium Project - Upwind Air Radon Monitoring/RadTrak Results

Stephen Cohen:

When the upwind air RadTrak/radon monitoring unit was exchanged on April 2, 2007, the plastic holder containing the unit was found on the ground. Horse hair on the support post indicated that a horse had been rubbing on the post loosening it and the holder for the RadTrak device, knocking the holder with the device to the ground. The device holder was found lying on its side on the ground. Results for that RadTrak detector arrived today. The detector returned an average radon concentration (for upwind air) of 16.9 picoCuries per liter. This anomalously high result is due the fact that the holder with the detector was lying in close proximity to the ground. The support post and holder have been subsequently reinstalled and to date are in good condition.

Oscar Paulson  
Facility Supervisor  
Kennecott Uranium Company  
Sweetwater Uranium Project  
P.O. Box 1500  
42 Miles Northwest of Rawlins  
Rawlins, Wyoming 82301-1500

Telephone: (307)-324-4924  
Fax: (307)-324-4925  
Cellular: (307)-320-8758

E-mail: [paulson@tribcsp.com](mailto:paulson@tribcsp.com)

8/14/2007

**Paulson, Oscar (RTEA)**

---

**From:** Paulson, Oscar (RTEA)  
**Sent:** Tuesday, July 03, 2007 5:58 PM  
**To:** (SJC7@nrc.gov)  
**Cc:** Schutterle, Shelley (RTEA)  
**Subject:** Upwind RadTrak Detector

Stephen Cohen:

A feral horse again knocked down the post upon which the upwind RadTrak monitor was mounted. The post was found on the ground. This may cause the detector result to be elevated. This is the second time that this has happened. There have been no previous problems since 1990 with the mounting post and now it gets knocked down in two (2) sequential quarters. I believe that this is the work of a single animal. As a result, the post is now attached to a wooden frame/tower on the site. I doubt that the animal can knock down the tower.

I wanted to inform you about this problem.

Oscar Paulson

Facility Supervisor  
Kennecott Uranium Company  
Sweetwater Uranium Project  
P.O. Box 1500  
42 Miles Northwest of Rawlins  
Rawlins, Wyoming 82301-1500

Telephone: (307)-324-4924  
Fax: (307)-324-4925  
Cellular: (307)-320-8758

E-mail: [oscar.paulson@riotinto.com](mailto:oscar.paulson@riotinto.com)

8/14/2007

**Paulson, Oscar (RTEA)**

---

**From:** Stephen Cohen [SJC7@nrc.gov]  
**Sent:** Thursday, July 05, 2007 4:59 AM  
**To:** Paulson, Oscar (RTEA)  
**Cc:** Betty Garrett  
**Subject:** Re: Upwind RadTrak Detector

Oscar:

If there is a problem with the readings from this monitor, explain it in the report.

Steve

>>> "Paulson, Oscar (RTEA)" <Oscar.Paulson@riotinto.com> 07/03/2007 7:57 PM >>>  
Stephen Cohen:

A feral horse again knocked down the post upon which the upwind RadTrak monitor was mounted. The post was found on the ground. This may cause the detector result to be elevated. This is the second time that this has happened. There have been no previous problems since 1990 with the mounting post and now it gets knocked down in two (2) sequential quarters. I believe that this is the work of a single animal. As a result, the post is now attached to a wooden frame/tower on the site. I doubt that the animal can knock down the tower.

I wanted to inform you about this problem.

Oscar Paulson

Facility Supervisor  
Kennebecott Uranium Company  
Sweetwater Uranium Project  
P.O. Box 1500  
42 Miles Northwest of Rawlins  
Rawlins, Wyoming 82301-1500

Telephone: (307)-324-4924  
Fax: (307)-324-4925  
Cellular: (307)-320-8758

E-mail: [oscar.paulson@riotinto.com](mailto:oscar.paulson@riotinto.com)

8/14/2007

**Paulson, Oscar (RTEA)**

---

**From:** Paulson, Oscar (RTEA)  
**Sent:** Monday, July 30, 2007 11:50 AM  
**To:** (relza@landauerinc.com)  
**Cc:** Schutterle, Shelley (RTEA)  
**Subject:** Account # 0406193 - Detector Number: 4701596 - Air 2 - Upwind

Rose:

The detector results were checked today. Detector Number: 4701596 was listed on the sheet as Monitor Returned Damaged. When I collected the detector, there was no visible external physical damage. The unit was in the field in a holder mounted to a fence post that was knocked over by a horse. While the post was knocked over the RadTrak detector was in the holder and appeared undamaged. Why is there no reading?

Thanks!

Oscar

Facility Supervisor  
Kennecott Uranium Company  
Sweetwater Uranium Project  
P.O. Box 1500  
42 Miles Northwest of Rawlins  
Rawlins, Wyoming 82301-1500

Telephone: (307)-324-4924  
Fax: (307)-324-4925  
Cellular: (307)-320-8758

E-mail: [oscar.paulson@riotinto.com](mailto:oscar.paulson@riotinto.com)

CONFIDENTIAL and PROPRIETARY information of Rio Tinto Energy America (C) 2006. All rights reserved. This work contains information that is confidential and proprietary to Rio Tinto Energy America . The senders contact information is also protected by the Rio Tinto Energy America Data Protection Policy, and should not be circulated. Removal of this notice, use, transfer, republication, disclosure and/or copying of all or part of this message, or its attachments, is strictly prohibited, except with the express, written permission of Rio Tinto Energy America . If you have received this e-mail message in error please return it and contact Oscar Paulson at (307)-324-4924

7/30/2007

**Paulson, Oscar (RTEA)**

---

**From:** Rose Elza [relza@landauerinc.com]  
**Sent:** Monday, July 30, 2007 11:57 AM  
**To:** Paulson, Oscar (RTEA)  
**Subject:** RE: Account # 0406193 - Detector Number: 4701596 - Air 2 - Upwind

Oscar,

I just pulled the report- indicates that chip had a lot of static and some of the tracks were clumped together-unable to read correctly.

*Please note our extensions and direct dial phone numbers have changed!*

Rose Elza  
Customer Service Representative  
*Radon Products*  
Landauer, Inc.  
(708) 441-8342 direct  
(708) 755-7048 fax  
(800) 528-8327 X 8342  
[relza@landauerinc.com](mailto:relza@landauerinc.com)  
[www.landauerinc.com](http://www.landauerinc.com)

***Dosimetry for the Twenty-First Century***

---

**From:** Paulson, Oscar (RTEA) [mailto:Oscar.Paulson@riotinto.com]  
**Sent:** Monday, July 30, 2007 12:50 PM  
**To:** Rose Elza  
**Cc:** Schutterle, Shelley (RTEA)  
**Subject:** Account # 0406193 - Detector Number: 4701596 - Air 2 - Upwind

Rose:

The detector results were checked today. Detector Number: 4701596 was listed on the sheet as Monitor Returned Damaged. When I collected the detector, there was no visible external physical damage. The unit was in the field in a holder mounted to a fence post that was knocked over by a horse. While the post was knocked over the RadTrak detector was in the holder and appeared undamaged. Why is there no reading?

Thanks!

Oscar

Facility Supervisor  
Kennecott Uranium Company  
Sweetwater Uranium Project  
P.O. Box 1500  
42 Miles Northwest of Rawlins  
Rawlins, Wyoming 82301-1500

Telephone: (307)-324-4924  
Fax: (307)-324-4925  
Cellular: (307)-320-8758

E-mail: [oscar.paulson@riotinto.com](mailto:oscar.paulson@riotinto.com)

7/30/2007



## Kennecott Uranium Company - Sweetwater Uranium Facility

## UPWIND RADON DATA

## RADTRAK DATA ONLY

## AIR 2 MONITORING STATION

			STATION	AIR 2	AIR 2	AIR 2
			DETECTOR	AIR 2	Averages	Averages -
			TYPE	pCi/L	pCi/L	For First
START DATE	END DATE					Quarters
						Averages -
						For Second
						Quarters
						pCi/L
	01-Jul-91	01-Aug-91	TRACKETCH	4.20		
	01-Aug-91	01-Sep-91	TRACKETCH	4.20	4.20	
	01-Sep-91	01-Oct-91	TRACKETCH	4.20		
	01-Oct-91	01-Nov-91	TRACKETCH	2.80		
	01-Nov-91	01-Dec-91	TRACKETCH	2.80	2.80	
	01-Dec-91	03-Jan-92	TRACKETCH	2.80		
1992	10-Jan-92	07-Feb-92	TRACKETCH	3.90		
	07-Feb-92	03-Mar-92	TRACKETCH	3.20	4.34	4.34
	03-Mar-92	02-Apr-92	TRACKETCH	5.93		
	02-Apr-92	11-May-92	TRACKETCH	3.07		
	11-May-92	01-Jun-92	TRACKETCH	3.07	3.07	3.07
	01-Jun-92	01-Jul-92	TRACKETCH	3.07		
	01-Jul-92	01-Aug-92	TRACKETCH	3.80		
	01-Aug-92	01-Sep-92	TRACKETCH	3.80	3.80	
	01-Sep-92	06-Oct-92	TRACKETCH	3.80		
	06-Oct-92	01-Nov-92	TRACKETCH	3.00		
	01-Nov-92	01-Dec-92	TRACKETCH	3.00	3.00	
	01-Dec-92	04-Jan-93	TRACKETCH	3.00		
1993	04-Jan-93	01-Feb-93	TRACKETCH	3.20		
	01-Feb-93	01-Mar-93	TRACKETCH	3.20	3.20	3.20
	01-Mar-93	01-Apr-93	TRACKETCH	3.20		
	01-Apr-93	01-May-93	TRACKETCH	2.50		
	01-May-93	01-Jun-93	TRACKETCH	2.50	2.50	2.50
	01-Jun-93	30-Jun-93	TRACKETCH	2.50		
	30-Jun-93	01-Aug-93	TRACKETCH	4.80		
	01-Aug-93	18-Aug-93	TRACKETCH	4.80	4.80	
	18-Aug-93	01-Oct-93	TRACKETCH	4.80		
	01-Oct-93	04-Nov-93	TRACKETCH	4.80		
	04-Nov-93	30-Nov-93	TRACKETCH	4.80	4.80	
	30-Nov-93	03-Jan-94	TRACKETCH	4.80		
1994	03-Jan-94	31-Jan-94	TRACKETCH	5.30		
	31-Jan-94	21-Feb-94	TRACKETCH	5.30	5.30	5.30
	21-Feb-94	31-Mar-94	TRACKETCH	5.30		

## Kennecott Uranium Company - Sweetwater Uranium Facility

## UPWIND RADON DATA

## RADTRAK DATA ONLY

## AIR 2 MONITORING STATION

			STATION	AIR 2	AIR 2	AIR 2
			DETECTOR	AIR 2	Averages	Averages -
			TYPE	pCi/L	pCi/L	For First
START DATE	END DATE					Quarters
						Averages -
						For Second
						Quarters
						pCi/L
	31-Mar-94	27-Apr-94	TRACKETCH	3.10		
	27-Apr-94	31-May-94	TRACKETCH	3.10	3.10	3.10
	31-May-94	01-Jul-94	TRACKETCH	3.10		
	01-Jul-94	03-Aug-94	TRACKETCH	3.70		
	03-Aug-94	07-Sep-94	TRACKETCH	3.70	3.70	
	07-Sep-94	03-Oct-94	TRACKETCH	3.70		
	03-Oct-94	02-Nov-94	TRACKETCH	3.00		
	02-Nov-94	01-Dec-94	TRACKETCH	3.00	3.00	
	01-Dec-94	03-Jan-95	TRACKETCH	3.00		
1995	03-Jan-95	01-Feb-95	TRACKETCH	3.10		
	01-Feb-95	02-Mar-95	TRACKETCH	3.10	3.10	3.10
	02-Mar-95	31-Mar-95	TRACKETCH	3.10		
	31-Mar-95	30-Apr-95	TRACKETCH	2.40		
	30-Apr-95	31-May-95	TRACKETCH	2.40	2.40	2.40
	31-May-95	30-Jun-95	TRACKETCH	2.40		
	30-Jun-95	31-Jul-95	TRACKETCH	4.50		
	31-Jul-95	31-Aug-95	TRACKETCH	4.50	4.50	
	31-Aug-95	30-Sep-95	TRACKETCH	4.50		
	30-Sep-95	31-Oct-95	TRACKETCH	4.80		
	31-Oct-95	30-Nov-95	TRACKETCH	4.80	4.80	
	30-Nov-95	03-Jan-96	TRACKETCH	4.80		
1996	03-Jan-96	01-Feb-96	TRACKETCH	2.20		
	01-Feb-96	01-Mar-96	TRACKETCH	2.20	2.20	2.20
	01-Mar-96	01-Apr-96	TRACKETCH	2.20		
	01-Apr-96	01-May-96	TRACKETCH	2.90		
	01-May-96	01-Jun-96	TRACKETCH	2.90	2.90	2.90
	01-Jun-96	01-Jul-96	TRACKETCH	2.90		
	01-Jul-96	01-Aug-96	TRACKETCH	4.10		
	01-Aug-96	01-Sep-96	TRACKETCH	4.10	4.10	
	01-Sep-96	30-Sep-96	TRACKETCH	4.10		
	30-Sep-96	01-Nov-96	TRACKETCH	2.90		
	01-Nov-96	01-Dec-96	TRACKETCH	2.90	2.90	
	01-Dec-96	03-Jan-97	TRACKETCH	2.90		

## Kennecott Uranium Company - Sweetwater Uranium Facility

UPWIND RADON DATA  
RADTRAK DATA ONLY  
AIR 2 MONITORING STATION

			STATION		AIR 2	AIR 2	AIR 2
			DETECTOR	AIR 2	Averages	Averages - For First Quarters	Averages - For Second Quarters
START DATE	END DATE	TYPE	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L
1997	03-Jan-97	01-Feb-97	TRACKETCH	1.70	1.70	1.70	
	01-Feb-97	01-Mar-97	TRACKETCH	1.70			
	01-Mar-97	01-Apr-97	TRACKETCH	1.70			
	01-Apr-97	01-May-97	TRACKETCH	3.40	3.40		3.40
	01-May-97	01-Jun-97	TRACKETCH	3.40			
	01-Jun-97	30-Jun-97	TRACKETCH	3.40			
	30-Jun-97	01-Aug-97	TRACKETCH	2.70	2.70		
	01-Aug-97	01-Sep-97	TRACKETCH	2.70			
	01-Sep-97	01-Oct-97	TRACKETCH	2.70			
	01-Oct-97	01-Nov-97	TRACKETCH	3.90	3.90		
	01-Nov-97	01-Dec-97	TRACKETCH	3.90			
	01-Dec-97	03-Jan-98	TRACKETCH	3.90			
1998	03-Jan-98	03-Feb-98	TRACKETCH	2.40	2.40	2.40	
	03-Feb-98	03-Mar-98	TRACKETCH	2.40			
	03-Mar-98	01-Apr-98	TRACKETCH	2.40			
	01-Apr-98	01-May-98	TRACKETCH	2.20	2.20		2.20
	01-May-98	01-Jun-98	TRACKETCH	2.20			
	01-Jun-98	01-Jul-98	TRACKETCH	2.20			
	01-Jul-98	01-Aug-98	TRACKETCH	3.00	3.00		
	01-Aug-98	01-Sep-98	TRACKETCH	3.00			
	01-Sep-98	30-Sep-98	TRACKETCH	3.00			
	30-Sep-98	30-Oct-98	TRACKETCH	2.80	2.80		
	30-Oct-98	30-Nov-98	TRACKETCH	2.80			
	30-Nov-98	04-Jan-99	TRACKETCH	2.80			
1999	04-Jan-99	04-Feb-99	TRACKETCH	2.60	2.60	2.60	
	04-Feb-99	04-Mar-99	TRACKETCH	2.60			
	04-Mar-99	11-Apr-99	TRACKETCH	2.60			
	11-Apr-99	11-May-99	TRACKETCH	2.70	2.70		2.70
	11-May-99	11-Jun-99	TRACKETCH	2.70			
	11-Jun-99	04-Jul-99	TRACKETCH	2.70			
	04-Jul-99	04-Aug-99	TRACKETCH	3.90	3.90		
	04-Aug-99	04-Sep-99	TRACKETCH	3.90			
	04-Sep-99	03-Oct-99	TRACKETCH	3.90			

## Kennecott Uranium Company - Sweetwater Uranium Facility

UPWIND RADON DATA  
RADTRAK DATA ONLY  
AIR 2 MONITORING STATION

			STATION	AIR 2	AIR 2	AIR 2
			DETECTOR	AIR 2	Averages	Averages - For First Quarters
			TYPE	pCi/L	pCi/L	Averages - For Second Quarters pCi/L
START DATE	END DATE					
03-Oct-99	03-Nov-99	TRACKETCH	6.40			
03-Nov-99	03-Dec-99	TRACKETCH	6.40	6.40		
03-Dec-99	02-Jan-00	TRACKETCH	6.40			
2000	02-Jan-00	02-Feb-00	TRACKETCH	1.80		
	02-Feb-00	02-Mar-00	TRACKETCH	1.80	1.80	1.80
	02-Mar-00	04-Apr-00	TRACKETCH	1.80		
	04-Apr-00	04-May-00	TRACKETCH	3.50		
	04-May-00	04-Jun-00	TRACKETCH	3.50	3.50	3.50
	04-Jun-00	05-Jul-00	TRACKETCH	3.50		
	05-Jul-00	05-Aug-00	TRACKETCH	5.70		
	05-Aug-00	05-Sep-00	TRACKETCH	5.70	5.70	
	05-Sep-00	01-Oct-00	TRACKETCH	5.70		
	01-Oct-00	01-Nov-00	TRACKETCH			
	01-Nov-00	01-Dec-00	TRACKETCH		No data	Knocked down
	01-Dec-00	02-Jan-01	TRACKETCH			
2001	02-Jan-01	02-Feb-01	TRACKETCH	6.20		
	02-Feb-01	02-Mar-01	TRACKETCH	6.20	6.20	6.20
	02-Mar-01	01-Apr-01	TRACKETCH	6.20		
	01-Apr-01	01-May-01	TRACKETCH	2.50		
	01-May-01	01-Jun-01	TRACKETCH	2.50	2.50	2.50
	01-Jun-01	01-Jul-01	TRACKETCH	2.50		
	01-Jul-01	01-Aug-01	TRACKETCH	3.10		
	01-Aug-01	01-Sep-01	TRACKETCH	3.10	3.10	
	01-Sep-01	01-Oct-01	TRACKETCH	3.10		
	01-Oct-01	01-Nov-01	TRACKETCH	4.10		
	01-Nov-01	01-Dec-01	TRACKETCH	4.10	4.10	
	01-Dec-01	02-Jan-02	TRACKETCH	4.10		
2002	02-Jan-02	02-Feb-02	TRACKETCH	2.70		
	02-Feb-02	02-Mar-02	TRACKETCH	2.70	2.70	2.70
	02-Mar-02	31-Mar-02	TRACKETCH	2.70		
	31-Mar-02	30-Apr-02	TRACKETCH	2.30		
	30-Apr-02	31-May-02	TRACKETCH	2.30	2.30	2.30
	31-May-02	01-Jul-02	TRACKETCH	2.30		

## Kennecott Uranium Company - Sweetwater Uranium Facility

## UPWIND RADON DATA

## RADTRAK DATA ONLY

## AIR 2 MONITORING STATION

			STATION	AIR 2	AIR 2	AIR 2
			DETECTOR	AIR 2	Averages	Averages -
			TYPE	pCi/L	pCi/L	For First
START DATE	END DATE					Quarters
						For Second
						Quarters
						pCi/L
	01-Jul-02	01-Aug-02	TRACKETCH	3.40	3.40	
	01-Aug-02	01-Sep-02	TRACKETCH	3.40		
	01-Sep-02	01-Oct-02	TRACKETCH	3.40		
	01-Oct-02	01-Nov-02	TRACKETCH	4.20	4.20	
	01-Nov-02	01-Dec-02	TRACKETCH	4.20		
	01-Dec-02	02-Jan-03	TRACKETCH	4.20		
2003	02-Jan-03	02-Feb-03	TRACKETCH	2.60	2.60	
	02-Feb-03	02-Mar-03	TRACKETCH	2.60		2.60
	02-Mar-03	31-Mar-03	TRACKETCH	2.60		
	31-Mar-03	30-Apr-03	TRACKETCH	3.90	3.90	
	30-Apr-03	31-May-03	TRACKETCH	3.90		3.90
	31-May-03	30-Jun-03	TRACKETCH	3.90		
	30-Jun-03	30-Jul-03	TRACKETCH		No data	Lost by Landauer
	30-Jul-03	30-Aug-03	TRACKETCH			
	30-Aug-03	01-Oct-03	TRACKETCH			
	01-Oct-03	01-Nov-03	TRACKETCH	3.50	3.50	
	01-Nov-03	01-Dec-03	TRACKETCH	3.50		
	01-Dec-03	01-Jan-04	TRACKETCH	3.50		
2004	01-Jan-04	01-Feb-04	TRACKETCH	2.70	2.70	
	01-Feb-04	01-Mar-04	TRACKETCH	2.70		2.70
	01-Mar-04	01-Apr-04	TRACKETCH	2.70		
	01-Apr-04	01-May-04	TRACKETCH	2.40	2.40	
	01-May-04	01-Jun-04	TRACKETCH	2.40		2.40
	01-Jun-04	30-Jun-04	TRACKETCH	2.40		
	30-Jun-04	30-Jul-04	TRACKETCH	3.60	3.60	
	30-Jul-04	30-Aug-04	TRACKETCH	3.60		
	30-Aug-04	03-Oct-04	TRACKETCH	3.60		
	03-Oct-04	03-Nov-04	TRACKETCH	3.90	3.90	
	03-Nov-04	03-Dec-04	TRACKETCH	3.90		
	03-Dec-04	01-Jan-05	TRACKETCH	3.90		
2005	01-Jan-05	01-Feb-05	TRACKETCH	2.30	2.30	
	01-Feb-05	01-Mar-05	TRACKETCH	2.30		2.30
	01-Mar-05	04-Apr-05	TRACKETCH	2.30		

Kennecott Uranium Company - Sweetwater Uranium Facility

UPWIND RADON DATA

RADTRAK DATA ONLY

AIR 2 MONITORING STATION

		STATION		AIR 2	AIR 2	AIR 2
		DETECTOR	AIR 2	Averages	Averages - For First Quarters	Averages - For Second Quarters
START DATE	END DATE	TYPE	pCi/L	pCi/L	pCi/L	pCi/L
04-Apr-05	04-May-05	TRACKETCH	2.60	2.60	2.60	2.60
04-May-05	04-Jun-05	TRACKETCH	2.60			
04-Jun-05	03-Jul-05	TRACKETCH	2.60			
03-Jul-05	03-Aug-05	TRACKETCH	4.30	4.30		
03-Aug-05	03-Sep-05	TRACKETCH	4.30			
03-Sep-05	01-Oct-05	TRACKETCH	4.30			
01-Oct-05	01-Nov-05	TRACKETCH	3.90	3.90		
01-Nov-05	01-Dec-05	TRACKETCH	3.90			
01-Dec-05	01-Jan-06	TRACKETCH	3.90			
2006	01-Jan-06	01-Feb-06	TRACKETCH	2.60	2.60	2.60
	01-Feb-06	01-Mar-06	TRACKETCH	2.60		
	01-Mar-06	03-Apr-06	TRACKETCH	2.60		
	03-Apr-06	03-May-06	TRACKETCH	4.60	4.60	4.60
	03-May-06	03-Jun-06	TRACKETCH	4.60		
	03-Jun-06	05-Jul-06	TRACKETCH	4.60		
	05-Jul-06	05-Aug-06	TRACKETCH	3.60	3.60	
	05-Aug-06	05-Sep-06	TRACKETCH	3.60		
	05-Sep-06	02-Oct-06	TRACKETCH	3.60		
	02-Oct-06	02-Nov-06	TRACKETCH	3.50	3.50	
	02-Nov-06	02-Dec-06	TRACKETCH	3.50		
	02-Dec-06	02-Jan-07	TRACKETCH	3.50		
2007	02-Jan-07	02-Feb-07	TRACKETCH	16.90	Erroneous data Found on the ground	
	02-Feb-07	02-Mar-07	TRACKETCH	16.90		
	02-Mar-07	02-Apr-07	TRACKETCH	16.90		
	02-Apr-07	02-May-07	TRACKETCH	No data	Damaged - no reading	
	02-May-07	02-Jun-07	TRACKETCH			
	02-Jun-07	03-Jul-07	TRACKETCH			
Averages				3.14	3.05	2.94

1-IF MORE THAN ONE READING WAS TAKEN FOR THE PERIOD THEN THE RESULT SHOWN IS AN AVERAGE OF THE READINGS TAKEN

2-IF THREE (3) IDENTICAL READINGS FOR A SINGLE STATION APPEAR IN SUCCESSION AND ARE MARKED BY A SINGLE VERTICAL LINE IN ALL THREE MONTHS OF A GIVEN CALENDER QUARTER THEN THE DETECTOR WAS PLACED FOR THE ENTIRE QUARTER AND THE INDIVIDUAL MONTHLY READINGS ARE THE SINGLE QUARTERLY READING REPEATED FOR EACH MONTH

**KENNECOTT URANIUM COMPANY  
SWEETWATER URANIUM PROJECT  
Source Material License SUA-1350**

**2007  
DIRECT RADIATION MEASUREMENTS  
(TLD)**

<b>Location</b>	<b>Date</b>	<b>Exposure Rate (mr/Qtr)</b>	<b>Error Estimated</b>	<b>Lower Limit of Detection (LLD) Millirems</b>
<b><i>TLD</i></b> 0000 - Control 0004 - Air 4A	1/2/07 – 4/2/07 1/2/07 – 4/2/07	25 34	0.8 mr 1.1 mr	10 <sup>1</sup> 10 <sup>1</sup>
<b><i>TLD</i></b> 0000 - Control 0004 - Air 4A	4/2/07 – 7/2/07 4/2/07 – 7/2/07	22 34	1.8 mr 1.7 mr	10 <sup>1</sup> 10 <sup>1</sup>
<b><i>TLD</i></b> 0000 - Control 0004 - Air 4A				
<b><i>TLD</i></b> 0000 - Control 0004 - Air 4A				

<sup>1</sup> Please see the following copy of a letter from ThermoNUTech on Lower Limits of Detection (LLDs).

## Lower Limits of Detection (LLDs)

1990 DOELAP Study (See DOELAP Handbook § 3.4)  
95% Confidence Level Values

Known Fields: LLD in mrem per period					
Radiation Field		Deployment Period			
Type	Test Source	Monthly*	Quarterly	Semi-Annual*	Annual*
gamma	<sup>137</sup> Cs	6	11	16	22
X-ray	mixed beam	6	11	16	22
hard beta	<sup>90</sup> Sr/Y	8	13	18	26
soft beta	<sup>204</sup> Tl	36	63	89	123
slow neutron	<sup>252</sup> Cf mod.	5	8	11	16
fast neutron	<sup>252</sup> Cf unmod.	43	74	105	143

\* Extrapolated from quarterly values. The study was done using a period of one quarter.

For routine reporting purposes, the LLD is taken to be 10 mrem.  
This value is very close to the measured LLD for most commonly encountered radiation fields.  
No values less than this nominal LLD are reported.



## Day for Lead-210

**Memorandum**

**Oscar Paulson**  
*Facility Supervisor*  
*Kennecott Uranium Company*

14 August 2007

To: File – 10 CFR 40.65 Report

Subject: Dose to the General Public in Millirems per Year as Represented by the Nearest Resident – First Half 2007

The following is a dose calculation for the nearest resident (the contract security guard) for the first half of 2007.

**Calculation Assumptions:**

1. The nearest resident for dose calculation purposes is considered to be the site security officer when he is not on duty and sleeping inside the Security Trailer. The site security officer is scheduled to be on site from 5:30 p.m. on Thursday of each week to 10:00 p.m. the following Sunday, on holidays and at times that the Senior Facility Technician is on vacation. In spite of the fact that the site security officer does not reside on site continuously, no occupancy factor is assigned to him and for dose calculation purposes he is assumed to reside on site continuously.
2. Radon concentrations are measured in the Security Trailer with Radtrak detectors placed in the kitchen and bedroom and changed quarterly. The results from these detectors are averaged to derive a semiannual radon concentration in Pico curies per liter for the Security Trailer.
3. Radon exposures in working levels are measured semiannually in the Security Trailer using a calibrated Buck Basic 12, Bendix BDX-44, MSA or Sensidyne GilAir II air pump and filter. The filter is read by the modified Kusnetz Method.
4. The radon concentration and exposure are used to calculate the equilibrium factor. The equilibrium factors calculated semiannually are averaged to derive a site equilibrium factor.
5. This equilibrium factor is applied to the upwind radon concentrations to derive a background radon dose and to the average semiannual radon concentration in the Security Trailer to derive a radon dose to the nearest resident. An equilibrium factor table is attached.
6. The dose from the semiannual downwind airborne particulate concentrations of natural uranium, radium-226 and thorium-230 are used to calculate the dose from airborne particulates in the Security Trailer in spite of the fact that the Security Trailer is not downwind of the facility.
7. The gamma dose from the downwind gamma radiation monitor (environmental thermoluminescent dosimeter) is used to calculate the gamma radiation dose in the Security Trailer.
8. The doses from radon-222, airborne particulate radionuclides and gamma radiation are summed to produce a dose to the nearest resident (the Security Trailer).
9. The radon concentrations measured at the upwind air monitoring stations during the two (2) quarters for a given semiannual period are averaged, corrected for the site equilibrium factor and converted to a background radon dose for the facility, with the exception of this report, in which averages of first and second quarter RadTrak determined radon concentrations from July 1, 1991

to December 31, 2006 were used, since valid background radon data for the first and second quarters of 2007 was not available.

10. This background radon dose is summed with the background gamma radiation dose (from the revised Environmental Report – dated August 1994) and the doses derived from the background airborne particulate concentrations (natural uranium, radium-226 and thorium-230 as described in the revised Environmental Report dated August 1994) to yield a background radiation dose for the facility for the given semiannual period.
11. The background dose is subtracted from the calculated dose to the nearest resident (Security Trailer) to derive a dose to the nearest resident for the facility.

#### BACKGROUND

		Average Concentration	Dose (mrem)
Gamma Exposure:			200.70 (approx. 22.9 uR/hr)
Airborne Particulates:			
	U nat	6.2 E-16 µCi/ml	0.34
	Ra-226	3.9 E-16 µCi/ml	0.22
	Th-230	3.9 E-16 µCi/ml	0.65
Gases:			
	Radon-222	3.00 pCi/l	271.9
<b>Total</b>			<b>473.8</b>

#### Notes:

1. An equilibrium factor of 0.206 was used for radon based on twenty-one (21) comparisons of radon-222 and radon-222 daughter concentrations over 14 years. Please see attached sheet entitled "Equilibrium Factors for Nearest Resident".
2. Gamma and airborne particulate background data is from the revised Environmental Report (August 1994).
3. The average background radon concentrations for the first and second quarter of each year at the upwind air station (Air 2) for July 1, 1991 to December 31, 2006 were used to calculate background radon dose since valid background radon data for the site was not available for the first and second quarters of 2007.
4. Calculation: (Radon concentration (pCi/l))\*(Equilibrium factor)\*(0.44 rems/pCi/l) = Dose (rems)

#### SECURITY TRAILER

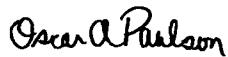
		Average Concentration	Dose (mrem)
Gamma Exposure:			136.00
Airborne Particulates:			
	U nat	1.00 E-16 µCi/ml	0.06
	Ra-226	1.00 E-16 µCi/ml	0.01
	Th-230	1.00 E-16 µCi/ml	0.17
Gases:			
	Radon-222	1.65 pCi/l	148.8
<b>Total</b>			<b>285.07</b>

#### Notes:

1. An equilibrium factor of 0.206 was used for radon based on twenty-one (21) comparisons of radon-222 and radon-222 daughter concentrations over 14 years.

2. Downwind airborne particulate concentrations and gamma doses for the first and second quarters of 2007 were used for the security trailer. These doses were converted to millirems per year (mrem/yr).
3. Radon concentration was measured in the security trailer for the first and second quarters of 2007 and is based on an average of RadTrak units located in two (2) locations; the kitchen and the bedroom.
4. The gamma dose rate is based upon the TLD dosimeters for the first and second quarters converted to an annual dose rate.

The net (dose to the nearest resident minus background dose) annual TEDE from the licensed operations for the first half of 2007 is 0 mrem/year, which is below the 100 mrem/year dose limit to members of the general public.



Oscar Paulson  
Avg dose.doc

**Kennecott Uranium Company  
Sweetwater Uranium Project  
Equilibrium Factor for Nearest Residence  
(Security Guard Trailer)**

<b>Date</b>	<b>Radon Concentration (pCi/L)</b>	<b>Exposure (WL)</b>	<b>Equilibrium Factor</b>
1/1/93 – 6/30/93	3.2	0.009	0.28
1/1/97 – 6/30/97	1.5	0.003	0.20
7/1/97 – 12/31/97	2.2	0.002	0.09
1/1/98 – 6/30/98	1.65	0.003	0.18
1/1/99 – 6/30/99	1.90	0.009	0.47
7/1/99 – 12/31/99	3.25	0.002	0.06
1/1/00 – 6/30/00	2.12	0.004	0.19
7/1/00 – 12/31/00	3.05	0.009	0.30
1/1/01 – 6/30/01	3.60 <sup>1</sup>	0.012	0.33
7/1/01 – 12/31/01	2.78	0.013 <sup>2</sup>	0.47
1/1/02 – 6/30/02	2.48	0.009 <sup>2</sup>	0.34
7/1/02 – 12/31/02	2.80	0.003 <sup>2</sup>	0.11
1/1/03 – 6/30/03	2.40	0.004 <sup>2</sup>	0.17
7/1/03 – 12/31/03	3.75 <sup>3</sup>	0.006 <sup>2</sup>	0.16
1/1/04 – 6/30/04	2.08	0.003 <sup>2</sup>	0.14
7/1/04 – 12/31/04	3.0	0.0005	0.017
1/1/05 – 6/30/05	2.55	0.0013	0.051
7/1/05 – 12/31/05	3.22	0.0035	0.109
1/1/06 – 6/30/06	2.40	0.0	0.0
7/1/06 – 12/31/06	2.13	0.014	0.66
1/1/07 – 6/30/07	1.65	0.0	0.0
<b>Average</b>			<b>0.206</b>

<sup>1</sup> This value is based upon an average of three (3) RadTrak detectors. The second quarter RadTrak detector in the Security Trailer bedroom was lost.

<sup>2</sup> Average of two (2) measurements

<sup>3</sup> Fourth quarter 2003 concentration only. Landauer, Inc. lost the third quarter 2003 RadTrak units.

**Calculation Parameters**

1. Radon concentrations in the Security Trailer are calculated based upon the results of two (2) RadTrak detectors (one in the kitchen and one in the bedroom) that are changed quarterly. The radon concentration for a given semiannual period is an average of the results of four (4) RadTrak detections, one in the kitchen and one in the bedroom, changed quarterly.
2. Radon exposures (radon daughters concentrations measured in Working Levels) are taken semiannually in the trailer in two (2) locations (kitchen and bedroom) using a Buck Basic 12, Bendix BDX-44, MSA or Sensidyne GilAir II air pump and a filter. The filter is evaluated using the modified Kusnetz Method.

3. The equilibrium factor is calculated.

Radon Dose (rems) = (Radon Concentration (pCi/L)) \* (Equilibrium Factor) \* (0.44 rem/pCi/L)

An occupancy factor may be added as required.

1 WL ~ 100 pCi/L with daughters present (100% equilibrium)

Equilibrium Factor Formula:  $\text{Equilibrium Factor} = \text{Exposure (WL)} * 100 / \text{Concentration (pCi/L)}$

*Source: National Council on Radiation Protection (NCRP) Report #97*