Monitor Wells

All monitor wells within the excavation footprint were preserved with the exception of TMW-90 and 105, which were removed during the course of the excavation. This removal was discussed in the submittals for the license amendment to conduct the excavation.

Monitor wells TMW-90 and 105 were shallow wells completed to sample and remove perched fluids residing on top of a clay layer approximately forty (40) feet below surface at the west end of the excavation immediately east of the Raffinate Tank slab. These wells were completed in part to remove accumulated fluids including hydrocarbons at the excavation bottom prior to completing the excavation so that equipment and personnel would not contact the fluids. These wells and the fluids removed from them are discussed in detail in the Section entitled Fluid Recovery.

The image taken below on July 10, 2007 shows the bottom of monitor well TMW-90 with a small quantity of perched fluid near it. The slotted pipe screen is clearly visible:

The image below shows the very bottom of TMW-90 on July 12, 2006. A trowel is included for scale:

The image below taken on July 18, 2006 shows the very bottom of TMW-90 with the well endcap still in place:

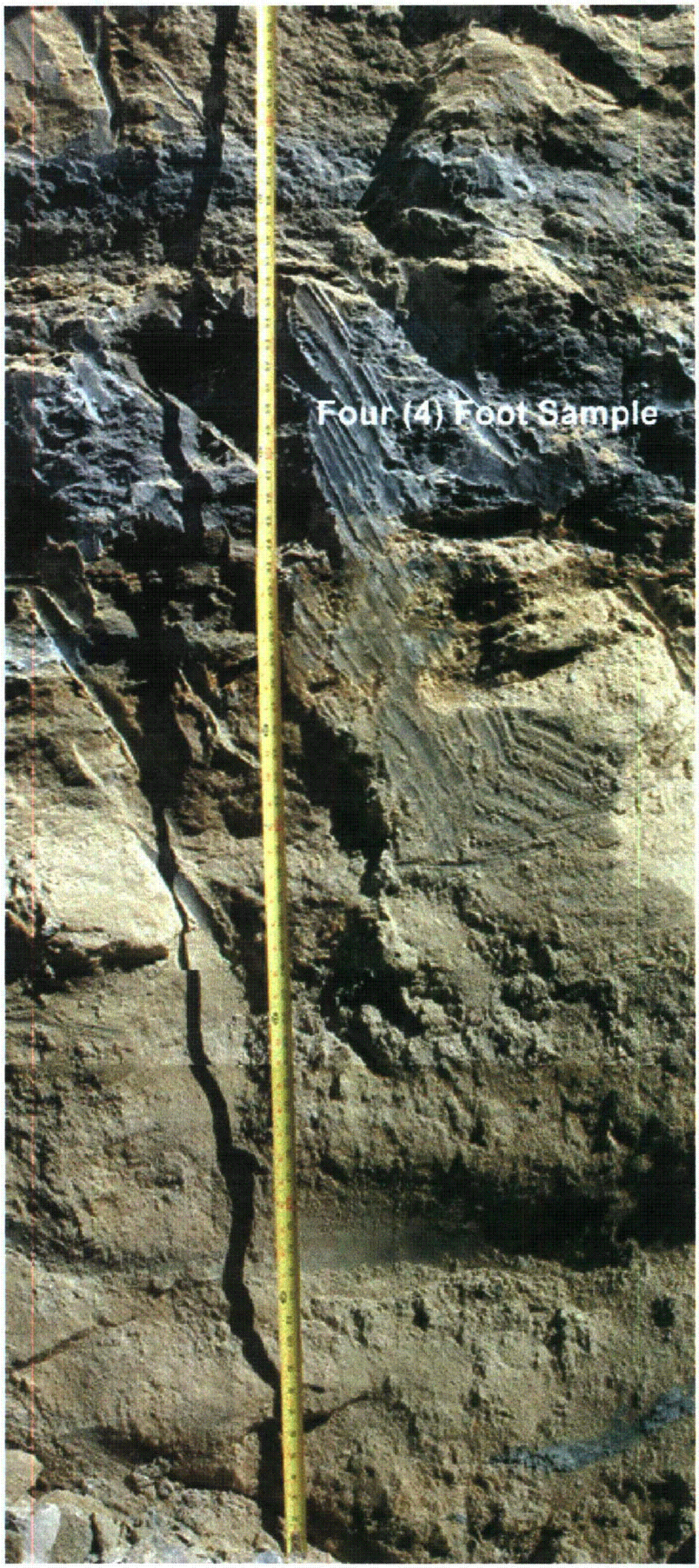
The well was completely excavated with a trackhoe. In the course of excavating the well some hydrocarbon contaminated soils were found in the actual excavation.

The following is sample data for the excavation wall:

Location	Sample Type	Northing	Easting	Elevation	Diesel Range Organics (milligrams per kilogram)	Oil Range Hydrocarbon (milligrams per kilogram)	Total Extractable Hydrocarbons (milligrams per kilogram)	pH (Standard units)	Sulphate (milligrams per kilogram)	Natural Uranium (milligrams per kilogram)	Thorium-230 (picocuries per gram)	Thorium-230 Uncertainty (picocuries per gram)	FINAL Result (picocuries per gram)	FINAL Uncertainty (picocuries per gram)
TMW-90	9-1/2' above casing bottom	148611.25	323958.92	6593.82	ND	ND	13	8.02	240	13.90	3.4	1.1	9.7	1.1
TMW-90	7' above casing bottom N Wall	148611.25	323958.92	6591.32	ND	ND	ND	7.83	212	7.23	2.2	0.9	5.2	1.1
TMW-90	4' above casing bottom N Wall	148611.25	323958.92	6588.32	8120	ND	8120	8.67	319	7.27	3.5	1.1	9.6	1.1
TMW-90	3-1/2' above casing bottom N Wall	148611.25	323958.92	6587.82	242	ND	243	8.27	1830	7.89	4.2	1.1	14.3	1.4
TMW-90	Casing bottom	148611.25	323958.92	6584.32	ND	ND	12	6.19	119	10.00	3.4	1.1	6.1	1.1

All contaminants were completely excavated prior to collecting the gridded samples.

On the following page the composite image was taken on July 18, 2006 and shows the north wall of the hole dug to remove the remaining casing from TMW-90. The location of the four- (4) foot sample is shown on the image. All of this contaminated material was removed. The contamination was immediately above a clay layer.


Four (4) Foot Sample

TMW-105 was also removed. It is shown below in an image taken on July 14, 2006. This remaining piece of casing was removed and placed in the tailings impoundment.

The image below taken on July 26, 2006 shows the scar remaining on the highwall following removal of the remaining casing from TMW-105.

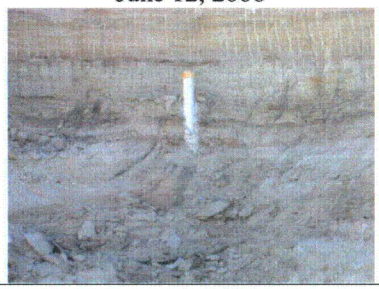
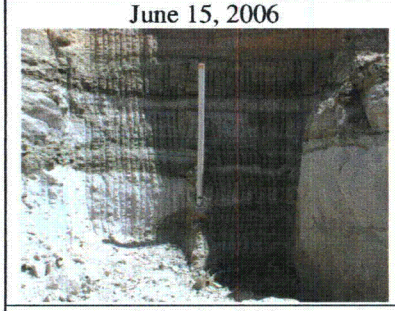
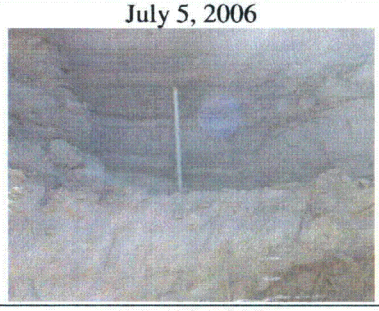
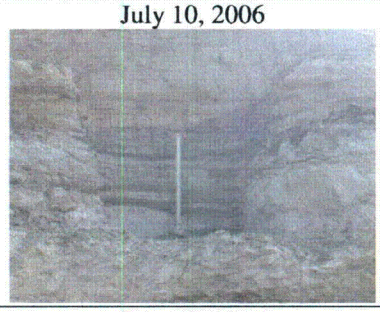
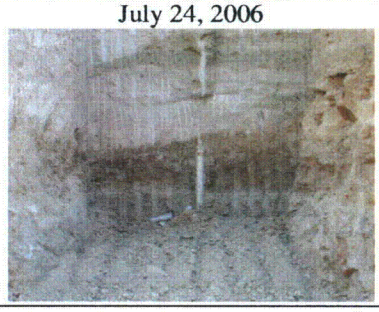
The remaining monitor wells in the excavation's footprint were carefully protected and preserved. The following monitor wells were in the excavation's footprint:

- TMW-62
- TMW-91
- TMW-92
- TMW-102
- TMW-104
- TMW-100
- TMW-101
- TMW-111
- TMW-112
- TMW-113

The following tables show images of the wells in the footprint of the primary excavation (TMW-62, 91, 92, 102, 104, 112 and 113) during the course of the excavation (until bottom was reached) showing that they were properly protected:

TMW-62

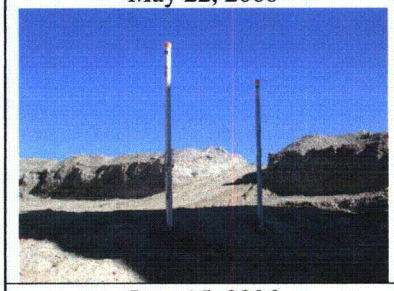
- A cut in the highwall was made around this well so that it could be safely accessed for sample collection and water level measurement during excavation:

May 22, 2006	June 12, 2006	June 14, 2006
		
June 15, 2006	July 5, 2006	July 10, 2006
		
July 18, 2006	July 24, 2006	July 27, 2006
		

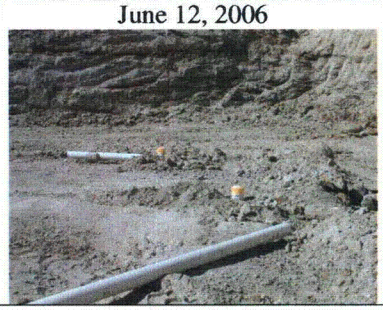
TMW-91 and 92

- These wells were close together so they are shown as a pair in the images. TMW-91 is to the right and TMW-92 is to the left.

May 22, 2006

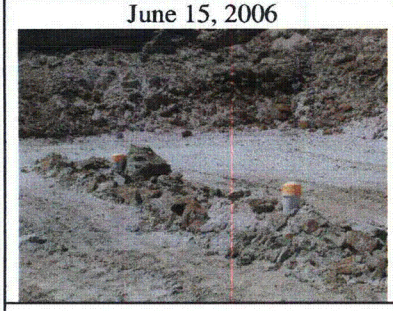


June 12, 2006



June 14, 2006

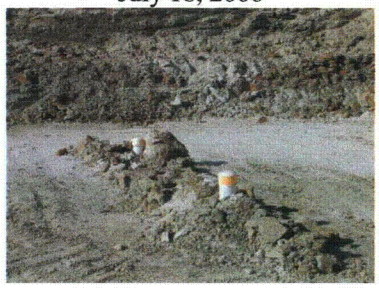
June 15, 2006



July 5, 2006

July 10, 2006

July 18, 2006

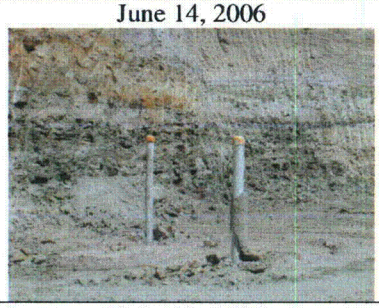


TMW-102

- This well was near the west highwall. In pictures showing two wells (TMW-90 and 102), TMW-102 is to the right.

June 12, 2006

June 14, 2006



June 15, 2006

July 10, 2006

July 18, 2006

July 24, 2006

July 27, 2006

TMW-104

- TMW-104 was against the south wall of the excavation. A notch in the wall was created for it (like TMW-62) to allow for sampling and water level measurement.

June 12, 2006

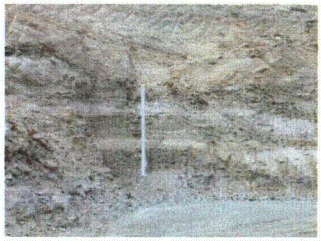
June 14, 2006

July 10, 2006

July 14, 2006

July 18, 2006

July 24, 2006



July 27, 2006

TMW-112

- This well was always readily distinguishable by the trimmie pipe (black hose) that was cemented in place alongside the well casing when it was completed.

June 12, 2006

June 14, 2006

July 5, 2006

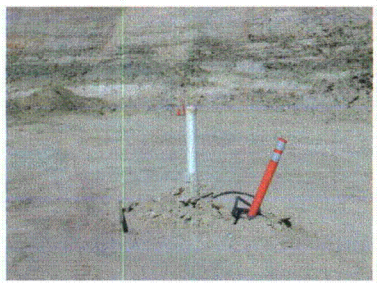
July 10, 2006

July 14, 2006

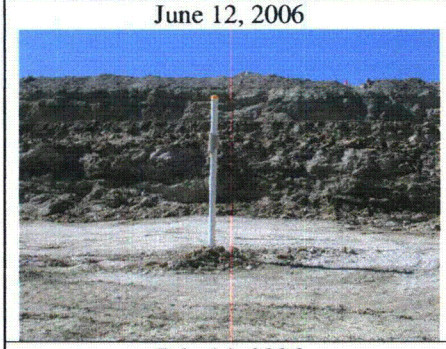
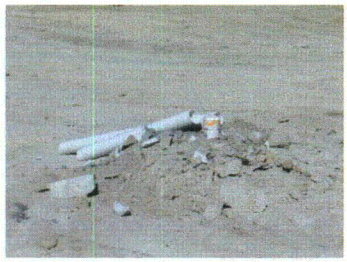
July 18, 2006

July 24, 2006

July 27, 2006



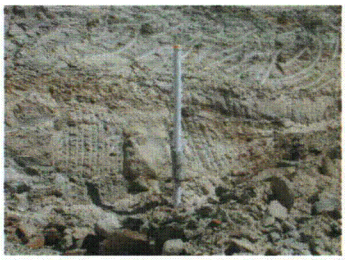
TMW-113

June 12, 2006 	June 14, 2006 	July 10, 2006 
July 14, 2006 		July 27, 2006 

TMW-111

June 12, 2006

June 14, 2006

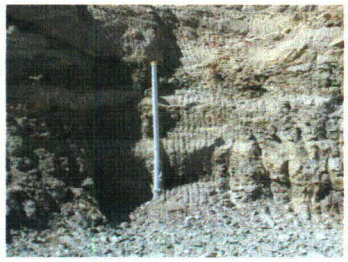


June 15, 2006

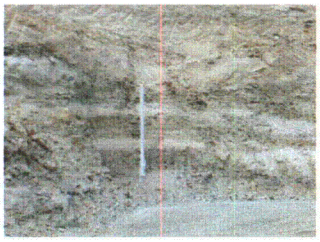
July 5, 2006

July 10, 2006

July 14, 2006



July 24, 2006



July 27, 2006

Monitor Wells During Backfilling

The previous images show the monitor wells during excavation and verify that care was taken to cut the casing as the excavation proceeded downward to protect them. When the excavation reached bottom the following technique was used to extend the casings back to the surface during backfilling:

Casing extension technique

- The casing was cut cleanly at the ground surface as shown below on TMW-92:

- An adapter was connected to the five (5) inch diameter PVC casing to adapt it to six (6) inch diameter polyethylene pipe as shown below:

- Polyethylene pipe was selected because it was stronger than PVC pipe.
- Sonotube was placed around the connection as shown above.

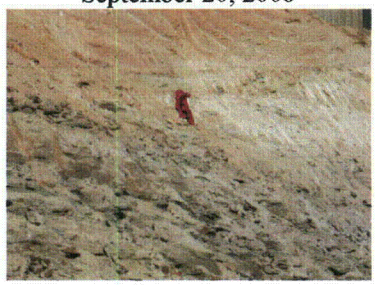
- The space between the Sonotube and the adapter was filled with concrete to insure that the connection would not separate during backfilling. The image below taken on December 5, 2006 shows a well with concrete just poured around the connector with the concrete protected by insulation.

The polyethylene pipe was added in ten (10 foot sections as backfilling progressed. The pipe sections were coupled using a Friatec coupling system. The system consisted of special couplings with a built in heating element and electrodes. The coupling was used between two polyethylene pipe sections. An electric current from a controlled power source was applied to the electrodes which in turn heated the coupling via the heating element fusing the coupling to the upper and lower pipe sections. This is shown in the image below taken on January 8, 2007:

Monitor wells TMW-100 and 101 were excavated later when the excavation had to be expanded north to encompass the hydrocarbon seep found along the north wall of the planned excavation.

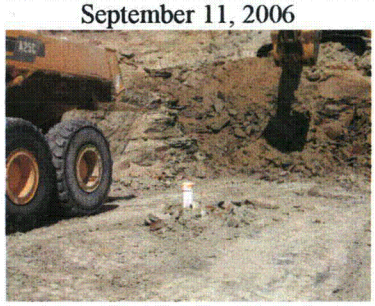
TMW-100

- A rag was placed in the top of the pipe to prevent dirt from entering the well.
- TMW-100 is shown in the background on the August 23, 2006 image.
- The following are images of TMW-100 during excavation:

August 23, 2006	September 11, 2006	September 20, 2006
		

TMW-101

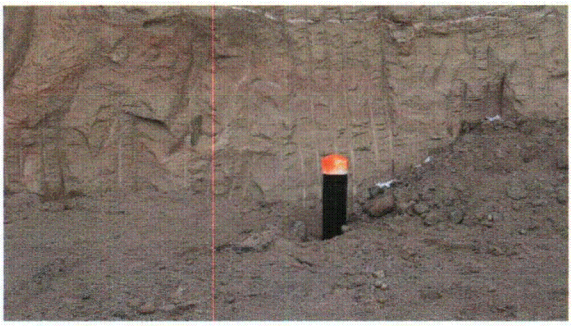
- TMW-101 was also excavated later when the excavation had to be expanded north to encompass the hydrocarbon seep found along the north wall of the planned excavation. A rag was placed in the top of the well on September 20, 2006 to prevent debris from entering the well.

August 23, 2006	September 11, 2006	September 20, 2006
		

As the excavation was backfilled the monitor well casings were extended ten (1) feet at a time to the surface using the previously described polyethylene pipe and couplings. The tables below depict the wells being extended

- TMW-62

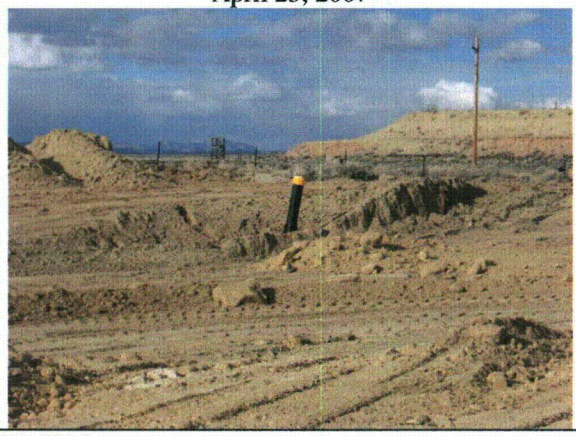
February 19, 2007



February 28, 2007

March 26, 2007

April 23, 2007



February 27, 2008

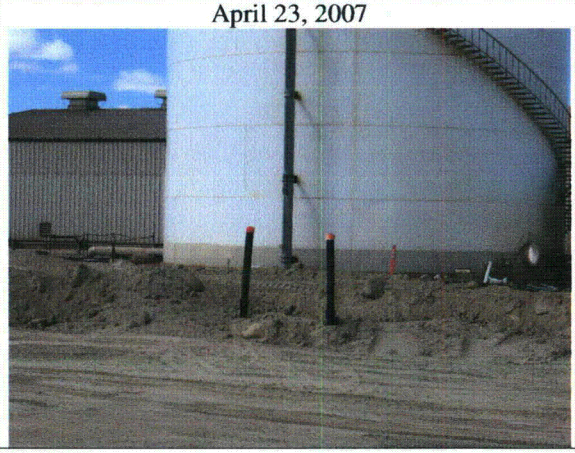
- TMW-91 and 92

February 19, 2007

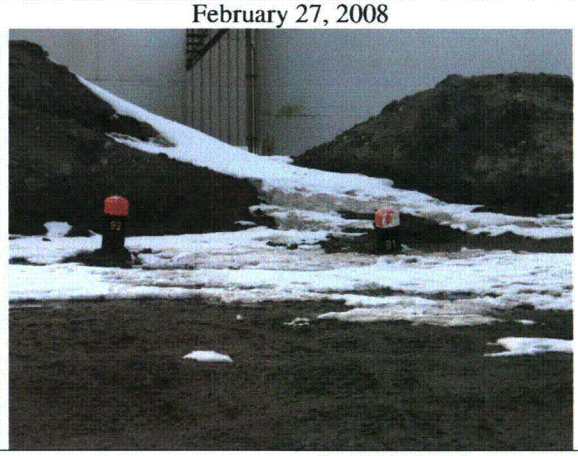
February 28, 2007

March 26, 2007

April 23, 2007



February 27, 2008



- TMW-100 and Seepage Collector #1

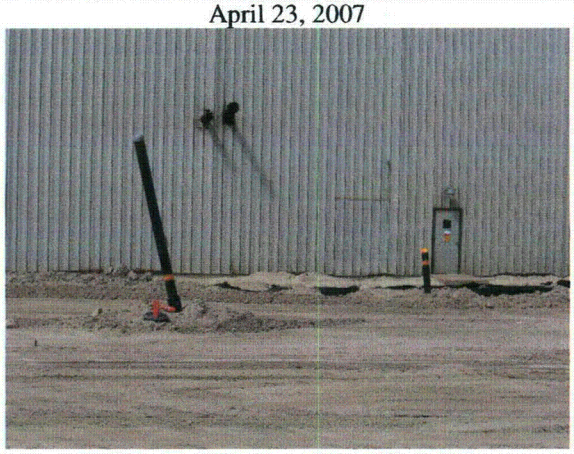
February 19, 2007

February 28, 2007

March 26, 2007

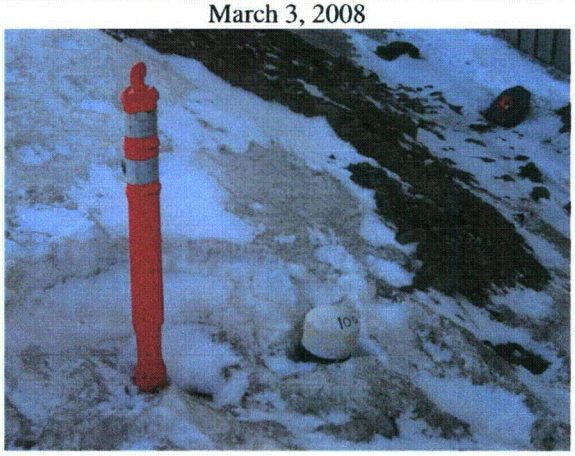
Seepage Collector #1 to the left

April 23, 2007



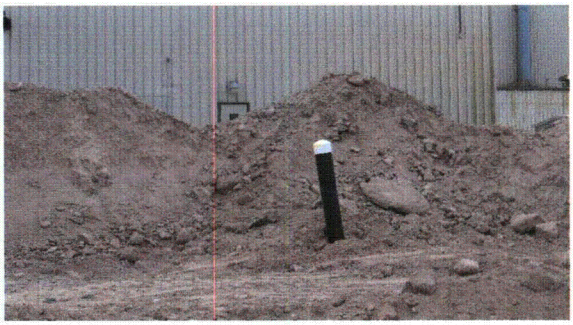
Seepage Collector #1 to the left

March 3, 2008

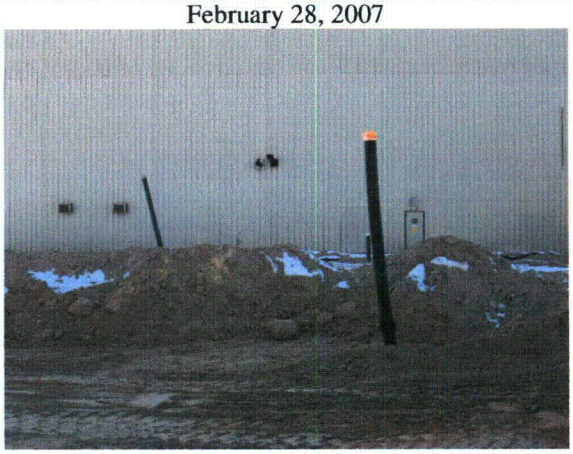


- TMW-101

February 19, 2007



February 28, 2007



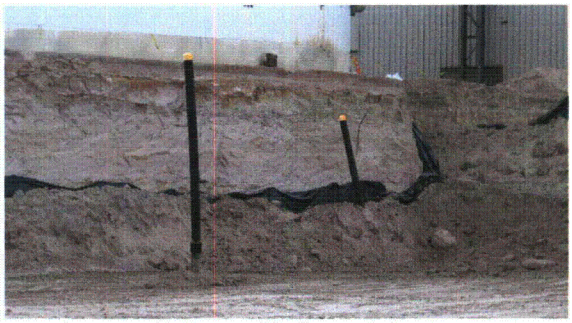
Seepage Collector #1 in background

April 23, 2007

February 27, 2008

- TMW-102

February 19, 2007



Seepage Collector #2 shown in background

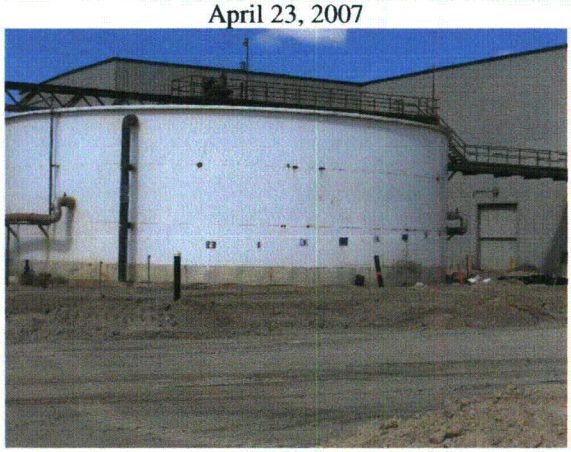
February 28, 2007

Seepage Collector #2 shown in background

March 26, 2007

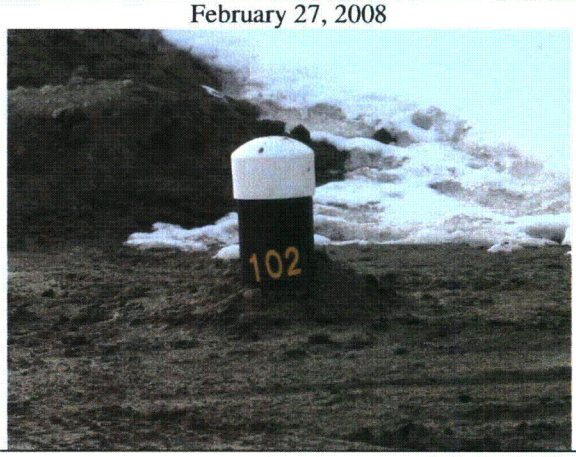
Seepage Collector #2 shown in background

April 23, 2007



Seepage Collector #2 shown in background

February 27, 2008



- TMW-111

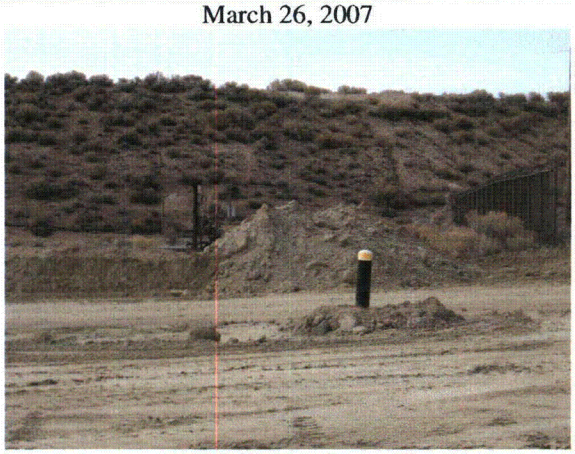
February 19, 2007

PWW-2 in background

February 28, 2007

Coupling/pipe fusion in progress

March 26, 2007



PWW-2 in background

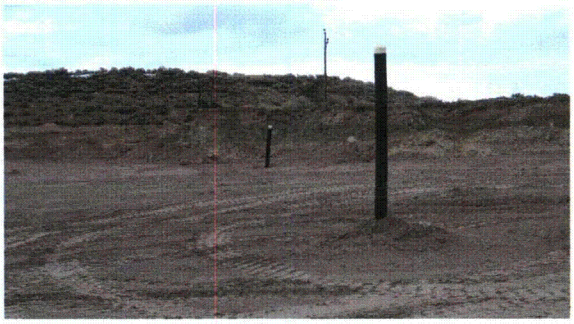
April 23, 2007

PWW-2 in background

February 27, 2008

- TMW-112

February 19, 2007

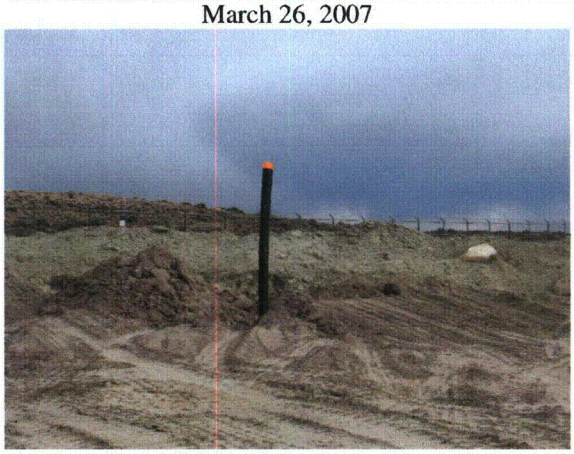


PWW-2 in background

February 28, 2007

TMW-111 in background

March 26, 2007

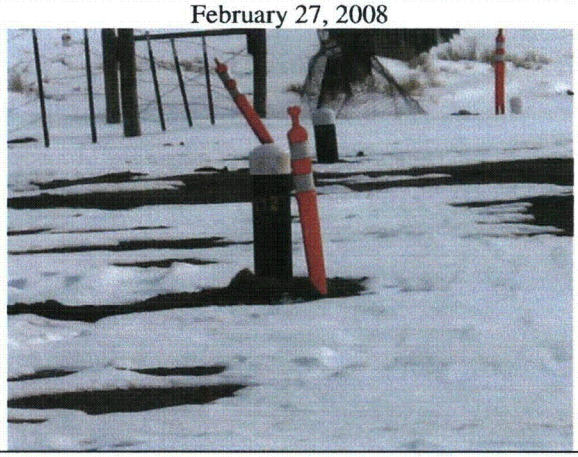


PWW-2 in background

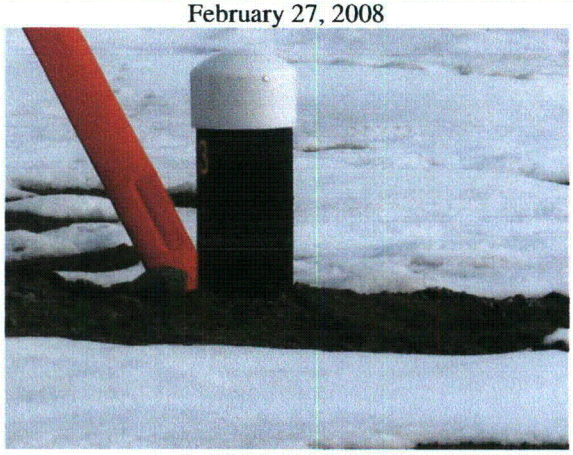
April 23, 2007

PWW-2 in background

February 27, 2008

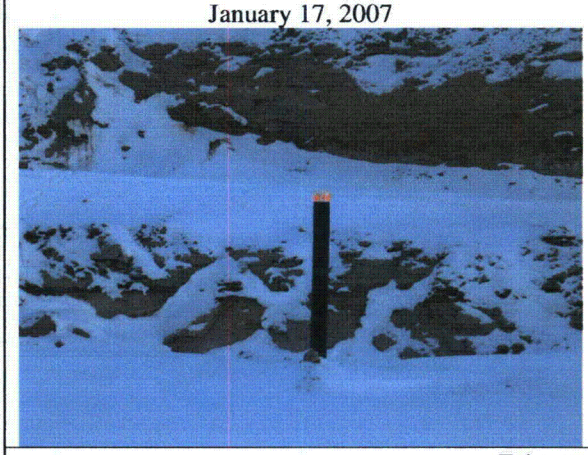


- TMW-113

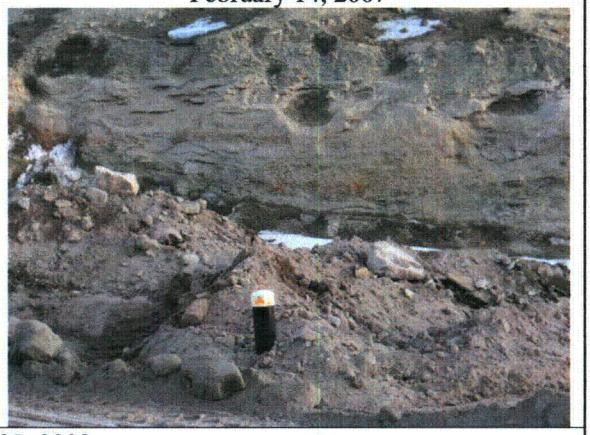
February 19, 2007  TMW-112 and 111 in background	February 28, 2007  TMW-112 in background
March 26, 2007 	February 27, 2008 

- TMW-104

January 17, 2007



February 14, 2007



February 27, 2008

Topsoiling and Seeding

When backfilling was complete, the topsoil was replaced to the areas from which it had been removed. These areas were all east of the chain link fence along the facility's eastern perimeter. One (1) foot of topsoil was placed on these areas. A total of 3.93 acres were topsoiled with 7,019 cubic yards of topsoil removed from topsoil pile TS-9 where it was stockpiled when it was removed prior to excavation.

The image below taken on October 9, 2007 shows topsoil being placed with a front end loader.

The image below taken on October 25, 2007 shows topsoil being graded and ripped prior to seeding.

This image shows the topsoil pile TS-9 being shaped prior to seeding. This image was taken on November 5, 2007.

Following placement of the topsoil and shaping of the topsoil pile TS-9 the topsoiled areas and the topsoil pile were seeded. A total of 6.40 acres were seeded, 3.93 of which were topsoiled areas and 2.47 of which were on the topsoil pile itself.

The topsoiled and seeded areas are shown on the Post Excavation (November 2007) Map.

The topsoiled areas were fertilized with 35 pounds per acre of 11-52-00 fertilizer, chiseled, furrowed, seeded (with the mixture listed in Table 1 below):

Table 1

Thickspike wheatgrass	4 lb/acre
Western wheatgrass	2 lb/acre
Indian ricegrass	2 lb/acre
Beardless wheatgrass	2 lb/acre
Great Basin wildrye	2 lb/acre
Fourwing saltbush	½ lb/acre
Gardner saltbrush	½ lb/acre
Big sagebrush	1 lb/acre
Rubber rabbitbrush	1 lb/acre
Cicer milkvetch	½ lb/acre
Total	15½ lb/acre

The following work remains to be completed regarding the excavation:

- Replacement of the Firewater Line
  - As explained in the text on the excavation itself, a section of the facility's fire water loop was removed prior to the start of excavation work since it was in the excavation footprint. This section of fire water line remains to be replaced. The required pipe and associated fittings are on site and work will commence in the immediate future now that the ground is thawing.

- Replacement of the Eastern Portion of the Facility's chain Link Fence
    - The section of chain link fence along the eastern edge of the facility will be replaced when the ground has thawed. In the interim, two (2) temporary gates are in use, one crossing the road to the tailings impoundment at the base of the exterior access ramp to control access to the impoundment and the second closes the gap where the old gate in the pre-existing chain link fence was located to control access to the facility.

Health Physics

This section addresses the health physics (worker exposure and releases to the environment) aspects of the excavation project.

All licensable (11(e).2 byproduct) material was excavated in 2006. Some additional material was excavated in the K minus 3 area in April 2007; however, after testing as discussed in the text and in the petrographic report in Appendix 1 of Section I - Background, this material proved to contain naturally occurring radioactive material (NORM).

The excavation work was performed under the following Standard Operating Procedures (SOPs) specific to the task of excavation:

- MOP-14 – Contaminated Soil Excavation – Catchment Basin Pre-excavation Procedures (Training/Pre-job Bioassay) , Monitoring and Restricted Area Definition
    - This procedure among other things defined the restricted area for the excavation as shown in the restricted Area Map in Appendix 10
- MOP-15 – Contaminated Soil Excavation – Catchment Basin Pre-excavation, Excavation, Sampling, Waste Placement, Backfilling, Topsoiling and Seeding Procedures
    - This procedure described the methods for preparing the area for excavation, removal of topsoil, excavation of the material, sampling methods, backfilling, topsoiling and seeding.
- MOP-16 - Contaminated Soil Excavation – Catchment Basin Health Physics monitoring/Personnel Protection During Excavation
    - This procedure described worker protection procedures and monitoring for the excavation.
- MOP-17 – Environmental Monitoring Procedures
    - This procedure described environmental monitoring for the excavation.

Most pertinent health physics information regarding the excavation was provided in the facility's ALARA Reports. The following health physics information from the 2006 and 2007 ALARA Reports is included in the following Appendices to document the health physics/radiation safety work conducted in the course of the excavation and the fact that doses to workers and releases to the environment were both minimal and ALARA.

- Appendix 1 – Radiation Training – 2006 and 2007
- Appendix 2 – Radiation Safety Meetings – 2006 and 2007
- Appendix 3 – Bioassay Assessments – 2006 and 2007
- Appendix 4 – Instrument Calibrations – 2006 and 2007
- Appendix 5 – External Gamma Radiation Exposure Assessment – 2006 and 2007
- Appendix 6 – Releases of Equipment for Unrestricted Use – 2006 and 2007
- Appendix 7 – Internal Occupational Exposure Assessment – 2006 and 2007
- Appendix 8 – Dose Assessment/Determination of No Requirement for Individual Monitoring or Dose Calculation – 2006 and 2007
- Appendix 9 – Gamma Exposures – Luxel Dosimeters, Deep Dose Only – 2006 and 2007
- Appendix 10 – Restricted Area Map
- Appendix 11 – Constraint Limit Reports – 2006 and 2007

In addition, the 10CFR40.65 Reports for 2006 and 2007 are included as follows, to document that releases to the environment were minimal:

- Appendix 12 – 10 CFR 40.65 Reports – 2006 and 2007

The following was done to insure the doses from the operations were maintained As Low As Reasonably Achievable (ALARA):

- Radiation worker training was conducted – Please see Appendix 1.
- Radiation Safety Meetings were held at least monthly – Please see Appendix 2.
- A clearly defined Restricted Area was established as per MOP-14 – Contaminated Soil Excavation – Catchment Basin Pre-excavation Procedures (Training/Pre-job Bioassay) , Monitoring and Restricted Area Definition – Please see Appendix 10.
- A Shower/Change/Monitoring Trailer was installed as the means of ingress to and egress from the restricted area. This trailer was equipped with showers and a washing machine and dryer for laundering

clothes used in the restricted area. This trailer is shown on the excavation maps and is pictured below being installed on January 17, 2006.

- The gray water (sinks, showers and washing machine) from this trailer was sent to a buried, sealed fiberglass tank that was periodically pumped into the tailings impoundment. This tank will remain in place as long as the trailer remains for use as a decontamination facility. If the decontamination facility is removed the buried tank will be removed, as well.
- The trailer also has a separate septic system for sanitary wastes permitted under a small wastewater treatment facility permit issued by Sweetwater County, Wyoming.
- The trailer was equipped with an alpha meter and sited so that all personnel had to pass through it and monitor prior to exiting the restricted area.

- Extensive wetting of the excavation area, haul roads and the areas in the tailings impoundment, where the material was placed, was performed continuously to minimize dusting.
  - In addition, magnesium chloride was also sprayed on roads to enhance dust control.

In order to insure that radiological controls (primarily measures to control dust) were effective the following monitoring was performed specific to the excavation:

- High volume air sampling was performed when equipment was operating immediately downwind of the excavation near TMW-58 (a nearby source of electrical power).
- Numerous breathing zone samples of excavation workers performing different tasks were collected.
- Though individual external exposure monitoring is not required on site due to low levels (less than 500 millirems per year) of gamma exposure, Luxel dosimeters with a lower limit of detection (LLD) of 1 millirem were issued to all workers and exchanged monthly. All deep doses were Non-Detect in 2006. In 2007 the maximum deep dose was eleven (11) millirems.
- Normal environmental monitoring (downwind airborne particulate monitoring at the Air 4A (downwind) location, upwind (Air 2) and downwind (Air 4A) radon monitoring using RadTrak detectors, and downwind (Air 4A) gamma monitoring using X-9 environmental detectors. All of the results for this monitoring are included in the 2006 and 2007 40.65 Reports included in Appendix 12. These reports show that excavation operations did not create detectable changes in releases to the environment.
- Ambient gamma was conducted on the surface prior to excavation and during excavation. The results of this monitoring are included in Appendix 13 – Catchment Basin Ambient Gamma Radiation Surveys.

The monitoring results clearly demonstrate that all exposures were maintained As Low As Reasonably Achievable (ALARA) and minimal. The following pertains to the monitoring results:

- Deep dose gamma exposures were Non-Detect in 2006.
- The maximum annual deep dose gamma exposure was eleven (11) millirems in 2007.
- No breathing zone sample exceeded the following levels in 2006:
    - Natural uranium: 2.895%
    - Thorium-230: 2.133%
    - Radium-226: 0.008%
- No breathing zone sample exceeded the following levels in 2007:
    - Natural uranium: 0.407%
    - Thorium-230: 0.987%
    - Radium-226: 0.021%
- No downwind high volume air sample collected downwind of the excavation exceeded the following levels in 2006:
    - Natural uranium: 0.0690%
    - Thorium-230: 0.1197%
    - Radium-226: 0.0337%
- No downwind high volume air sample collected downwind of the excavation exceeded the following levels in 2007:
    - Natural uranium: 0.0291%
    - Thorium-230: 0.0448%
    - Radium-226: 0.0014%
- Doses from airborne radionuclides (natural uranium, radium-226 and thorium-230) at the Air 4A (downwind) monitoring station were at background levels as per the constraint limit reports included in Appendix 11.
- Downwind radon concentrations continued their normal pattern of being lower than upwind concentrations throughout the excavation period in 2006 when all of the licensable (11(e).2 byproduct) material was excavated. The excavation had no apparent impact on downwind radon concentrations.

The Catchment Basin excavation area was observed by the inspection party during the July 2007 Nuclear Regulatory Commission inspection. The discussion from the Inspection Report – 040-08584/07-001 regarding this area is included below:

3.2 Observations and Findings

a. Catchment Basin Excavation

Consistent with environmental protection standards while the mill is in standby mode, Kennecott submitted a plan to remove the hydrocarbon and radiologically contaminated soil beneath the catchment basin and to relocate the soil (considered to be 11(e).2 byproduct material) to the tailings impoundment. Approximately 233,000 cubic yards of contaminated soils have been excavated from the catchment basin area and placed within the tailings impoundment.

During the site tour, the inspector verified that most of the excavated area had been backfilled. Construction operations included trucking backfill soil to the excavation, dumping the backfill into the excavation and spreading the soil with a bulldozer. A surcharge fill of between 2 and 5 feet above the surrounding ground surface elevation has been added to aid in the consolidation of the backfill soils. A small portion of the northwest corner of the excavation remains to be backfilled. The licensee indicated that this area would be finished by the end of the current construction season. Placement of the contaminated soils within the tailings impoundment was consistent with License Condition 10.6 requirements.

As identified in the May 12, 2—4 license amendment application, the cleanup levels are 16.4 picoCuries per gram of radium-226 and 2,300 milligrams per kilogram total petroleum. The licensee obtained a number of confirmatory soil samples on a 10 meter by 10 meter grid at the bottom of the excavation. These soil samples were tested for multiple parameters, including radium-226 and total petroleum. The inspector reviewed preliminary results from the confirmatory sampling results; however, no conclusions can be drawn until the final sampling results are reviewed. Final confirmation sampling results will be included in the construction completion report, which the licensee plans to submit to the NRC in late 2007.

Excavation of the catchment basin reached a depth of up to 40 feet. Portions of the excavation were located adjacent to mill structures, including the mill building. The excavation resulted in a crack in the mill building foundation running along the eastern end of the structure. This crack was first observed by facility personnel during the excavation. The licensee is currently considering its options for repair of the crack in the building foundation.

The excavation was also observed by Stephen Cohen and Bob Lukes of the Nuclear Regulatory Commission on April 26, 2006. This visit occurred during active excavation of contaminated material and placement of that material in the tailings impoundment.

As part of this excavation operation, due to concerns about dehydration and heat stress in excavation workers, the consumption of water in the restricted area was allowed, provided it was done in accordance with "HP-38 – Consumption of Drinking Water within the Restricted Area". The approval of the use of this procedure was quoted in the email included in Appendix 14.

Upon completion of the excavation of licensable material in October 2006 the excavation bottom and access roads were scraped with a scraper and all scraped materials were hauled to the tailings impoundment. This was done to insure clean, non-contaminated roads for backfill haulage. This was discussed in the letter dated October 3, 2006 to the Commission that is included in Appendix 2 of Section VIII.

All equipment used in the excavation was released for unrestricted use. The Shower/Change/Monitoring Trailer was scanned on the inside and the interior was released for unrestricted use, as well. All oil and air filters from equipment used in the excavation were changed upon release. The old filters were placed in the tailings impoundment. Oil in the equipment was also changed. It was drummed and sampled. Samples of the used oil along with a sample of new oil (for reference) were sent to Energy Laboratories, Inc. for analysis for natural uranium, Radium-226 and Thorium-230. The results for the new oil and old oil were essentially identical. The used oil was released for unrestricted use and ultimate disposal.

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

1 February 2007

To: NRC File

Subject: Annual Radiation Refresher Training

Annual radiation safety training for uranium mill workers was conducted by Dr. Jan Johnson of MFG Inc. on January 3, 2006, as discussed in the attached letter. The attendees are listed in the letter. A description of the course content is maintained on file on site.

In addition, the following individuals received radiation worker training on site through videos and direct instruction by the Radiation Safety Officer:

Kathryn Harrison – Securitas	November 19, 2006
Sam Finley – Archer Construction, Inc.	June 21, 2006
Charlie Roberts – Archer Construction, Inc.	May 15, 2006
Mike Mariner – Archer Construction, Inc.	May 15, 2006
Jacob Bolte – Archer Construction, Inc	August 6, 2006
Mike Mitchell – Archer Construction, Inc.	August 6, 2006
Richard Durazo – Archer Construction, Inc.	August 6, 2006

All individuals who worked within a restricted area during 2006 received radiation worker training.

Oscar A Paulson

Oscar Paulson
Facility Supervisor

consulting
scientists and
engineers

MFG PROJECT: 180903

January 9, 2006

Mr. Oscar Paulson
Kennecott Energy Company
Sweetwater Uranium Facility
P.O. Box 1500
Rawlins, Wyoming 82301

RE: Worker Radiation Protection Training

Dear Mr. Paulson:

The following individuals successfully completed a four hour Worker Radiation Protection Training class presented at the site on January 3, 2006:

Randy Archer, Archer Construction
Gene English, Archer Construction
Tom Faust, Archer Construction
Gary Hostetler, Archer Construction
Stacey Lawson, Archer Construction
Mike Pattyn, Archer Construction
Terry Romero, Archer Construction
James Tharpe, Archer Construction
Harry Lovato, L&L Electric
Anita Morris, Robert Jack Smith and Assoc.
Roger Hannula, RFES
Ray Grate, Securitas
Jim McMacken, Securitas
Oscar Paulson, Kennecott
George Palochak, Kennecott
Harold Kelley, Kennecott

The class included a review of basic radiation protection principles, specific radiation protection issues related to uranium recovery facilities in general and the Sweetwater

Uranium Facility in particular, regulatory requirements, and worker rights and responsibilities.

Sincerely yours,

MFG/SHEPHERD MILLER

Janet A. Johnson, PhD, CHP
Senior Technical Advisor

cc Clint Strachan, MFG, Inc.

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

4 February 2008

To: NRC File

Subject: Annual Radiation Refresher Training

Annual radiation safety training for uranium mill workers was conducted by Dr. Jan Johnson of MFG Inc. on January 15, 2007, as discussed in the attached letter. The attendees are listed in the letter. A description of the course content is maintained on file on site.

In addition, the following individuals received radiation worker training on site through videos and direct instruction by the Radiation Safety Officer:

Judi Boyce – Adecco	July 18, 2007
Alfred Knowles – Archer Construction, Inc.	May 2, 2007
Mark Cress – Archer Construction, Inc.	May 2, 2007
Thomas Duffy – Archer Construction, Inc.	May 2, 2007
Lance Smith – Archer Construction, Inc.	May 2, 2007
James Ashley – Archer Construction, Inc.	July 18, 2007
Jeremy LaVine – Archer Construction, Inc.	July 18, 2007
Lehman English – Archer Construction, Inc.	July 18, 2007
Eric Hall – Archer Construction, Inc.	July 18, 2007
Tony Jackson – Archer Construction, Inc.	July 18, 2007
Jed Goodman – Archer Construction, Inc.	October 9, 2007
Ryan Munks – Wyoming Machinery	October 9, 2007
Nick Lynn – Lyntek, Inc.	September 24, 2007
Michelle Umbaugh – Lyntek, Inc.	September 24, 2007
Fred Barbis – Lyntek, Inc.	September 24, 2007
Davis Tilton – Lyntek, Inc.	September 24, 2007
Galen Archer – Lyntek, Inc.	September 24, 2007
Don Tirone – Lyntek, Inc.	September 24, 2007

All individuals who worked within a restricted area during 2007 received radiation worker training.

Oscar A Paulson

Oscar Paulson
Facility Supervisor

consulting
scientists and
engineers

MFG PROJECT: 180903

January 15, 2007

Mr. Oscar Paulson
Kennecott Energy Company
Sweetwater Uranium Facility
P.O. Box 1500
Rawlins, Wyoming 82301

RE: Worker Radiation Protection Training

Dear Mr. Paulson:

The following individuals successfully completed a four-hour Worker Radiation Protection Training class presented in Rawlins on January 9, 2007:

Randy Archer	Phil Lavoie
Kenneth Aurell	Harry Lovato
Jacob Bolte	Mike Mariner
Richard Durazo	James McMacken
Sam Finley	Mike Mitchell
Tom Faust	Anita Morris
Roger Hannula	George Palochak
Kathryn Harrison	Mike Pattyn
Gary Hostetler	Oscar Paulson
Tony Johnston	Vaughn Pickett
Harold Kelley	Chad Powell
	Bert Taylor

The class included a review of basic radiation protection principles, specific radiation protection issues related to uranium recovery facilities in general and the Sweetwater Uranium Facility in particular, regulatory requirements, and worker rights and responsibilities. The test scores are summarized in the attached table. The enclosed original tests should be retained in your files.

As always, it was a pleasure working with your group.

Sincerely yours,

MFG/SHEPHERD MILLER

Janet A. Johnson, PhD, CHP
Senior Technical Advisor

cc Clint Strachan, MFG, Inc.

Attachment

Enclosure

Attachment 1

Kennecott Energy Company Sweetwater Uranium Facility
Annual Radiation Worker Refresher Training
January 9, 2007
Test Scores

Name	Score (based on a total of 100 points)
Randy Archer	92
Kenneth Aurell	91
Jacob Bolte	94
Richard Durazo	89
Sam Finley	79
Tom Faust	92
Roger Hannula	91
Kathryn Harrison	92
Gary Hostetler	96
Tony Johnston	87
Harold Kelley	98
Phil Lavoie	100
Harry Lovato	94
Mike Mariner	87
James McMacken	92
Mike Mitchell	87
Anita Morris	96
George Palochak	98
Mike Pattyn	95
Oscar Paulson	98
Vaughn Pickett	87
Chad Powell	94
Bert Taylor	81

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

1 February 2007

To: NRC File

Subject: Summary of Monthly Radiation Safety Meetings

The monthly radiation safety meetings included all contract personnel on site at the time of the meeting. The following is a summary of the monthly (plus eleven (11) additional) Radiation Safety meetings held in 2006:

2006	TOPIC	ATTENDEES
1/19	Bioassays / airborne particulates.	KUC
1/23	Review of dosimeters results.	KUC
1/30	Ludlum meter / 2350-1 data logger.	KUC
2/6	Radon report corrections.	KUC
2/13	Restricted area definition.	ACI, KUC
2/20	Monitoring / scanning, bioassays.	ACI, KUC
2/27	Decontamination trailer / bioassays / tailings impoundment.	ACI, KUC
2/28	Restricted areas.	KUC, RJS
3/16	Release of tanks, dust control, breathing zone samples.	ACI, KUC
3/23	Luxel dosimetry results, high volume air sampling.	KUC
3/27	Bioassays, dosimeters, dust control, Chernobyl.	ACI, KUC
4/24	Alpha meters, bioassays, breathing zone sample results, Luxel results.	ACI, KUC
5/31	Dosimetry, breathing zone sample results, standard operating procedures.	ACI, KUC
6/22	40.36 File.	KUC
6/26	Dosimetry results, breathing zone samples, high volume air samples, bioassays, excavation sampling.	ACI, KUC
7/27	Bioassay results, breathing zone sample results, soil gamma measurements.	ACI, KUC
8/28	Breathing zone samples, dosimetry results, bioassays.	ACI, KUC
9/11	Method 115 Test results	ACI, KUC
9/26	External dosimetry methods, autoradiography, breathing zone sample results.	ACI, KUC
10/4	Equipment decontamination.	ACI, KUC
10/30	Reviewed Cogema presentation on nuclear power, bioassay results, dosimetry results, release of equipment.	ACI, KUC
11/20	Dosimetry, bioassay and breathing zone sample results, respiratory protection, fit testing.	ACI, KUC
12/19	Litvenenko case / Polonium-210.	ACI, KUC

Initial key: **ACI** = Archer Construction, Inc., **KUC** = Kennecott Uranium Company, **RJS** = Robert Jack Smith & Associates

Oscar A Paulson

Oscar Paulson
Facility Supervisor

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

4 February 2008

To: NRC File

Subject: Summary of Monthly Radiation Safety Meetings

The monthly radiation safety meetings included all contract personnel on site at the time of the meeting. The following is a summary of the monthly (plus thirteen (13) additional) Radiation Safety meetings held in 2007:

2007	TOPIC	ATTENDEES
1/18	Radon measurements	KUC
1/22	Bioassay results, external doses, mill alpha smear results, Kminus3 grid sampling results	ACI, KUC
2/19	Bioassay results, external doses, instrument calibrations, Lower Limits of Detection (LLDs)	ACI, KUC
2/22	Alpha monitoring	AEQ
2/28	Buck Basic 12 air sampler calibration demonstration	ACI, KUC
3/19	Bioassay results, Lo Volume air sampling with new F & J sampler	ACI, KUC
4/16	Bioassay results, external exposure results, Kminus3 grid	ACI, KUC
5/21	Bioassay results, external exposure results, high volume air sampling in the tailings impoundment	ACI, KUC
6/11	External exposure results personnel dosimetry, breathing sampler settings	ACI, KUC
6/18	Radioactive contamination versus Naturally Occurring Radioactive Material (NORM), review of report on material from the Kminus3 grid area, reviewed SOW HP-38 on consumption of water in restricted areas	ACI, KUC
7/9	Reviewed tailings impoundment breathing zone and high volume air sample results	ACI, KUC
7/16	Discussed Project Orion (nuclear powered rocket) and radiation safety related to geophysical logging units	ACI, KUC
8/20	Reviewed bioassay and breathing zone and high volume air sample results. Discussed Method 115 radon flux testing	ACI, KUC
9/17	Discussed bioassay and breathing zone sample results. Discussed scheduled mill inspection by Lyntek, Inc.	ACI, KUC
9/24	Discussed Colorado Medical Society resolution regarding uranium mining in Colorado; reviewed Radiation Work Permit for mill inspection with Lyntek, Inc personnel	ACI, KUC, LTI
9/25	Discussed Ludlum Model 2350-1 rate meter. Opened unit to show circuitry	ACI, KUC
10/18	Discussed Radiation Work Permits and Standard Operating Procedures; discussed impending work by Lyntek, Inc.; discussed bioassay, breathing zone and dosimetry results	ACI, KUC
10/29	Discussed high volume air sampling and radon testing results	ACI, KUC
11/1	Discussed counting procedures with SACR-5 and MS-2 Scaler of breathing zone sample filters	ACI, KUC
11/20	Discussed bioassay results, yellowcake drum reactions (TDRs), respiratory protection and demonstrated qualitative fit tests.	ACI, KUC
11/26	Discussed HP-38 regarding consumption of water in restricted areas	ACI, KUC
12/10	Reviewed procedures for inspection of Solvent Extraction (SX) tanks	LTI
12/17	Discussed breathing zone, bioassay and external exposure monitoring results; discussed Modified Kusnetz radon daughter monitoring	ACI, KUC
12/26	Discussed consumption of fluids in restricted areas	ACI, KUC

Initial key: **ACI** = Archer Construction, Inc., **AEQ** = American Equipment Company, **KUC** = Kennecott Uranium Company, **LTI** = Lyntek, Inc.

Oscar A Paulson

Oscar Paulson
Facility Supervisor

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

21 February 2007

To: NRC File

Subject: Bioassay Assessment

A review of the monthly urinalysis sample results for the Mill Foreman, Senior Facility Technician, Facility Supervisor and urine analysis sample results of contract and site employees working inside the restricted area in 2006 shows that all results are well below the first action level of 15 µg/L. In fact, all urinalysis results for the year 2006 were less than the lower limit of detection (LLD) of 5.0 µg/liter.

Site employees entering the restricted areas were bioassayed monthly. Contract employees working on site who could potentially contact contaminated materials were bioassayed prior to the commencement of work and monthly while working on the site. If an employee ceased to work on the site, a final bioassay was collected.

Please see attached summary of 2006 urinalysis data.

Oscar A Paulson

Oscar A. Paulson
Facility Supervisor

KENNECOTT URANIUM COMPANY

URINANALYSIS RESULTS : 2006

EMPLOYEE TITLE	EMPLOYER	January	February	March	April	May	June	July	August	September	October	November	December	LLD
FACILITY SUPERVISOR	KENNECOTT URANIUM COMPANY	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
MILL FOREMAN	KENNECOTT URANIUM COMPANY	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
SR. FACILITY TECHNICIAN	KENNECOTT URANIUM COMPANY	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
CONTRACT EMPLOYEE NAME														
ACI-1	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
ACI-2	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
ACI-3	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0		5.0
ACI-4	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
ACI-5	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0						5.0
ACI-6	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0									5.0
ACI-7	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0									5.0
ACI-8	ARCHER CONSTRUCTION, INC. *				<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
ACI-9	ARCHER CONSTRUCTION, INC. *					<5.0	<5.0	<5.0	<5.0	<5.0				5.0
ACI-10	ARCHER CONSTRUCTION, INC. *						<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
ACI-11	ARCHER CONSTRUCTION, INC. *								<5.0	<5.0	<5.0	<5.0	<5.0	5.0
ACI-12	ARCHER CONSTRUCTION, INC. *								<5.0	<5.0	<5.0	<5.0	<5.0	5.0
ACI-13	ARCHER CONSTRUCTION, INC. *								<5.0	<5.0	<5.0	<5.0	<5.0	5.0
ACI-14	ARCHER CONSTRUCTION, INC. *	<5.0												5.0
ACI-15	ARCHER CONSTRUCTION, INC. *										<5.0	<5.0		5.0
ACI-16	ARCHER CONSTRUCTION, INC. *										<5.0	<5.0	<5.0	5.0
ACI-17	ARCHER CONSTRUCTION, INC. *												<5.0	5.0
ACI-18	ARCHER CONSTRUCTION, INC. *												<5.0	5.0
RJS-1	ROBERT JACK SMITH AND ASSOCIATES **	<5.0	<5.0		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
SS-1	SECURITAS ***		<5.0	<5.0		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
SS-2	SECURITAS ***				<5.0		<5.0							5.0
SS-3	SECURITAS ***									<5.0		<5.0		5.0

Notes: Contract security guards were tested when on site in spite of the fact that they did not enter the restricted area.

Pre-job bioassays were collected on new personnel and final bioassays were collected on personnel leaving the job site.

- No longer employed by contractor.
- Not on site during month
- Not yet hired
- Did pre-job bioassay/Never started work
- Off work due to surgery.

All samples tested by:
ENERGY LABORATORIES, INC.
All samples below first action level.
At least a high and low spike sent with each batch.
Some batches sent with a Blank, as well.

*Catchment Basin Excavation
** Surveying
*** Security

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

13 February 2008

To: NRC File

Subject: Bioassay Assessment

A review of the monthly urinalysis sample results for the Mill Foreman, Senior Facility Technician, Facility Supervisor and urine analysis sample results of contract and site employees working inside the restricted area in 2007 shows that all results are well below the first action level of 15 µg/L. In fact, all urinalysis results for the year 2007 were less than the lower limit of detection (LLD) of 5.0 µg/liter.

Site employees entering the restricted areas were bioassayed monthly. Contract employees working on site who could potentially contact contaminated materials were bioassayed prior to the commencement of work and monthly while working on the site. If an employee ceased to work on the site, a final bioassay was collected, if at all possible. Contract employees who did not work on site during a given month were not bioassayed during that month. Bioassaying of those employees was restarted when they returned to work on site.

Please see attached summary of 2007 urinalysis data.

Oscar A Paulson

Oscar A. Paulson
Facility Supervisor

KENNECOTT URANIUM COMPANY

URINANALYSIS RESULTS: 2007

EMPLOYEE TITLE		EMPLOYER	January	February	March	April	May	June	July	August	September	October	November	December	LLD
FACILITY SUPERVISOR	FS	KENNECOTT URANIUM COMPANY	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
MILL FOREMAN	MF	KENNECOTT URANIUM COMPANY	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
SR. FACILITY TECHNICIAN	FT	KENNECOTT URANIUM COMPANY	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
ADMINISTRATIVE COORDINATOR	AC	KENNECOTT URANIUM COMPANY				<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
CONTRACT EMPLOYEE TITLE															
Project Manager	PM #1	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
Project Manager	PM #2	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
Supervisor	SPV #1	ARCHER CONSTRUCTION, INC. *			<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
Equipment Operator	EO# 1	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0				5.0
Equipment Operator	EO# 2	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0									5.0
Equipment Operator	EO# 3	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
Equipment Operator	EO# 4	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0	<5.0								5.0
Equipment Operator	EO# 5	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			5.0
Equipment Operator	EO# 6	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
Equipment Operator	EO# 7	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0											5.0
Equipment Operator	EO# 8	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0											5.0
Equipment Operator	EO# 9	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
Equipment Operator	EO# 10	ARCHER CONSTRUCTION, INC. *	<5.0	IN ARIZONA		<5.0	<5.0								5.0
Equipment Operator	EO# 11	ARCHER CONSTRUCTION, INC. *	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0							5.0
Equipment Operator	EO# 13	ARCHER CONSTRUCTION, INC. *		<5.0	<5.0	<5.0									5.0
Equipment Operator	EO# 14	ARCHER CONSTRUCTION, INC. *		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
Equipment Operator	EO# 15	ARCHER CONSTRUCTION, INC. *			<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
Equipment Operator	EO# 16	ARCHER CONSTRUCTION, INC. *				<5.0									5.0
Equipment Operator	EO# 18	ARCHER CONSTRUCTION, INC. *					<5.0	<5.0	<5.0						5.0
Equipment Operator	EO# 19	ARCHER CONSTRUCTION, INC. *					<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
Equipment Operator	EO# 20	ARCHER CONSTRUCTION, INC. *						<5.0	<5.0						5.0
Equipment Operator	EO# 21	ARCHER CONSTRUCTION, INC. *						<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
Equipment Operator	EO# 22	ARCHER CONSTRUCTION, INC. *						<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
Equipment Operator	EO# 23	ARCHER CONSTRUCTION, INC. *							<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
Equipment Operator	EO# 25	ARCHER CONSTRUCTION, INC. *										<5.0	<5.0	<5.0	5.0
Equipment Operator	EO# 26	ARCHER CONSTRUCTION, INC. *							<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
Mechanic	MEC #1	ARCHER CONSTRUCTION, INC. *											<5.0	<5.0	5.0
Equipment Operator	EO# 27	ARCHER CONSTRUCTION, INC. *												<5.0	5.0
Equipment Operator	EO# 28	ARCHER CONSTRUCTION, INC. *												<5.0	5.0

KENNECOTT URANIUM COMPANY

URINANALYSIS RESULTS: 2007

EMPLOYEE TITLE		EMPLOYER	January	February	March	April	May	June	July	August	September	October	November	December	LLD
Consultant	CON #1	LYNTEK, INC. ****									<5.0				5.0
Consultant	CON #2	LYNTEK, INC. ****									<5.0	<5.0		<5.0	5.0
Consultant	CON #3	LYNTEK, INC. ****									<5.0				5.0
Consultant	CON #4	LYNTEK, INC. ****									<5.0				5.0
Consultant	CON #5	LYNTEK, INC. ****									<5.0				5.0
Consultant	CON #6	LYNTEK, INC. ****									<5.0				5.0
Consultant	CON #7	LYNTEK, INC. ****									<5.0				5.0
Consultant	CON #8	LYNTEK, INC. ****												<5.0	5.0
Consultant	CON #9	LYNTEK, INC. ****												<5.0	5.0
															5.0
Surveyor	SURV	ROBERT JACK SMITH AND ASSOCIATES**	<5.0		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
DATA ENTRY	DATA - 2	ADECCO							<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
DATA ENTRY	DATA - 1	ADECCO		<5.0	<5.0	<5.0	<5.0	<5.0							
Security	SEC #1	SECURITAS ***	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0
Security	SEC #2	SECURITAS ***	<5.0		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0

Notes:

Contract security guards were tested when on site in spite of the fact that they did not enter the restricted area.

Pre-job bioassays were collected on new personnel and final bioassays were collected on personnel leaving the job site.

No longer employed by contractor.

Not on site during month

Not yet hired

Did pre-job bioassay/Worked less than one day.

Reporting not yet started/works solely in office

Did not work in restricted area.

Archer Construction, Inc employee EO#17 did not work in the restricted area, hence is not listed.

Employees listed by number to preserve confidentiality

*Tailings

** Surveying

*** Security

****Mill Restart Evaluation

All samples tested by:
ENERGY LABORATORIES, INC.
All samples below first action level.
At least a high and low spike sent with each batch.
Most batches sent with a Blank, as well.

OAP
B:\URINE007.xls

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

20 February 2007

To: NRC File

Subject: Summary of Radiation Instrument Calibrations – 2006

Instrument	Date(s) Calibrated
Calibration Orifices	
Lo Vol-40A S/N M100	2/8/06
Hi Vol-25A S/N 8080978	2/8/06
Sierra Instruments TE-5025A	2/8/06
Alpha Detectors	
43-5 S/N P-2425	4/11/06 & 12/6/06
43-5 S/N P-2426	2/12/06 & 12/6/06
43-5 S/N P-2427	2/13/06 & 11/30/06
43-5 S/N P-2428	2/12/06 & 12/6/06
43-5 S/N P-2429	2/13/06 & 11/30/06
43-90 S/N PR-138872	2/13/06 & 11/30/06
43-90 S/N PR-138874	4/11/06 & 12/6/06
43-90 S/N 232499 (new instrument)	1/6/06 & 8/9/06 – sent for repair 12/27/06
43-1 S/N PR-206925	1/6/06 & 8/9/06
AC3-5 S/N 3793	6/14/06 & sent on 8/9/06
Gamma Meters/Detectors	
12S S/N 11816	6/30/06 & sent on 12/26/06
5 S/N 8170	6/30/06 & sent on 12/26/06
44-10 S/N 206932	2/12/06 & 12/8/06
44-10 S/N 233869 (new instrument)	1/6/06 & 8/9/06
TNN2652 S/N B275	Removed from service – not repairable
19 S/N 16938	11/30/06
Rate Meters	
177 S/N 14390	12/6/05 & 4/11/06
177 S/N 14407	2/16/06 & 11/30/06
2350-1 S/N 192613	2/13/06 & 12/8/06 – sent for repair 12/27/06
2350-1 S/N 216182 (new instrument)	1/6/06 & 8/9/06
Model 3 S/N 157539	2/13/06 & 11/29/06
Model 12 S/N 12280	2/10/06 & 10/4/06
PRS-1 S/N 330/3793	6/14/06 & sent on 8/9/06
SAC R4	
S/N 383	5/3/06 & 12/20/06

SAC R5		
	S/N 614	6/30/06 & sent on 12/26/06
	S/N 965	5/3/06 & 12/20/06
	S/N 602548	5/2/06 & 12/20/06
Scaler		
	MS-2 S/N 738	5/2/06 & 12/20/06
	MS-2 S/N 994	6/30/06 & sent on 12/26/06
Beta Gamma Detector		
	Model 44-1 S/N PR-156890	2/10/06 & 10/14/06
	Model 44-9 S/N PR-093335	2/13/06 & 11/30/06
Air Pumps (A new Buck Basic 12 personal air sampler and DF-604 low volume environmental air sampler have been ordered for the facility)		
	Bendix BDX-44 S/N 11-79-170	Used for personal breathing zone sampling for Catchment Basin Excavation. Please see attached sheet
	Sensidyne GilAir II S/N 902331	Used for personal breathing zone sampling for Catchment Basin Excavation. Please see attached sheet
	MSA #1	Used for personal breathing zone sampling for Catchment Basin Excavation. Please see attached sheet
	MSA #5	Used for personal breathing zone sampling for Catchment Basin Excavation. Please see attached sheet
Scintillation Detector		
	Model SPA-1 S/N 704727	5/6/06 & 12/20/06
Hi Vol Air Sampler		
	S/N 17625	2/7, 3/8, 5/3, 7/23 & 11/25/06
	S/N 2	Placed in service/built from parts 5/30/06. 5/30, 7/23 & 11/25/06
	S/N 3	Placed in service/built from parts 11/25/06. 11/25/06
	S/N 4	A fourth unit is being constructed, is not complete and has not been placed in service.
Lo Vol Air Sampler		
	Unit #1	1/9, 2/1, 2/7, 3/14, 4/3, 5/4, 5/22, 6/6, 6/26, 7/9, 8/6, 9/3, 10/8, 10/15, 10/18, 11/6, 12/4 and 12/18/06
	Unit #2	1/5/06 motor calibrated only. AccuVol electronic flow controller failed. Unit taken out of service. Flow controller and motor sent to Energy Laboratories, Inc. for repair. Replacement low volume air sampler ordered from F & J Specialties, Ocala, Florida.

Unit #1 In-Service Dates:
One unit is required to be operating at the single required downwind air monitoring station during non-operating periods. Unit #1 was operated at that location. When the motor on that unit failed, it was replaced in the field and the unit was recalibrated in the field due to the failure of the backup unit, Unit #2.

Note: Portable electronic survey instruments calibrated by a contract laboratory (Energy Laboratories, Inc.) in accordance with ANSI Standard N323A-1997 – American National Standard – Radiation Protection Instrumentation – Test and Calibration, Portable Survey Instruments.

Orifices are calibrated annually as stated in the Environmental Protection Agency Quality Assurance Handbook for Air Pollution Measurement Systems - Volume II – Ambient Air Specific Methods.

No electronic survey instrument was used on site unless that instrument had been calibrated within the last six (6) months prior to use. Instruments were sent to the off-site calibrator promptly following six (6) months of last calibration. The off-site calibrator experienced severe delays (in some cases, over three (3) months) in calibrating and returning instruments to the site.

Bendix BDX-44 S/N 11-79-170

To insure a high level of accuracy of breathing zone sample volumes, this unit was calibrated before and after each sample event. It was calibrated on the following dates/times:

Date	Time	Date	Time	Date	Time	Date	Time	Date	Time
1/4/06	10:24	4/16/06	16:48	5/14/06	17:11	7/23/06	15:39	9/20/06	17:30
3/9/06	18:37	4/17/06	17:13	5/15/06	17:20	7/25/06	13:14	9/24/06	17:06
3/15/06	17:25	4/19/06	17:35	5/22/06	8:41	7/27/06	12:49	12/11/06	12:40
3/16/06	17:24	4/23/06	16:27	5/22/06	17:29	8/6/06	16:36	12/17/06	16:33
3/20/06	17:23	4/24/06	18:00	5/24/06	14:12	8/8/06	11:20	12/18/06	14:36
3/21/06	18:03	4/25/06	17:15	5/30/06	12:15	8/16/06	16:42	12/18/06	17:08
3/22/06	17:36	4/26/06	16:21	6/4/06	16:20	8/23/06	7:27	12/19/06	10:49
3/23/06	17:22	5/1/06	17:44	6/26/06	9:53	8/28/06	16:34	12/19/06	17:45
3/27/06	17:02	5/2/06	17:16	7/9/06	14:31	8/30/06	17:18		
4/4/06	17:22	5/3/06	17:22	7/10/06	17:56	9/10/06	15:48		
4/5/06	17:15	5/4/06	13:48	7/16/06	16:26	9/13/06	11:05		
4/6/06	17:44	5/9/06	11:26	7/19/06	11:26	9/19/06	16:58		

Sensidyne GilAir II S/N 902331

To insure a high level of accuracy of breathing zone sample volumes, this unit was calibrated before and after each sample event. It was calibrated on the following dates/times:

Date	Time	Date	Time	Date	Time	Date	Time	Date	Time
3/1/06	17:23	5/4/06	13:48	6/4/06	16:21	8/12/06	17:15	9/18/06	8:05
3/8/06	11:13	5/9/06	11:26	6/12/06	15:18	8/30/06	7:22	9/19/06	16:58
3/9/06	9:56	5/11/06	10:02	6/13/06	17:48	9/3/06	17:22	9/24/06	17:06
3/15/06	12:42	5/24/06	8:45	6/16/06	13:13	9/10/06	15:48	12/11/06	11:49
3/22/06	14:43	5/25/06	9:47	8/1/06	7:57	9/12/06	15:16	12/26/06	17:20
4/4/06	9:37	5/30/06	7:43	8/11/06	8:06	9/13/06	11:05		

MSA Model S – S/N RN06031002

To insure a high level of accuracy of breathing zone sample volumes, this unit was calibrated before and after each sample event. It was calibrated on the following dates/times:

Date	Time	Date	Time	Date	Time	Date	Time	Date	Time
3/10/06	18:01	5/4/06	13:12	6/11/06	17:06	6/20/06	17:33	7/27/06	8:34
3/27/06	16:42	5/22/06	8:41	6/12/06	7:06	6/21/06	18:45	7/30/06	17:42
4/4/06	9:37	5/22/06	17:29	6/12/06	17:29	6/26/06	9:53	8/2/06	8:35
4/23/06	16:39	5/30/06	7:43	6/13/06	7:00	7/9/06	14:31	8/8/06	11:20
4/20/06	9:36	6/4/06	16:21	6/13/06	17:48	7/12/06	7:20	9/6/06	8:28
4/24/06	18:00	6/5/06	7:28	6/14/06	7:10	7/16/06	16:26	9/10/06	15:48
4/25/06	17:15	6/6/06	13:15	6/16/06	13:13	7/18/06	7:23	9/13/06	7:47
4/26/06	16:21	6/7/06	7:02	6/19/06	7:45	7/19/06	11:26	9/19/06	16:58
5/1/06	17:44	6/7/06	17:47	6/19/06	17:31	7/25/06	7:12	12/11/06	12:40
5/2/06	7:17	6/8/06	7:40	6/20/06	8:17	7/25/06	17:06		

MSA Model G – S/N RN06031001

To insure a high level of accuracy of breathing zone sample volumes, this unit was calibrated before and after each sample event. It was calibrated on the following dates/times:

Date	Time	Date	Time	Date	Time	Date	Time	Date	Time
3/10/06	16:45	4/23/06	16:48	5/9/06	9:47	7/19/06	7:41	9/19/06	9:08
3/27/06	16:42	4/25/06	18:00	5/10/06	14:22	7/25/06	15:39	9/19/06	16:58
4/4/06	9:37	4/26/06	7:12	6/30/06	2:53	8/3/06	7:36	12/11/06	12:40
4/16/06	16:48	5/1/06	12:50	7/9/06	14:31	8/8/06	11:20		
4/17/06	17:13	5/2/06	17:16	7/13/06	7:57	9/7/06	8:11		
4/20/06	13:43	5/4/06	13:12	7/16/06	16:26	9/10/06	15:48		

Oscar A Paulson

Oscar Paulson
Facility Supervisor

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

13 February 2008

To: NRC File

Subject: Summary of Radiation Instrument Calibrations – 2007

Instrument	Date(s) Calibrated
Calibration Orifices (Annual calibration required)	
Lo Vol-40A S/N M100	2/13/07
Hi Vol-25A S/N 8080978	2/13/07
Sierra Instruments TE-5025A	2/13/07
Calibrators (Annual calibration required)	
CD-530-1 Digital Venturi Calibrator S/N 3039	2/2/07
Alpha Detectors	
43-5 S/N P-2425	6/29/07 & 1/2/08
43-5 S/N P-2426	6/28/07 & 1/2/08
43-5 S/N P-2427	5/25/07 & 12/5/07
43-5 S/N P-2428	6/28/07 & 1/2/08
43-5 S/N P-2429	5/25/07 & 12/12/07
43-90 S/N PR-138872	5/25/07 & 11/30/07
43-90 S/N PR-138874	12/6/06, 6/29/07 & sent in 2/6/08
43-90 S/N 232499	2/4/07 & 11/15/07
43-1 S/N PR-206925	6/29/07 & 1/3/08
AC3-5 S/N 3793	5/21/07 & 12/12/07
Gamma Meters/Detectors	
12S S/N 11816	5/21/07 & 12/5/07
5 S/N 8170	5/21/07 & 12/11/07
44-10 S/N 206932	6/29/07 & 1/3/08
44-10 S/N 233869	5/20/07 & 12/21/07
19 S/N 16938	5/25/07 & 12/12/07
44-10 S/N 252103 (new instrument)	7/13/07 & 1/11/08
44-10 S/N 252068 (new instrument)	5/24/07 & 11/15/07
Rate Meters	
177 S/N 14390	12/6/06, 6/28/07 & sent in 2/6/08
177 S/N 14407	5/25/07 & 11/28/07
2350-1 S/N 192613	2/4/07 & 11/15/07 (unit at calibrator a long time)
2350-1 S/N 216182	5/20/07 & 12/21/07
2350-1 S/N 235547 (new instrument)	5/24/07 & 11/15/07
2350-1 S/N 235565 (new instrument)	7/13/07 & 1/2/08

	Model 3 S/N 157539	5/25/07 & 11/28/07
	Model 12 S/N 12280	5/21/07 & 12/20/07
	PRS-1 S/N 330/3793	5/21/07 & 12/20/07
SAC R4		
	S/N 383	12/20/06 & 11/16/07 (unit at calibrator a long time)
SAC R5		
	S/N 614	5/21/07 & 12/7/07
	S/N 965	12/20/06 & 11/16/07 (unit at calibrator a long time)
	S/N 602548	12/20/06 & 11/16/07
Scaler		
	MS-2 S/N 738	12/20/06 & 11/16/07 (unit at calibrator a long time)
	MS-2 S/N 994	5/21/07 & 12/7/07
Beta Gamma Detector		
	Model 44-1 S/N PR-156890	5/21/07 & 12/20/07
	Model 44-9 S/N PR-093335	5/25/07 & 12/5/07
Air Pumps Two new Buck Basic 12 personal air samplers and DF-604 low volume environmental air sampler were placed in service at the facility in 2007.		
	Bendix BDX-44 S/N 11-79-170	Used for personal breathing zone sampling for tailings impoundment work. Please see attached sheet
	Sensidyne GilAir II S/N 902331	
	MSA #1	
	MSA #5	
	Buck Basic 12 S/N 12486	
	Buck Basic 12 S/N 12494	
Scintillation Detector		
	Model SPA-1 S/N 704727	12/20/06 & 11/16/07 (unit at calibrator a long time)
Hi Vol Air Sampler		
	S/N 17625	3/27/07, 4/19/07, 9/16/07 & 10/30/07
	S/N 2	3/15/07, 5/27/07, 9/16/07 & 10/29/07
	S/N 3	3/27/07, 5/27/07, 8/12/07 & 10/8/07
	S/N 4	3/27/07, 5/27/07, 9/10/07 & 10/29/07
Lo Vol Air Sampler (Graseby)		
	Unit #2	1/9/07, 2/5/07, 3/5/07, 4/15/07, 5/27/07, 6/28/07; Unit taken out of service 3/26/07 and replaced with F&J Specialties DF-604. Unit retained on site as spare in the event the F&J Specialties unit failed and for when flow controller from F&J Specialties unit had to be sent to the factory for annual calibration. Should the unit be required in the field it would be calibrated immediately prior to use. Calibration was continued on unit until June 2007 in the event the F&J unit proved unsatisfactory.
Lo Vol Air Sampler (F & J Specialties)		
	DF-604 S/N 8240	2/9/07 (annual factory calibration – other calibrations performed in field with CD-530-1 Digital Venturi Calibrator), 3/26/07, 4/11/0/, 4/26/07, 5/22/07, 6/14/07, 7/16/07, 8/13/07, 9/10/07, 10/8/07, 11/5/07 & 12/3/07.

Lo Vol Air Sampler In-Service Dates:
One unit is required to be operating at the single required downwind air monitoring station during non-operating periods. The F&J Specialties DF-604 unit was operated at that single location from March 26 to December 31, 2007. The Graseby Unit #2 was used at that location from January 1 to March 26, 2007. Units were calibrated monthly when in actual use.

Note: Portable electronic survey instruments calibrated by a contract laboratory (Energy Laboratories, Inc.) in accordance with ANSI Standard N323A-1997 – American National Standard – Radiation Protection Instrumentation – Test and Calibration, Portable Survey Instruments.

Orifices are calibrated annually as stated in the Environmental Protection Agency Quality Assurance Handbook for Air Pollution Measurement Systems - Volume II – Ambient Air Specific Methods. Calibrators are calibrated annually, as per the manufacturer.

No electronic survey instrument was used on site unless that instrument had been calibrated within the last six (6) months prior to use. Instruments were sent to the off-site calibrator following six (6) months of last calibration. The off-site calibrator experienced severe delays in calibrating and returning instruments to the site. They have since hired another technician and turnaround time has improved.

To insure a high level of accuracy of breathing zone sample volumes, these units were calibrated between each sample event, on the following dates/times:

Bendix BDX-44 S/N 11-79-170

Date	Time
3/11/07	18:04
3/14/07	17:44
4/17/07	14:25
4/25/07	17:21
4/30/07	17:42
5/21/07	15:21
9/16/07	16:22
10/3/07	12:46

Sensidyne GilAir II S/N 902331

Date	Time
3/14/07	16:31
3/27/07	11:33
4/25/07	7:59
4/25/07	17:21
4/30/07	8:15
4/30/07	17:42
5/22/07	15:08
9/10/07	12:59

The unit failed on September 17, 2007 and was discarded.

MSA #1 – S/N RN06031001

Date	Time
3/27/07	11:57
5/22/07	15:08
9/16/07	16:22

The unit was discarded. Showed degrading performance on September 16, 2007 calibration.

MSA #5 – S/N RN06031002

Date	Time
3/27/07	11:48
5/21/07	15:21
9/16/07	16:22

The unit was discarded. Showed degrading performance on September 16, 2007 calibration.

Buck Basic 12 – S/N B12486 (New unit – Acquired February 2007)

Date	Time	Date	Time	Date	Time	Date	Time	Date	Time	Date	Time
2/12/07		6/7/07	7:09	6/25/07	17:41	10/9/07	17:15	11/11/07	14:15	12/30/07	14:34
2/28/07	6:57	6/7/07	7:09	6/26/07	17:38	10/14/07	15:14	11/18/07	17:38		
3/27/07	11:28	6/11/07	17:30	7/19/07	17:38	10/31/07	7:09	12/3/07	17:37		
4/23/07	10:25	6/14/07	7:15	9/2/07	18:05	10/31/07	17:19	12/5/07	17:38		
5/21/07	15:21	6/18/07	12:29	10/3/07	12:46	11/4/07	16:31	12/9/07	16:33		
6/5/07	7:07	6/19/07	10:35	10/7/07	15:45	11/5/07	9:17	12/10/07	17:32		

Buck Basic 12 – S/N B12494 (New unit – Acquired June 2007)

Date	Time	Date	Time	Date	Time	Date	Time	Date	Time
6/21/07	10:35	10/3/07	12:02	10/31/07	10:45	12/9/07	16:33	12/30/07	14:34
6/25/07	17:41	10/7/07	15:45	11/11/07	14:15	12/10/07	17:52		
9/16/07	16:22	10/9/07	15:17	11/18/07	17:38	12/12/07	12:06		
9/19/07	17:41	10/14/07	15:14	11/21/07	17:19	12/13/07	20:37		
9/20/07	17:23	10/25/07	7:15	12/2/07	17:00	12/17/07	17:18		
9/25/07	10:39	10/25/07	17:38	12/5/07	17:38	12/23/07	15:37		

Oscar A Paulson

Oscar Paulson
Facility Supervisor

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

7 February 2007

Gamma Radiation Monitoring File

Subject: External Gamma Radiation Survey Assessment

In 2006, gamma surveys of the mill and ion exchange areas were conducted on June 14 and December 21, 2006. A gamma survey of the disposal area in the tailings impoundment was conducted on June 21 and December 21, 2006.

There were twenty-six (26) locations throughout the mill and solvent extraction buildings and fourteen (14) locations associated with the IX in June 2006 and eighteen (18) locations associated with the IX in December 2006 that were monitored for gamma radiation.

Gamma readings ranged from 51.4 to 679 µR/hour (233-µR/hr average for the year) for the Ion Exchange related equipment, to 12.7 to 875 µR/hour (73 µR/hr average for the year) in the Mill and Solvent Extraction (SX) Buildings.

The stored equipment was monitored as well on 6/14/06 and 12/21/06. The stored equipment ranged from 14.5 to 2780 µR/hr at thirty (30) centimeters from the equipment surface, averaging 563.8 µR/hr at thirty (30) centimeters from the equipment surface. The stored equipment exhibited a higher average reading than the existing mill equipment, with the overall effect of slightly increasing gamma doses in the mill in areas where the equipment is stored.

None of the stored equipment exhibited dose rates sufficient to require posting under 10 CFR 20.1003. The highest measured gamma dose rate at 30 centimeters from any piece of equipment was 2.78 millirems/hour (.0028 rems/hr.) in front of a stored pressure vessel (assuming a 1:1 relationship between milli Roentgens and millirems for gamma radiation). Employees and contract personnel have been instructed to avoid certain pieces of stored equipment (pressure vessels) in the mill that exhibit the highest levels of gamma radiation. The area in which the pressure vessels are stored in the mill has been identified.

Two gamma surveys were completed in the tailings impoundment on June 21 and December 21, 2006. This area averaged 68.8 µR/hr. (Please see attached table.) This is a substantial decrease from the average of 102.3 µR/hr in 2005. This is due to the shielding effect of the material excavated from the Catchment Basin area, which has a lower radium concentration than the tailings being placed over them. These materials effectively shield gamma radiation from the tailings.

Gamma surveys were also performed in the Catchment Basin excavation on April 20, May 16 and June 6, 2006. They averaged 68.1 µR/hr for 253 total readings. This average is inclusive of natural background.

Gamma radiation levels from the stored resin in the thickener in the Counter Current Decantation (CCD) area of the mill are tracked. The levels remain low. The results of the monitoring are included on the attached table entitled "Stored Resin Gamma Radiation Monitoring Results".

In spite of the fact that personal monitoring of dose at the site is not required due to the demonstrated low doses to individuals, personal external dosimeters were issued to siste and contract personnel. The maximum annual external dose above background received by any individual as measured by Luxel dosimeters was 7 millirems.

An assessment of dose (external and internal) to the maximally exposed individual (the Mill Foreman) demonstrating the lack of need for individual monitoring under 10 CFR 20.1502 is maintained on file on site.

Oscar A Paulson

Oscar Paulson

Kennecott Uranium Company
Sweetwater Uranium Project
Stored Resin

Stored Resin Gamma Radiation Monitoring Results			
Date	Gamma		
	Top	Bottom	
	(uR/hr)	(uR/hr)	
28-Apr-98	25	60	
8-Oct-98	22	160	
12-May-99	19	60	
17-Nov-99	45	90	
21-May-00	30	70	
21-Dec-00	40	70	
20-Jun-01	40	65	
26-Dec-01	90	80	
24-Jun-02	60	80	
23-Dec-02	14	60	
25-Jun-03	20	60	
16-Dec-03	41.8	71.7	
28-Jun-04	57.8	152	
16-Dec-04	28.7	110	
8-Jun-05	18	120	
22-Dec-05	53.4	262	
14-Jun-06	32.7	125	
21-Dec-06	50.1	117	
Average	38.2	100.7	
Standard Deviation:	19.2	51.5	
OAP:2006			
resin0001.xls			

Kennecott Uranium Company
Sweetwater Uranium Project

Tailings Impoundment Gamma Radiation Survey

Date:	21-Jun-06	Rate meter:	Ludlum Model 2350-1
Time:	01:00 PM	Serial Number:	192613
		Calibration Date:	13-Feb-06
Check Source:	Cs-137	Probe:	Ludlum Model: 44-10
		Serial Number:	PR206932
Serial Number:	2304	Calibration Date:	12-Feb-06
Counts:	266 microR/hour	Background:	28.6 microR/hour

Location		Reading	
Ramp Area	Ramp Top	96.0	microR/hour
Ramp Area	Ramp Middle	101.0	microR/hour
Ramp Area	Ramp Middle	109.0	microR/hour
Ramp Area	Ramp Middle	99.4	microR/hour
Ramp Area	Ramp Middle	84.7	microR/hour
Ramp Area	Ramp Bottom	73.8	microR/hour
Road by Equipment	Road by Equipment	78.4	microR/hour
Road by Equipment	Road by Equipment	77.9	microR/hour
Road by Equipment	Road by Equipment	106.0	microR/hour
Road by Equipment	Road by Equipment	102.0	microR/hour
Road by Equipment	Road by Equipment	84.8	microR/hour
Road by Equipment	Road by Equipment	71.8	microR/hour
Road by Equipment	Road by Equipment	65.6	microR/hour
Road by Equipment	Road by Equipment	73.3	microR/hour
Road by Equipment	Road by Equipment	49.0	microR/hour
South to Main Ramp	Road by Equipment	54.4	microR/hour
Storage Area	Storage Area	80.8	microR/hour
Storage Area	Storage Area	52.6	microR/hour
Storage Area	Storage Area	45.6	microR/hour
Storage Area	Storage Area	42.7	microR/hour
Storage Area	Storage Area	49.9	microR/hour
Storage Area	Storage Area	63.6	microR/hour
Storage Area	Storage Area	102.0	microR/hour
Main Ramp	Main Ramp	67.1	microR/hour
Main Ramp	Main Ramp	62.0	microR/hour
Main Ramp	Main Ramp	57.5	microR/hour
Main Ramp	Main Ramp	60.0	microR/hour
Main Ramp	Main Ramp	58.8	microR/hour
Main Ramp	Main Ramp	77.6	microR/hour
Main Ramp	Main Ramp	184.0	microR/hour
Main Ramp	By East Embankment	171.0	microR/hour
Along East Embankment	South	142.0	microR/hour
Along East Embankment	Middle	96.7	microR/hour
Along East Embankment	Middle	63.6	microR/hour
Along East Embankment	Middle	73.6	microR/hour
Along East Embankment	Middle	71.0	microR/hour
Along East Embankment	Middle	90.5	microR/hour
Along East Embankment	Middle	174.0	microR/hour
Along East Embankment	North	150.0	microR/hour
Main Road South of Pad	Main Road South of Pad	150.0	microR/hour
Main Road South of Pad	Main Road South of Pad	159.0	microR/hour
Main Road South of Pad	Main Road South of Pad	106.0	microR/hour
Main Road South of Pad	Main Road South of Pad	130.0	microR/hour
Main Road South of Pad	Main Road South of Pad	125.0	microR/hour
Main Road South of Pad	Main Road South of Pad	111.0	microR/hour
Main Road South of Pad	Main Road South of Pad	122.0	microR/hour
Main Road South of Pad	Main Road South of Pad	119.0	microR/hour
Main Pad	Main Pad	56.8	microR/hour

Location			Reading	
Main Pad	Main Pad		55.1	microR/hour
Main Pad	Main Pad		43.8	microR/hour
Main Pad	Main Pad		41.7	microR/hour
Main Pad	Main Pad		49.9	microR/hour
Main Pad	Main Pad		43.7	microR/hour
Main Pad	Main Pad		54.7	microR/hour
Main Pad	Main Pad		39.5	microR/hour
Main Pad	Main Pad		48.5	microR/hour
Main Pad	Main Pad		46.0	microR/hour
Main Pad	Main Pad		44.7	microR/hour
Main Pad	Main Pad		48.7	microR/hour
Main Pad	Main Pad		42.8	microR/hour
Main Pad	Main Pad		44.5	microR/hour
Main Pad	Main Pad		55.4	microR/hour
Main Pad	Main Pad		53.0	microR/hour
Main Pad	Main Pad		52.9	microR/hour
Main Pad	Main Pad		45.2	microR/hour
Main Pad	Main Pad		47.9	microR/hour
Main Pad	Main Pad		45.7	microR/hour
Main Pad	Main Pad		51.5	microR/hour
Main Pad	Main Pad		41.5	microR/hour
Main Pad	Main Pad		46.2	microR/hour
Main Pad	Main Pad		54.2	microR/hour
Main Pad	Main Pad		61.7	microR/hour
Main Pad	Main Pad		61.0	microR/hour
Main Pad	Main Pad		60.4	microR/hour
Main Pad	Main Pad		57.2	microR/hour
Main Ramp	Bottom		51.4	microR/hour
Main Ramp	Middle		57.5	microR/hour
Main Ramp	Middle		52.8	microR/hour
Main Ramp	Middle		53.9	microR/hour
Main Ramp	Middle		54.1	microR/hour
Main Ramp	Middle		48.9	microR/hour
Main Ramp	Middle		49.9	microR/hour
Main Ramp	Middle		53.5	microR/hour
Main Ramp	Middle		54.2	microR/hour
Main Ramp	Middle		49.7	microR/hour
Main Ramp	Middle		48.5	microR/hour
Main Ramp	Middle		47.5	microR/hour
Main Ramp	Middle		45.3	microR/hour
Main Ramp	Middle		44.5	microR/hour
Main Ramp	Middle		43.0	microR/hour
Main Ramp	Middle		42.6	microR/hour
Main Ramp	Middle		41.6	microR/hour
Main Ramp	Top		41.8	microR/hour
	Average:		75.3	
	Standard Deviation:		35.0	
	Median:		81.4	
	Maximum:		184.0	
	Minimum:		39.5	

Kennecott Uranium Company
Sweetwater Uranium Project

Tailings Impoundment Gamma Radiation Survey

Date:	21-Dec-06	Rate meter:	Ludlum Model 2350-1
Time:	01:00 PM	Serial Number:	192613
		Calibration Date:	08-Dec-06
Check Source:	Cs-137	Probe:	Ludlum Model: 44-10
		Serial Number:	PR206932
Serial Number:	2304	Calibration Date:	08-Dec-06
Counts:	267 microR/hour	Background:	20.3 microR/hour

Location		Reading	
Ramp Area	Ramp Top	101.0	microR/hour
Ramp Area	Ramp Middle	102.0	microR/hour
Ramp Area	Ramp Middle	106.0	microR/hour
Ramp Area	Ramp Middle	112.0	microR/hour
Ramp Area	Ramp Middle	100.0	microR/hour
Ramp Area	Ramp Middle	98.1	microR/hour
Ramp Area	Ramp Middle	89.0	microR/hour
Ramp Area	Ramp Middle	73.6	microR/hour
Ramp Area	Ramp Bottom	76.8	microR/hour
Road	West End	76.3	microR/hour
Road	Middle	70.0	microR/hour
Road	Middle	79.4	microR/hour
Road	Middle	78.9	microR/hour
Road	Middle	108.0	microR/hour
Road	Middle	109.0	microR/hour
Road	Middle	82.0	microR/hour
Road	Middle	80.8	microR/hour
Road	Middle	74.8	microR/hour
Road	Middle	74.2	microR/hour
Road	East End	67.4	microR/hour
Storage Area	Storage Area	66.3	microR/hour
Storage Area	Storage Area	70.5	microR/hour
Storage Area	Storage Area	77.3	microR/hour
Storage Area	Storage Area	57.4	microR/hour
Storage Area	Storage Area	49.4	microR/hour
Storage Area	Storage Area	53.3	microR/hour
Storage Area	Storage Area	54.5	microR/hour
Northeast Fill Area	West Side	71.1	microR/hour
Northeast Fill Area		60.7	microR/hour
Northeast Fill Area		58.2	microR/hour
Northeast Fill Area		57.8	microR/hour
Northeast Fill Area		55.7	microR/hour
Northeast Fill Area		54.7	microR/hour
Northeast Fill Area		50.5	microR/hour
Northeast Fill Area		56.5	microR/hour
Northeast Fill Area		59.4	microR/hour
Northeast Fill Area		54.9	microR/hour
Northeast Fill Area		51.8	microR/hour
Northeast Fill Area		48.7	microR/hour
Northeast Fill Area		46.1	microR/hour
Northeast Fill Area		56.6	microR/hour
Northeast Fill Area		50.0	microR/hour
Northeast Fill Area		51.5	microR/hour
Northeast Fill Area		42.2	microR/hour
Northeast Fill Area		50.4	microR/hour
Northeast Fill Area		63.0	microR/hour
Northeast Fill Area		55.7	microR/hour
Northeast Fill Area		56.5	microR/hour
Northeast Fill Area	South End	72.4	microR/hour
Main Road		55.6	microR/hour
Main Road		56.2	microR/hour
Main Road		57.1	microR/hour
Main Road		54.9	microR/hour

Location			Reading	
Main Road			58.3	microR/hour
Main Road	East End		105.0	microR/hour
Main Pad	Main Pad		56.4	microR/hour
Main Pad	Main Pad		57.6	microR/hour
Main Pad	Main Pad		45.6	microR/hour
Main Pad	Main Pad		44.9	microR/hour
Main Pad	Main Pad		49.9	microR/hour
Main Pad	Main Pad		54.4	microR/hour
Main Pad	Main Pad		58.4	microR/hour
Main Pad	Main Pad		56.6	microR/hour
Main Pad	Main Pad		47.8	microR/hour
Main Pad	Main Pad		38.4	microR/hour
Main Pad	Main Pad		51.3	microR/hour
Road South of Pad	North End		47.2	microR/hour
Road South of Pad			43.2	microR/hour
Road South of Pad			44.4	microR/hour
Road South of Pad			49.6	microR/hour
Road South of Pad			45.2	microR/hour
Road South of Pad			46.8	microR/hour
Road South of Pad			48.5	microR/hour
Road South of Pad			50.8	microR/hour
Road South of Pad	South End		67.8	microR/hour
Main Pad			43.6	microR/hour
Main Pad			48.6	microR/hour
Main Pad			47.8	microR/hour
Main Pad			45.3	microR/hour
Main Pad			48.7	microR/hour
Main Pad			53.1	microR/hour
Main Pad			51.9	microR/hour
Main Pad			48.9	microR/hour
Main Pad			53.1	microR/hour
Main Pad			51.0	microR/hour
Main Pad			49.6	microR/hour
Main Pad			60.4	microR/hour
Main Pad			48.2	microR/hour
Main Pad			48.8	microR/hour
Main Pad			50.1	microR/hour
Main Pad			52.0	microR/hour
Main Pad			52.4	microR/hour
Main Pad			64.0	microR/hour
Main Pad			64.2	microR/hour
Main Pad			64.9	microR/hour
Main Pad	West End		50.6	microR/hour
Main Ramp	Bottom		41.8	microR/hour
Main Ramp			62.0	microR/hour
Main Ramp			60.3	microR/hour
Main Ramp			54.8	microR/hour
Main Ramp			57.3	microR/hour
Main Ramp			61.4	microR/hour
Main Ramp			56.1	microR/hour
Main Ramp			56.6	microR/hour
Main Ramp			54.6	microR/hour
Main Ramp			54.6	microR/hour
Main Ramp			48.7	microR/hour
Main Ramp			47.9	microR/hour
Main Ramp			48.6	microR/hour
Main Ramp			44.2	microR/hour
Main Ramp			47.4	microR/hour
Main Ramp	Top		48.8	microR/hour
	Average:		62.3	
	Standard Deviation:		18.0	
	Median:		81.4	
	Maximum:		112.0	
	Minimum:		38.4	

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

13 February 2008

Gamma Radiation Monitoring File

Subject: External Gamma Radiation Survey Assessment

In 2007, gamma surveys of the mill and ion exchange areas were conducted on June 26 and December 13, 2007. A gamma survey of the disposal area in the tailings impoundment was conducted on June 27 and December 17, 2007.

Twenty-eight (28) locations throughout the mill and solvent extraction buildings and seventeen (17) locations associated with the IX in June 2007 and eighteen (18) locations associated with the IX in December 2007 that were monitored for gamma radiation.

Gamma readings ranged from 34.1 to 714 µR/hour (243-µR/hr average for the year) for the Ion Exchange related equipment, to 11.4 to 875 µR/hour (69.5 µR/hr average for the year) in the Mill and Solvent Extraction (SX) Buildings.

The stored equipment was monitored as well on 6/14/07 and 12/13/07. The stored equipment ranged from 14.6 to 2500 µR/hr at thirty (30) centimeters from the equipment surface, averaging 597.6 µR/hr at thirty (30) centimeters from the equipment surface. The stored equipment exhibited a higher average reading than the existing mill equipment, with the overall effect of slightly increasing gamma doses in the mill in areas where the equipment is stored.

None of the stored equipment exhibited dose rates sufficient to require posting under 10 CFR 20.1003. The highest measured gamma dose rate at 30 centimeters from any piece of equipment was 2.5 millirems/hour (.0025 rems/hr.) in front of a stored pressure vessel (assuming a 1:1 relationship between milli Roentgens and millirems for gamma radiation). Employees and contract personnel have been instructed to avoid certain pieces of stored equipment (pressure vessels) in the mill that exhibit the highest levels of gamma radiation. The area in which the pressure vessels are stored in the mill has been identified.

Two gamma surveys were completed in the tailings impoundment on June 27 and December 17, 2007. This area averaged 106.8 µR/hr. (Please see attached table.)

Gamma radiation levels from the stored resin in the thickener in the Counter Current Decantation (CCD) area of the mill are tracked. The levels remain low. The results of the monitoring are included on the attached table entitled "Stored Resin Gamma Radiation Monitoring Results".

In spite of the fact that personal monitoring of dose at the site is not required due to the demonstrated low doses to individuals, personal external dosimeters were issued to site and contract personnel. The maximum annual external dose above background received by any individual as measured by Luxel dosimeters was 11 millirems. A summary of the dosimetry results is attached.

An assessment of dose (external and internal) to the maximally exposed individual (the Mill Foreman) demonstrating the lack of need for individual monitoring under 10 CFR 20.1502 is maintained on file on site.

Oscar A Paulson
Oscar Paulson

Kennecott Uranium Company
Sweetwater Uranium Project
Stored Resin

Stored Resin Gamma Radiation Monitoring Results			
Date	Gamma		
	Top	Bottom	
	(uR/hr)	(uR/hr)	
28-Apr-98	25	60	
8-Oct-98	22	160	
12-May-99	19	60	
17-Nov-99	45	90	
21-May-00	30	70	
21-Dec-00	40	70	
20-Jun-01	40	65	
26-Dec-01	90	80	
24-Jun-02	60	80	
23-Dec-02	14	60	
25-Jun-03	20	60	
16-Dec-03	41.8	71.7	
28-Jun-04	57.8	152	
16-Dec-04	28.7	110	
8-Jun-05	18	120	
22-Dec-05	53.4	262	
14-Jun-06	32.7	125	
21-Dec-06	50.1	117	
6/26/07	25.1	111	
12/13/07	24.9	133	
Average	36.9	102.8	
Standard Deviation:	18.7	49.3	
OAP:2007			
resin0001.xls			

Kennecott Uranium Company
Sweetwater Uranium Project

Tailings Impoundment Gamma Radiation Survey

Date:	27-Jun-07	**Rate meter:**	Ludlum Model 2350-1
Time:	01:00 PM	**Serial Number:**	216182
		Calibration Date:	21-May-07
Check Source:	Cs-137	**Probe:**	Ludlum Model: 44-10
		Serial Number:	PR-233869
Serial Number:	2304	**Calibration Date:**	21-May-07
Counts:	283 microR/hour	**Background:**	21.6 microR/hour

Location		Reading
Ramp Area	Ramp Top	95.8 microR/hour
	Ramp Middle	88.9 microR/hour
	Ramp Middle	95.7 microR/hour
	Ramp Middle	102.0 microR/hour
	Ramp Middle	100.0 microR/hour
	Ramp Middle	102.0 microR/hour
	Ramp Middle	99.6 microR/hour
	Ramp Middle	98.2 microR/hour
	Ramp Middle	77.4 microR/hour
	Ramp Middle	68.3 microR/hour
	Ramp Bottom	107.0 microR/hour
Storage Area		89.1 microR/hour
		85.3 microR/hour
		72.3 microR/hour
		82.8 microR/hour
		70.8 microR/hour
		75.0 microR/hour
Road	West end	79.0 microR/hour
	Middle	77.9 microR/hour
	Middle	80.9 microR/hour
	Middle	104.0 microR/hour
	Middle	95.8 microR/hour
	Middle	80.2 microR/hour
	Middle	78.6 microR/hour
	Middle	80.1 microR/hour
	Middle	73.2 microR/hour
	Middle	74.2 microR/hour
	Middle	72.5 microR/hour
	Middle	73.2 microR/hour
	Middle	65.1 microR/hour
	Middle	64.3 microR/hour
	Middle	70.8 microR/hour
	East End	70.3 microR/hour
Dump Area	Dump Area	77.2 microR/hour
	Dump Area	63.9 microR/hour
	Dump Area	57.3 microR/hour
	Dump Area	73.3 microR/hour
	Dump Area	58.5 microR/hour
	Dump Area	81.8 microR/hour

	Dump Area	102.0 microR/hour
Road to East Embankment	West Side	111.0 microR/hour
		110.0 microR/hour
		116.0 microR/hour
		121.0 microR/hour
		124.0 microR/hour
		123.0 microR/hour
		119.0 microR/hour
		121.0 microR/hour
		124.0 microR/hour
		126.0 microR/hour
		132.0 microR/hour
		131.0 microR/hour
		136.0 microR/hour
		134.0 microR/hour
		123.0 microR/hour
		127.0 microR/hour
		122.0 microR/hour
		124.0 microR/hour
		134.0 microR/hour
		113.0 microR/hour
East Embankment Work Area		73.6 microR/hour
		68.2 microR/hour
		69.4 microR/hour
		68.6 microR/hour
		63.7 microR/hour
		71.8 microR/hour
		73.6 microR/hour
		76.3 microR/hour
		102.0 microR/hour
		71.7 microR/hour
		61.9 microR/hour
		76.3 microR/hour
		73.3 microR/hour
		68.8 microR/hour
		75.8 microR/hour
		94.4 microR/hour
		72.3 microR/hour
		69.1 microR/hour
		88.2 microR/hour
		119.0 microR/hour
		123.0 microR/hour
		131.0 microR/hour
		148.0 microR/hour
		126.0 microR/hour
		125.0 microR/hour
		122.0 microR/hour
Road East of Pond		56.3 microR/hour
		56.2 microR/hour
		47.8 microR/hour
		45.2 microR/hour
		47.1 microR/hour
Road South of Pond		51.7 microR/hour
		45.0 microR/hour
		42.0 microR/hour
		45.1 microR/hour

		43.3 microR/hour
		46.7 microR/hour
		43.3 microR/hour
		47.9 microR/hour
		47.2 microR/hour
		49.2 microR/hour
		53.3 microR/hour
		60.2 microR/hour
Road West of Pond		65.1 microR/hour
		63.7 microR/hour
		66.9 microR/hour
		65.7 microR/hour
		57.4 microR/hour
		54.1 microR/hour
		67.7 microR/hour
Main Ramp	Bottom	57.3 microR/hour
		48.5 microR/hour
		47.7 microR/hour
		54.8 microR/hour
		55.0 microR/hour
		52.1 microR/hour
		52.1 microR/hour
		54.7 microR/hour
		52.2 microR/hour
		53.4 microR/hour
		54.2 microR/hour
		56.7 microR/hour
		56.5 microR/hour
		52.6 microR/hour
		47.0 microR/hour
		51.8 microR/hour
		45.5 microR/hour
		43.7 microR/hour
		46.6 microR/hour
	Top	45.6 microR/hour
	Average:	79.6
	Standard Deviation:	27.9
	Median:	72.9
	Maximum:	148.0
	Minimum:	42.0

OAP:2/13/08
TAILSGM9.XLS

Kennecott Uranium Company
Sweetwater Uranium Project

Tailings Impoundment Gamma Radiation Survey

Date:	17-Dec-07	**Rate meter:**	Ludlum Model 2350-1
Time:		**Serial Number:**	235547
		Calibration Date:	15-Nov-07
Check Source:	Cs-137	**Probe:**	Ludlum Model: 44-10
		Serial Number:	252068
Serial Number:	2304	**Calibration Date:**	08-Dec-06
Counts:	257 microR/hour	**Background:**	244 microR/hour

Location		Reading
Road at Base Old Ramp (West to East)		
	West End	149.0 microR/hour
		130.0 microR/hour
		119.0 microR/hour
		126.0 microR/hour
		130.0 microR/hour
		92.1 microR/hour
	East End	91.1 microR/hour
Storage Area		
	West End	87.0 microR/hour
		79.9 microR/hour
		79.8 microR/hour
		85.5 microR/hour
		68.5 microR/hour
	East End	78.7 microR/hour
Road South		
	North End	81.2 microR/hour
		103.0 microR/hour
		130.0 microR/hour
		127.0 microR/hour
		136.0 microR/hour
		145.0 microR/hour
		155.0 microR/hour
		157.0 microR/hour
	South End	137.0 microR/hour
South Berm Pond #1		
	West End	133.0 microR/hour
		137.0 microR/hour
		141.0 microR/hour
		134.0 microR/hour
		140.0 microR/hour
		127.0 microR/hour
		136.0 microR/hour
		132.0 microR/hour
		134.0 microR/hour
		136.0 microR/hour
		132.0 microR/hour
		132.0 microR/hour
		130.0 microR/hour
		136.0 microR/hour
		142.0 microR/hour
		138.0 microR/hour
		134.0 microR/hour
		137.0 microR/hour
		134.0 microR/hour
	East End	137.0 microR/hour

Pond #3 Interior		
		142.0 microR/hour
		133.0 microR/hour
		137.0 microR/hour
		139.0 microR/hour
		153.0 microR/hour
		154.0 microR/hour
		140.0 microR/hour
		129.0 microR/hour
		124.0 microR/hour
		128.0 microR/hour
		119.0 microR/hour
		131.0 microR/hour
		97.6 microR/hour
West Berm Pond #3		
	North End	81.4 microR/hour
		81.0 microR/hour
		117.0 microR/hour
	South End	133.0 microR/hour
South Berm Pond #3		
	West End	146.0 microR/hour
		147.0 microR/hour
		140.0 microR/hour
		127.0 microR/hour
		126.0 microR/hour
		129.0 microR/hour
		125.0 microR/hour
		135.0 microR/hour
		132.0 microR/hour
		152.0 microR/hour
		148.0 microR/hour
	East End	146.0 microR/hour
Pond #5 Interior		
	East End	150.0 microR/hour
		200.0 microR/hour
		216.0 microR/hour
		205.0 microR/hour
		174.0 microR/hour
		153.0 microR/hour
		167.0 microR/hour
		145.0 microR/hour
		91.1 microR/hour
		90.4 microR/hour
	West End	80.4 microR/hour
Excavation Area South of Main Road		
		104.0 microR/hour
		177.0 microR/hour
		175.0 microR/hour
		169.0 microR/hour
		182.0 microR/hour
		160.0 microR/hour
		163.0 microR/hour
		170.0 microR/hour
		160.0 microR/hour
		170.0 microR/hour

Southwest Corner		
	120.0	microR/hour
	112.0	microR/hour
	166.0	microR/hour
	170.0	microR/hour
	180.0	microR/hour
	131.0	microR/hour
	100.0	microR/hour
Average:	134.0	
Standard Deviation:	28.8	
Median:	134.0	
Maximum:	216.0	
Minimum:	68.5	
ss:1/24/08		
TAILSGM11.xls		

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

27 February 2007

File

Subject: **Releases for Unrestricted Use – 2006**

Releases for unrestricted use issued in 2006 were primarily related to the release of equipment used to excavate the Catchment Basin contamination. Total and removable alpha levels on all released equipment were very low since all equipment was thoroughly cleaned prior to monitoring. The maximum removable alpha measurement was 28.5 dpm/100cm^2, well below the 1000 dpm/100cm^2 release limit.

Oscar A Paulson
Oscar Paulson

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

17 February 2008

File

Subject: **Releases for Unrestricted Use – 2007**

Releases for unrestricted use issued in 2007 were primarily related to the release of equipment used to move tailings in the tailings impoundment. Total and removable alpha levels on all released equipment were very low since all equipment was thoroughly cleaned prior to monitoring. The maximum removable alpha measurement was 98.6 dpm/100cm^2, less than 10% of the 1000 dpm/100cm^2 release limit.

Oscar A Paulson
Oscar Paulson

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

21 February 2007

To: NRC File

SUBJECT: Internal Occupational Exposure Assessment – Suspended Operations

The following occupational exposure assessment is based on air samples taken in the Sweetwater Mill, tailings impoundment and Catchment Basin excavation during 2006. Annual intakes (based on airborne concentrations and exposure times) below 10% of the applicable Allowable Limits of Intake (ALI) in Table 1, Column 1 of Appendix B (5 E-2 µCi for Class Y natural uranium) do not require individual monitoring or dose assessment. This assessment is of the Mill Foreman, who is the individual on site who spends the greatest amount of time within the restricted areas and receives the largest dose.

Airborne Particulate Air Sampling Results

The results of this sampling are attached as the spreadsheet "Airborne Sampling Results". Quarterly breathing zone samples and semiannual high volume air samples in the Grinding and Precipitation Areas of the Mill Building, high volume air samples of the tailings impoundment and high volume and breathing zone samples in the Catchment Basin excavation were collected.

Time Spent in the Mill Building, Tailings Impoundment and Catchment Basin Excavation (Restricted Area)

The Mill Foreman spent a total of 263 hours (26.3 days) in the Sweetwater Mill, 753 hours (75.3 days) in the tailings impoundment and 214 hours (21.4 days) during calendar year 2006. This is a maximum estimate of time and is based upon the assumption that for each day the Mill Foreman was in the Restricted Area he spent the entire ten (10) hour day there, even though on many occasions a visit to the mill, tailings impoundment or Catchment Basin excavation in a given day constituted only a few hours inside the building, inside the impoundment or inside the excavation area. The days he spent in each area are based on his comments in the Alpha Monitor Record, which he signed upon completion of monitoring after leaving a Restricted Area.

Dose Calculation Method

10CFR20.1003 states, "Occupational dose does not include dose received from background radiation...". In the interest of simplicity and conservatism, however, background airborne radionuclide concentrations have not been deducted from the concentrations, derived air concentrations (DACs) or percentages of allowable limits of intake (ALIs) presented in the table on the spreadsheet or text that follows.

The following additional steps were followed to ensure that the calculated dose is conservative:

- The highest airborne concentration measured (from a single breathing zone sample) in the year (June 29, 2006 – 6.22 E-14 µCi/ml) was used for an airborne uranium concentration in the Mill Building.
- An assumption of ten (10) hours occupancy (a full working day) in either the Mill Building, tailings impoundment or Catchment Basin excavation was assumed if the Mill Foreman entered either area on a given day in spite of the fact that actual occupancy may have been far less.
- The maximum airborne concentrations for thorium-230 and radium-226, based on high volume air samples, were used to calculate the doses to thorium-230 and radium-226 for the time spent in the Mill Building.
- The maximum airborne concentrations for natural uranium, thorium-230 and radium-226 based on high volume air samples were used to calculate the doses for natural uranium, thorium-230 and radium-226 for time spent in the tailings impoundment.

- The maximum airborne concentrations for natural uranium and thorium-230 based on breathing zone samples and the airborne maximum concentration for radium-226 based on high volume air sampling were used for the Catchment Basin excavation.

Attached please find in addition to the spreadsheet entitled "Airborne Sampling Results", the following spreadsheets:

Tailings Impoundment High Volume Air Samples
Catychment Basin Excavatoin High Volume Air Samples
Catchment Basin Excavation Breathing Zone Samples (with Non-Detect results shown as ND)
Catchment Basin Excavation Breathing Zone Samples (with Non-detect results reported as the Lower Limit of Detection (LLD))

Dose Calculation Results

An internal dose of 3.53 E+01 millirems (35.3 millirems) was calculated for the maximally exposed individual (the Mill Foreman) on site for normal duties.

The calculated dose of 35.3 millirems is less than 10% of the limit of 500 millirems, above which individual monitoring is required as per 10 CFR 20.1502(b)(1). Thus, the maximally exposed individual received less than 1% of the ALI for natural uranium, radium-226 and thorium-230 when working in the Mill Building, tailings impoundment and Catchment Basin excavation. The highest single air sample collected on site was 2.895% of the Derived Air Concentration (DAC) meaning that no worker was "...likely to receive in 1 year an intake in excess of 10 percent of the applicable ALI(s) in table 1, Columns 1 and 2 of Appendix B to §20.1001-21.2401: ..." Thus, individual monitoring of occupational intake for airborne particulate radionuclides was not required.

Oscar A Paulson
Oscar A. Paulson

Kennecott Uranium Company
Sweetwater Uranium Project
Airborne Sampling Results

Breathing Zone Samples							
Date	**Location**	**Concentration**			**Percent of DAC**		
		(Natural Uranium Only)	**Radium-226**	**Thorium-230**	**Natural Uranium**	**Radium-226**	**Thorium-230**
		(microCuries/ml)	**(microCuries/ml)**	**(microCuries/ml)**			
30-Mar-06	Mill	<3.48E-14			<1.74E-01		
29-Jun-06	Mill	6.22E-14	<4.15E-14	<4.15E-14	3.11E-01	<1.38E-02	<6.92E-01
28-Sep-06	Mill	<6.10E-14			<3.05E-01		
26-Dec-06	Mill	<6.33E-14	<6.33E-14	<6.33E-14	<3.16E-01	<2.11E-02	<1.05E+00
Average- Ninety-six (96) samples	Catchment Basin Excavation	2.71E-14	3.08E-14	3.43E-14	1.72E-01	9.13E-03	5.13E-01
Taken from March 1 to September 21, 2006							
Please see attached spreadsheets							
Lower Limit of Detection (LLD) value used in average if result was non-detect to produce conservative result.							
High Volume Air Sampling							
Date	**Location**	**Concentration**			**Percent of DAC**		
		Natural Uranium	**Radium-226**	**Thorium-230**	**Natural Uranium**	**Radium-226**	**Thorium-230**
		(microCuries/ml)	**(microCuries/ml)**	**(microCuries/ml)**			
7-May-06	Mill-Precipitation	5.36E-16	<1.00E-16	<1.00E-16	2.68E-03	<3.33E-05	<1.67E-3
4-May-06	Mill - Grinding	5.42E-16	<1.00E-16	<1.00E-16	2.71E-03	<3.33E-05	<1.67E-3
25-Nov-06	Mill-Precipitation	2.40E-15	7.35E-16	<1.00E-16	1.20E-02	2.45E-04	<1.67E-3
25-Nov-06	Mill - Grinding	1.78E-15	6.67E-16	<1.00E-16	8.90E-03	2.22E-04	<1.67E-3
Average- Thirty-three (33) samples	Tailings Impoundment	4.51E-15	3.41E-15	5.51E-15	2.26E-02	1.14E-03	9.18E-02
Taken from May 30 to November 25, 2006							
Please see attached spreadsheets							
Average- Twenty-one (21) samples	Catchment Basin	5.29E-15	7.78E-15	2.12E-15	2.65E-02	2.59E-03	3.53E-02
Taken from March 8 to October 2, 2006							
Please see attached spreadsheets							
Maximum Measured Concentrations							
		Concentration			**Percent of DAC**		
		Natural Uranium	**Radium-226**	**Thorium-230**	**Natural Uranium**	**Radium-226**	**Thorium-230**
		(microCuries/ml)	**(microCuries/ml)**	**(microCuries/ml)**			
	Mill	6.22E-14	7.35E-16	1.00E-16	3.11E-01	2.45E-04	1.67E-03
	Tailings	1.66E-14	1.00E-14	1.48E-14	8.30E-02	3.33E-03	2.47E-01
	Catchment Basin	5.79E-13	5.24E-14	1.28E-13	2.90E+00	1.75E-02	2.13E+00
Exposure Calculations							
Hours Worked During 2006							
	Mill	283					
	Tailings Impoundment	753					
	Catchment Basin	214					
Exposure		**Natural Uranium**	**Radium-226**	**Thorium-230**	**Total**		
		(millirems)	**(millirems)**	**(millirems)**	**(millirems)**		
	Mill	2.04E+00	1.61E-03	1.10E-02			
	Tailings	1.56E+00	6.28E-02	4.64E+00			
	Catchment Basin	1.55E+01	9.34E-02	1.14E+01			
	Total	1.91E+01	1.58E-01	1.61E+01	3.53E+01		
Notes:	Maximum airborne concentrations for uranium, radium-226 and thorium-230 were used in the calculation for each area (mill, tailings impoundment and Catchment Ba						
	In the case of the mill, the maximum uranium concentration on a breathing zone sample was used to calculate exposure for the entire year.						
	For this year the highest concentration value was on the first quarter breathing zone sample in which the value was 6.22E-14uCi/ml.						
	6.22E-14 uCi/ml was used as the highest airborne uranium concentration.						
	No air sample collected exceeded 10% of the Derived Air Concentration (DAC). The highest airborne natural uranium concentration detected was 2.90% of the DAC, the highest Radium-226 concentration detected was 1.75E-02 % of the DAC and the highest Thorium-230 concentration detected was 2.13 % of the DAC.						
	No worker could have received in excess of 10 percent of the applicable ALI(s) in Table 1, Column 1 and 2 of Appendix B to 10 CFR 20.1001 - 20.2401 requiring monitoring of occupational intake.						

Kennecott Uranium Company
Sweetwater Uranium Project
Catchment Basin Excavation
High Volume Air Samples

Sample Number	Date		Volume	Sample Lower Limit of Detection (LLD)	Natural Uranium	Thorium-230	Radium-226	Natural Uranium % of DAC	Thorium-230 % of DAC	Radium-226 % of DAC
	Start	Stop	(milliliters)	(microCurie per milliliter)	(microCurie per milliliter)	(microCurie per milliliter)	(microCurie per milliliter)	(Percent)	(Percent)	(Percent)
Background	9-Feb-06	10-Feb-06	2.36E+09	1.00E-16	1.00E-16	4.03E-16	1.00E-16	0.0005	0.0067	0.0000
1	8-Mar-06	13-Mar-06	3.37E+09	1.00E-16	3.15E-15	1.35E-15	1.96E-15	0.0158	0.0225	0.0007
2	14-Mar-06	16-Mar-06	3.04E+09	1.00E-16	3.71E-15	1.53E-15	2.10E-15	0.0186	0.0255	0.0007
3	20-Mar-06	22-Mar-06	3.21E+09	1.00E-16	3.16E-16	1.00E-16	3.72E-16	0.0016	0.0017	0.0001
4	23-Mar-06	27-Mar-06	2.10E+09	1.00E-16	5.38E-15	3.62E-15	5.24E-14	0.0269	0.0603	0.0175
5	28-Mar-06	30-Mar-06	2.15E+09	1.00E-16	8.51E-15	2.84E-15	1.01E-13	0.0426	0.0473	0.0337
6	2-Apr-06	3-Apr-06	2.24E+09	1.00E-16	2.81E-15	1.03E-15	1.70E-15	0.0141	0.0172	0.0006
7	10-Apr-06	12-Apr-06	2.12E+09	1.00E-16	3.02E-15	9.91E-16	1.13E-14	0.0151	0.0165	0.0038
8	17-Apr-06	19-Apr-06	1.99E+09	1.00E-16	6.13E-15	1.96E-15	1.96E-15	0.0307	0.0327	0.0007
9	20-Apr-06	25-Apr-06	2.46E+09	1.00E-16	9.35E-16	3.66E-16	1.00E-16	0.0047	0.0061	0.0000
10	26-Apr-06	2-May-06	2.91E+09	1.00E-16	1.35E-14	4.26E-15	5.50E-15	0.0675	0.0710	0.0018
11	3-May-06	9-May-06	2.25E+09	1.00E-16	5.11E-15	2.67E-15	2.53E-15	0.0256	0.0445	0.0008
12	10-May-06	15-May-06	2.62E+09	1.00E-16	3.51E-15	1.00E-16	1.00E-16	0.0176	0.0017	0.0000
13	16-May-06	18-May-06	2.54E+09	1.00E-16	3.03E-15	1.46E-15	1.97E-15	0.0152	0.0243	0.0007
14	22-May-06	24-May-06	2.45E+09	1.00E-16	8.57E-15	3.76E-15	4.08E-15	0.0429	0.0627	0.0014
15	25-May-06	1-Jun-06	3.35E+09	1.00E-16	4.07E-15	2.24E-15	3.01E-15	0.0204	0.0373	0.0010
16	5-Jun-06	7-Jun-06	2.53E+09	1.00E-16	2.89E-15	1.34E-15	1.98E-15	0.0145	0.0223	0.0007
17	8-Jun-06	13-Jun-06	2.47E+09	1.00E-16	8.66E-15	2.23E-15	3.08E-15	0.0433	0.0372	0.0010
18	14-Jun-06	19-Jun-06	2.40E+09	1.00E-16	2.58E-15	1.25E-15	1.71E-15	0.0129	0.0208	0.0006
19	20-Jun-06	22-Jun-06	2.38E+09	1.00E-16	5.13E-15	9.24E-16	1.72E-15	0.0257	0.0154	0.0006
20	26-Jun-06	29-Jun-06	3.33E+09	1.00E-16	2.76E-15	1.47E-15	1.95E-15	0.0138	0.0245	0.0007
21	5-Jul-06	10-Jul-06	3.33E+09	1.00E-16	1.38E-14	6.31E-16	2.28E-15	0.0690	0.0105	0.0008
22	11-Jul-06	13-Jul-06	2.36E+09	1.00E-16	3.01E-15	7.63E-16	2.20E-15	0.0151	0.0127	0.0007
23	17-Jul-06	20-Jul-06	2.66E+09	1.00E-16	3.57E-15	5.26E-16	1.43E-15	0.0179	0.0088	0.0005
24	24-Jul-06	26-Jul-06	2.88E+09	1.00E-16	2.29E-15	8.33E-16	1.18E-15	0.0115	0.0139	0.0004
25	27-Jul-06	2-Aug-06	2.36E+09	1.00E-16	8.35E-15	3.05E-15	3.22E-15	0.0418	0.0508	0.0011
26	3-Aug-06	8-Aug-06	2.86E+09	1.00E-16	6.43E-15	2.90E-15	3.36E-15	0.0322	0.0483	0.0011
27	9-Aug-06	14-Aug-06	2.75E+09	1.00E-16	1.01E-14	3.13E-15	6.55E-15	0.0505	0.0522	0.0022
28	23-Aug-06	28-Aug-06	2.74E+09	1.00E-16	5.95E-15	4.45E-15	1.02E-14	0.0298	0.0742	0.0034
29	29-Aug-06	31-Aug-06	2.91E+09	1.00E-16	3.78E-15	2.44E-15	5.15E-15	0.0189	0.0407	0.0017
30	12-Sep-06	14-Sep-06	3.05E+09	1.00E-16	4.13E-15	2.20E-15	3.61E-15	0.0207	0.0367	0.0012
31	18-Sep-06	20-Sep-06	2.87E+09	1.00E-16	4.91E-15	1.85E-15	3.21E-15	0.0246	0.0308	0.0011
32	21-Sep-06	28-Sep-06	3.56E+09	1.00E-16	4.07E-15	4.61E-15	3.09E-15	0.0204	0.0768	0.0010
33	2-Oct-06	2-Oct-06	7.52E+08	1.00E-16	1.04E-14	7.18E-15	1.08E-14	0.0520	0.1197	0.0036
Average:			2.64E+09		5.29E-15	2.12E-15	7.78E-15	2.64E-02	3.54E-02	2.59E-03

Derived Air Concentrations Used			Environmental Air Concentrations Used		
	microCurie per milliliter			microCurie per milliliter	
Natural Uranium	2.00E-11	Year	Natural Uranium	9.00E-14	Year
Radium-226	3.00E-10	Week	Radium-226	9.00E-13	Week
Thorium-230	6.00E-12	Year	Thorium-230	3.00E-14	Year

Notes:
- Air samples were only collected when equipment was actually operating.
- Air sampler was located near TMW-58 at the northern edge of the excavation restricted area.
- Air sampler was pointed southwest into the prevailing wind to maximize radionuclide concentrations.
- No sample exceeded effluent limits for natural uranium, radium-226 or thorium-230 during the entire course of the work.
- If a concentration was listed as Non-Detect the Lower Limit of Detection (LLD) was used as a value to remain conservative.
- These values are shown in red text.

Kennecott Uranium Company
Sweetwater Uranium Project
Tailings Impoundment
High Volume Air Samples

Sample Number	Date		Volume	Sample Lower Limit of Detection (LLD)	Natural Uranium	Thorium-230	Radium-226	Natural Uranium % of DAC	Thorium-230 % of DAC	Radium-226 % of DAC
	Start	Stop	(milliliters)	(microCurie per milliliter)	(microCurie per milliliter)	(microCurie per milliliter)	(microCurie per milliliter)	(Percent)	(Percent)	(Percent)
1	30-May-06	31-May-06	2.35E+09	1.00E-16	1.47E-15	8.90E-16	5.44E-16	0.0132	0.0503	0.0006
2	5-Jun-06	7-Jun-06	3.08E+09	1.00E-16	2.63E-15	3.02E-15	1.75E-15	0.0132	0.0503	0.0006
3	8-Jun-06	13-Jun-06	2.95E+09	1.00E-16	3.73E-15	5.12E-15	2.34E-15	0.0187	0.0853	0.0008
4	14-Jun-06	19-Jun-06	2.79E+09	1.00E-16	6.02E-15	1.48E-14	5.73E-15	0.0301	0.2467	0.0019
5	20-Jun-06	22-Jun-06	2.75E+09	1.00E-16	2.62E-15	3.31E-15	1.27E-15	0.0131	0.0552	0.0004
6	26-Jun-06	29-Jun-06	2.14E+09	1.00E-16	4.95E-15	9.81E-15	5.14E-15	0.0248	0.1635	0.0017
7	5-Jul-06	10-Jul-06	2.84E+09	1.00E-16	1.69E-15	2.92E-15	1.34E-15	0.0085	0.0487	0.0004
8	11-Jul-06	13-Jul-06	3.08E+09	1.00E-16	3.44E-15	3.90E-15	3.25E-15	0.0172	0.0650	0.0011
9	17-Jul-06	20-Jul-06	2.87E+09	1.00E-16	4.11E-15	5.78E-15	3.38E-15	0.0206	0.0963	0.0011
10	24-Jul-06	26-Jul-06	3.14E+09	1.00E-16	1.82E-15	7.29E-15	2.17E-15	0.0091	0.1215	0.0007
11	27-Jul-06	2-Aug-06	2.36E+09	1.00E-16	5.76E-15	2.63E-15	2.54E-15	0.0288	0.0438	0.0008
12	3-Aug-06	8-Aug-06	3.18E+09	1.00E-16	5.60E-15	5.53E-15	2.70E-15	0.0280	0.0922	0.0009
13	9-Aug-06	14-Aug-06	3.01E+09	1.00E-16	3.59E-15	7.97E-16	1.89E-15	0.0180	0.0133	0.0006
14	23-Aug-06	28-Aug-06	2.84E+09	1.00E-16	5.56E-15	3.45E-15	3.52E-15	0.0278	0.0575	0.0012
15	29-Aug-06	31-Aug-06	3.09E+09	1.00E-16	3.85E-15	9.45E-15	1.00E-14	0.0193	0.1575	0.0033
16	5-Sep-06	11-Sep-06	2.95E+09	1.00E-16	3.93E-15	1.35E-14	6.78E-15	0.0197	0.2250	0.0023
17	12-Sep-06	14-Sep-06	3.11E+09	1.00E-16	3.44E-15	5.95E-15	3.22E-15	0.0172	0.0992	0.0011
18	18-Sep-06	20-Sep-06	2.94E+09	1.00E-16	8.44E-15	3.33E-15	1.84E-15	0.0422	0.0555	0.0006
19	21-Sep-06	28-Sep-06	3.59E+09	1.00E-16	4.40E-15	2.14E-15	4.46E-15	0.0220	0.0357	0.0015
20	2-Oct-06	2-Oct-06	7.60E+08	1.00E-16	1.66E-14	1.12E-14	7.11E-15	0.0830	0.1867	0.0024
21	25-Nov-06	26-Nov-06	2.63E+09	1.00E-16	1.14E-15	7.98E-16	6.46E-16	0.0057	0.0133	0.0002
Average:			2.81E+09		4.85E-15	6.00E-15	3.71E-15	2.28E-02	9.34E-02	1.10E-03

Derived Air Concentrations Used			Environmental Air Concentrations Used		
	microCurie per milliliter			microCurie per milliliter	
Natural Uranium	2.00E-11	Year	Natural Uranium	9.00E-14	Year
Radium-226	3.00E-10	Week	Radium-226	9.00E-13	Week
Thorium-230	6.00E-12	Year	Thorium-230	3.00E-14	Year

Notes:

Air samples were only collected when equipment was actually operating in the impoundment except for the November 25 to 26, 2006 sample.

Air sampler was located near the northeast corner of the interior of the impoundment.

Air sampler was pointed southwest into the prevailing wind to maximize radionuclide concentrations.

No sample exceeded effluent limits for natural uranium, radium-226 or thorium-230 in spite of the fact that they were collected inside of the impoundment.

Kennecott Uranium Company										
Sweetwater Uranium Project										
Catchment Basin Excavation										
Breathing Zone Samples										
Date	Task	Individual	Volume (milliliters)	Sample Lower Limit of Detection (LLD) (microCurie per milliliter)	Natural Uranium (microCurie per milliliter)	Thorium-230 (microCurie per milliliter)	Radium-226 (microCurie per milliliter)	Natural Uranium % of DAC (Percent)	Thorium-230 % of DAC (Percent)	Radium-226 % of DAC (Percent)
1-Mar-06	Truck Driver	3	1.22E+06	8.20E-15	ND	5.74E-14	ND	ND	0.957	ND
8-Mar-06	Loader Operator	4	9.33E+05	1.09E-14	5.79E-13	ND	ND	2.895	ND	ND
9-Mar-06	Truck Driver	6	6.27E+05	1.62E-14	7.17E-14	ND	ND	0.359	ND	ND
15-Mar-06	Truck Driver	3	8.01E+05	1.27E-14	2.50E-14	ND	ND	0.125	ND	ND
16-Mar-06	Truck Driver	5	1.35E+06	7.51E-15	1.85E-14	ND	ND	0.093	ND	ND
20-Mar-06	Loader Operator	4	1.52E+06	6.69E-15	1.32E-14	ND	ND	0.066	ND	ND
21-Mar-06	Truck Driver	6	1.42E+06	7.13E-15	1.05E-14	ND	ND	0.053	ND	ND
22-Mar-06	Trackhoe Operator	1	1.27E+06	7.97E-15	1.18E-14	ND	ND	0.059	ND	ND
27-Mar-06	Truck Driver	3	1.26E+06	7.94E-15	ND	ND	ND	ND	ND	ND
27-Mar-06	Loader Operator	4	1.38E+06	7.25E-15	ND	2.90E-14	ND	ND	0.483	ND
29-Mar-06	Truck Driver	6	5.99E+05	1.67E-14	ND	ND	ND	ND	ND	ND
30-Mar-06	Loader Operator	1	1.18E+06	8.47E-15	ND	3.39E-14	ND	ND	0.565	ND
3-Apr-06	Truck Driver	6	1.29E+06	7.75E-15	ND	ND	ND	ND	ND	ND
5-Apr-06	Loader Operator	4	1.08E+06	9.26E-15	ND	ND	ND	ND	ND	ND
6-Apr-06	Truck Driver	6	1.19E+08	8.40E-15	ND	ND	ND	ND	ND	ND
10-Apr-06	Water Truck Operator	4	1.20E+06	8.33E-15	ND	3.33E-14	ND	ND	0.555	ND
12-Apr-06	Trackhoe Operator	2	1.29E+06	7.75E-15	ND	ND	ND	ND	ND	ND
17-Apr-06	Trackhoe Operator	2	6.41E+05	1.56E-14	ND	ND	ND	ND	ND	ND
17-Apr-06	Truck Driver	1	7.54E+05	1.33E-14	ND	6.63E-14	ND	ND	1.105	ND
19-Apr-06	Truck Driver	3	1.50E+06	6.67E-15	ND	ND	ND	ND	ND	ND
19-Apr-06	Backhoe Operator	2	1.09E+06	9.17E-15	ND	1.28E-13	ND	ND	2.133	ND
20-Apr-06	Truck Driver	5	1.23E+06	8.13E-15	1.63E-14	ND	ND	0.082	ND	ND
20-Apr-06	Loader Operator	4	8.97E+05	1.11E-14	ND	ND	ND	ND	ND	ND
24-Apr-06	Truck Driver	1	1.27E+06	7.87E-15	3.45E-14	ND	ND	0.173	ND	ND
24-Apr-06	Loader Operator	4	1.12E+06	8.93E-15	ND	ND	ND	ND	ND	ND
25-Apr-06	Truck Driver	3	1.38E+06	7.25E-15	ND	3.26E-14	ND	ND	0.543	ND
25-Apr-06	Trackhoe Operator	2	1.22E+06	8.20E-15	ND	ND	ND	ND	ND	ND
26-Apr-06	Trackhoe Operator	2	1.31E+06	7.63E-15	ND	ND	ND	ND	ND	ND
26-Apr-06	Truck Driver	5	1.08E+06	9.26E-15	ND	ND	ND	ND	ND	ND
1-May-06	Loader Operator	4	1.47E+06	6.80E-15	ND	ND	ND	ND	ND	ND
1-May-06	Truck Driver	5	1.39E+06	7.19E-15	ND	1.80E-14	ND	ND	0.300	ND
2-May-06	Truck Driver	3	1.24E+06	8.06E-15	ND	1.61E-14	ND	ND	0.268	ND
2-May-06	Truckhoe Operator	1	1.50E+06	6.68E-15	ND	ND	ND	ND	ND	ND
3-May-06	Truckhoe Operator	1	1.53E+06	6.54E-15	ND	ND	ND	ND	ND	ND
3-May-06	Truck Driver	5	1.25E+06	8.01E-15	ND	2.40E-14	ND	ND	0.400	ND
8-May-06	Truck Driver	7	1.55E+06	6.45E-15	ND	ND	ND	ND	ND	ND
8-May-06	Truck Driver	5	1.45E+06	6.90E-15	ND	ND	ND	ND	ND	ND
9-May-06	Truck Driver	5	8.32E+05	1.20E-14	ND	ND	ND	ND	ND	ND
10-May-06	Truck Driver	3	1.35E+06	7.41E-15	ND	ND	ND	ND	ND	ND
11-May-06	Loader Operator	4	1.51E+06	6.62E-15	ND	ND	ND	ND	ND	ND
15-May-06	Truckhoe Operator	1	1.50E+06	6.67E-15	ND	ND	ND	ND	ND	ND
16-May-06	Truck Driver	3	1.41E+06	1.35E-13	ND	ND	ND	ND	ND	ND
17-May-06	Truckhoe Operator	2	1.42E+06	1.34E-13	ND	ND	ND	ND	ND	ND
18-May-06	Loader Operator	4	1.13E+06	1.68E-13	ND	ND	ND	ND	ND	ND
22-May-06	Truck Driver	7	7.63E+05	2.49E-13	ND	ND	ND	ND	ND	ND
22-May-06	Truck Driver	5	1.15E+06	1.65E-13	ND	ND	ND	ND	ND	ND
23-May-06	Loader Operator	4	1.48E+06	1.28E-13	ND	ND	ND	ND	ND	ND
24-May-06	Truck Driver	8	1.41E+06	1.35E-13	ND	ND	ND	ND	ND	ND
30-May-06	Truck Driver	3	1.20E+06	1.67E-13	ND	ND	ND	ND	ND	ND
30-May-06	Truck Driver	5	1.20E+06	1.67E-13	ND	ND	ND	ND	ND	ND
31-May-06	Truck Driver	5	1.36E+06	1.40E-13	ND	ND	ND	ND	ND	ND
7-Jun-06	Truck Driver	7	1.29E+06	7.75E-15	ND	ND	ND	ND	ND	ND
12-Jun-06	Truckhoe Operator	2	1.26E+06	7.94E-15	ND	ND	ND	ND	ND	ND
13-Jun-06	Truck Driver	3	1.23E+06	8.13E-15	ND	ND	ND	ND	ND	ND
13-Jun-06	Loader Operator	4	1.25E+06	1.52E-13	ND	ND	ND	ND	ND	ND
19-Jun-06	Loader Operator	4	1.29E+06	7.75E-15	ND	ND	ND	ND	ND	ND
20-Jun-06	Truck Driver	3	1.14E+06	8.77E-15	ND	ND	ND	ND	ND	ND
21-Jun-06	Truckhoe Operator	5	1.19E+06	8.40E-15	ND	ND	ND	ND	ND	ND
22-Jun-06	Truck Driver	9	1.45E+06	6.90E-15	ND	ND	ND	ND	ND	ND
27-Jun-06	Truckhoe Operator	1	1.46E+06	6.85E-15	ND	ND	2.40E-14	ND	ND	0.008
28-Jun-06	Truckhoe/Loader Op	1	1.08E+06	9.26E-15	ND	ND	ND	ND	ND	ND
10-Jul-06	Truck Driver	9	1.37E+06	7.30E-15	ND	ND	1.82E-14	ND	ND	0.006
11-Jul-06	Truck Driver	3	1.57E+06	6.37E-15	ND	ND	ND	ND	ND	ND
12-Jul-06	Truck Driver	7	1.30E+06	7.69E-15	ND	ND	ND	ND	ND	ND
13-Jul-06	Truck Driver	8	1.37E+06	7.30E-15	ND	ND	ND	ND	ND	ND
17-Jul-06	Truck Driver	3	1.15E+06	1.66E-13	ND	ND	ND	ND	ND	ND
17-Jul-06	truck	7	1.44E+06	6.94E-15	ND	ND	ND	ND	ND	ND
18-Jul-06	Truck Driver	9	1.29E+06	7.75E-15	ND	ND	ND	ND	ND	ND

Date	Task	Individual	Volume (milliliters)	Sample Lower Limit of Detection (LLD) (microCurie per milliliter)	Natural Uranium (microCurie per milliliter)	Thorium-230 (microCurie per milliliter)	Radium-226 (microCurie per milliliter)	Natural Uranium % of DAC (Percent)	Thorium-230 % of DAC (Percent)	Radium-226 % of DAC (Percent)
19-Jul-06	Loader Operator	5	1.23E+06	8.13E-15	ND	ND	ND	ND	ND	ND
20-Jul-06	Truck Driver	7	1.42E+06	7.04E-15	ND	ND	ND	ND	ND	ND
24-Jul-06	Trackhoe Operator	4	1.50E+06	6.67E-15	ND	ND	ND	ND	ND	ND
25-Jul-06	Truck Driver	7	1.28E+06	7.81E-15	ND	ND	ND	ND	ND	ND
27-Jul-06	Truck Driver	5	1.04E+06	9.62E-15	ND	ND	ND	ND	ND	ND
27-Jul-06	Trackhoe Operator	2	1.53E+06	6.54E-15	ND	ND	ND	ND	ND	ND
28-Jul-06	Loader Operator	4	1.26E+06	7.94E-15	ND	ND	ND	ND	ND	ND
1-Aug-06	Trackhoe Operator	2	1.74E+06	5.75E-15	ND	ND	ND	ND	ND	ND
2-Aug-06	Truck Driver	9	1.11E+06	9.01E-15	ND	ND	ND	ND	ND	ND
3-Aug-06	Truck Driver	9	1.14E+06	8.77E-15	ND	ND	ND	ND	ND	ND
7-Aug-06	Trackhoe Operator	1	1.37E+06	7.30E-15	ND	ND	ND	ND	ND	ND
10-Aug-06	Truck Driver	10	1.57E+06	6.37E-15	ND	ND	ND	ND	ND	ND
14-Aug-06	Truck Driver	11	5.53E+05	1.81E-14	ND	ND	ND	ND	ND	ND
29-Aug-06	Loader Operator	9	1.38E+06	7.25E-15	ND	ND	ND	ND	ND	ND
30-Aug-06	Truck Driver	10	1.51E+06	6.62E-15	ND	ND	ND	ND	ND	ND
31-Aug-06	Trackhoe Operator	5	1.40E+06	7.14E-15	ND	ND	ND	ND	ND	ND
5-Sep-06	Truck Driver	12	1.51E+06	6.62E-15	ND	ND	ND	ND	ND	ND
6-Sep-06	Truck Driver	10	1.13E+06	8.85E-15	ND	ND	ND	ND	ND	ND
7-Sep-06	Truck Driver	5	1.01E+06	9.90E-15	ND	ND	ND	ND	ND	ND
11-Sep-06	Truck Driver	11	1.51E+06	6.62E-15	ND	ND	ND	ND	ND	ND
11-Sep-06	Truck Driver	10	1.33E+06	7.52E-16	ND	ND	ND	ND	ND	ND
12-Sep-06	Trackhoe Operator	2	1.54E+06	6.49E-15	ND	ND	ND	ND	ND	ND
13-Sep-06	Truck Driver	7	1.06E+06	9.43E-15	ND	ND	ND	ND	ND	ND
14-Sep-06	Dozer Operator	4	1.43E+06	6.99E-15	ND	ND	ND	ND	ND	ND
18-Sep-06	Truck Driver	12	1.42E+06	7.04E-15	ND	ND	ND	ND	ND	ND
19-Sep-06	Truck Driver	5	9.22E+05	1.08E-14	ND	ND	ND	ND	ND	ND
20-Sep-06	Trackhoe Operator	1	1.23E+06	8.13E-15	ND	ND	ND	ND	ND	ND
21-Sep-06	Trackhoe Operator	1	1.47E+06	6.80E-15	ND	ND	ND	ND	ND	ND
Average:			2.49E+06	2.71E-14	8.67E-14	4.39E-14	2.11E-14	4.34E-01	7.31E-01	7.03E-03

Notes:

All results listed on the laboratory reports as being less than the specific sample's Lower Limit of Detection (LLD) are listed on this sheet as ND (non-detect).

The averages are conservative in that non-detect readings were not included in the averages.

Air sample results to date show that the excavation workers are unlikely to receive in excess of 10% of the applicable ALI thus individual monitoring of intakes is not required.

Derived Air Concentrations Used

	microCurie per milliliter	
Natural Uranium	2.00E-11	Year
Radium-226	3.00E-10	Week
Thorium-230	6.00E-12	Year

OAP:5/3/06

BZS_NDs_2-1-07

Kennecott Uranium Company
Sweetwater Uranium Project
Catchment Basin Excavation
Breathing Zone Samples

Date	Task	Individual	Volume (milliliters)	Sample Lower Limit of Detection (LLD) (microCurie per milliliter)	Natural Uranium (microCurie per milliliter)	Thorium-230 (microCurie per milliliter)	Radium-226 (microCurie per milliliter)	Natural Uranium - % of DAC (Percent)	Thorium-230 % of DAC (Percent)	Radium-226 % of DAC (Percent)
1-Mar-06	Truck Driver	3	1.22E+06	8.20E-15	8.20E-15	5.74E-14	8.20E-15	0.041	0.957	0.003
8-Mar-06	Loader Operator	4	9.33E+05	1.09E-14	5.79E-13	1.09E-14	1.09E-14	2.895	0.182	0.004
9-Mar-06	Truck Driver	6	6.27E+05	1.62E-14	7.17E-14	1.62E-14	1.62E-14	0.359	0.270	0.005
15-Mar-06	Truck Driver	3	8.01E+05	1.27E-14	2.50E-14	1.27E-14	1.27E-14	0.125	0.212	0.004
16-Mar-06	Truck Driver	5	1.35E+06	7.51E-15	1.85E-14	7.51E-15	7.51E-15	0.093	0.125	0.003
20-Mar-06	Loader Operator	4	1.52E+06	6.69E-15	1.32E-14	6.69E-15	6.69E-15	0.066	0.112	0.002
21-Mar-06	Truck Driver	6	1.42E+06	7.13E-15	1.05E-14	7.13E-15	7.13E-15	0.053	0.119	0.002
22-Mar-06	Trackhoe Operator	1	1.27E+06	7.97E-15	1.18E-14	7.97E-15	7.97E-15	0.059	0.133	0.003
27-Mar-06	Truck Driver	3	1.26E+06	7.94E-15	7.94E-15	7.94E-15	7.94E-15	0.040	0.132	0.003
27-Mar-06	Loader Operator	4	1.38E+06	7.25E-15	7.25E-15	2.90E-14	7.25E-15	0.036	0.483	0.002
29-Mar-06	Truck Driver	6	5.99E+05	1.67E-14	1.67E-14	1.67E-14	1.67E-14	0.084	0.278	0.006
30-Mar-06	Loader Operator	1	1.18E+06	8.47E-15	8.47E-15	3.39E-14	8.47E-15	0.042	0.565	0.003
3-Apr-06	Truck Driver	6	1.29E+06	7.75E-15	7.75E-15	7.75E-15	7.75E-15	0.039	0.129	0.003
5-Apr-06	Loader Operator	4	1.08E+06	9.26E-15	9.26E-15	9.26E-15	9.26E-15	0.046	0.154	0.003
6-Apr-06	Truck Driver	6	1.19E+08	8.40E-15	8.40E-15	8.40E-15	8.40E-15	0.042	0.140	0.003
10-Apr-06	Water Truck Operator	4	1.20E+06	8.33E-15	8.33E-15	3.33E-14	8.33E-15	0.042	0.555	0.003
12-Apr-06	Trackhoe Operator	2	1.29E+06	7.75E-15	7.75E-15	7.75E-15	7.75E-15	0.039	0.129	0.003
17-Apr-06	Trackhoe Operator	2	6.41E+05	1.56E-14	1.56E-14	1.56E-14	1.56E-14	0.078	0.260	0.005
17-Apr-06	Truck Driver	1	7.54E+05	1.33E-14	1.33E-14	6.63E-14	1.33E-14	0.067	1.105	0.004
19-Apr-06	Truck Driver	3	1.50E+06	6.67E-15	6.67E-15	6.67E-15	6.67E-15	0.033	0.111	0.002
19-Apr-06	Backhoe Operator	2	1.09E+06	9.17E-15	9.17E-15	1.28E-13	9.17E-15	0.046	2.133	0.003
20-Apr-06	Truck Driver	5	1.23E+06	8.13E-15	1.63E-14	8.13E-15	8.13E-15	0.082	0.136	0.003
20-Apr-06	Loader Operator	4	8.97E+05	1.11E-14	1.11E-14	1.11E-14	1.11E-14	0.056	0.185	0.004
24-Apr-06	Truck Driver	1	1.27E+06	7.87E-15	3.45E-14	7.87E-15	7.87E-15	0.173	0.131	0.003
24-Apr-06	Loader Operator	4	1.12E+06	8.93E-15	8.93E-15	8.93E-15	8.93E-15	0.045	0.149	0.003
25-Apr-06	Truck Driver	3	1.38E+06	7.25E-15	7.25E-15	3.26E-14	7.25E-15	0.036	0.543	0.002
25-Apr-06	Trackhoe Operator	2	1.22E+06	8.20E-15	8.20E-15	8.20E-15	8.20E-15	0.041	0.137	0.003
26-Apr-06	Trackhoe Operator	2	1.31E+06	7.63E-15	7.63E-15	7.63E-15	7.63E-15	0.038	0.127	0.003
26-Apr-06	Truck Driver	5	1.08E+06	9.26E-15	9.26E-15	9.26E-15	9.26E-15	0.046	0.154	0.003
1-May-06	Loader Operator	4	1.47E+06	6.80E-15	6.80E-15	6.80E-15	6.80E-15	0.034	0.113	0.002
1-May-06	Truck Driver	5	1.39E+06	7.19E-15	7.19E-15	1.80E-14	7.19E-15	0.036	0.300	0.002
2-May-06	Truck Driver	3	1.24E+06	8.06E-15	8.06E-15	1.61E-14	8.06E-15	0.040	0.268	0.003
2-May-06	Truckhoe Operator	1	1.50E+06	6.68E-15	6.68E-15	6.68E-15	6.68E-15	0.033	0.111	0.002
3-May-06	Truckhoe Operator	1	1.53E+06	6.54E-15	6.54E-15	6.54E-15	6.54E-15	0.033	0.109	0.002
3-May-06	Truck Driver	5	1.25E+06	8.01E-15	8.01E-15	2.40E-14	8.01E-15	0.040	0.400	0.003
8-May-06	Truck Driver	7	1.55E+06	6.45E-15	6.45E-15	6.45E-15	6.45E-15	0.032	0.108	0.002
8-May-06	Truck Driver	5	1.45E+06	6.90E-15	6.90E-15	6.90E-15	6.90E-15	0.035	0.115	0.002
9-May-06	Truck Driver	5	8.32E+05	1.20E-14	1.20E-14	1.20E-14	1.20E-14	0.060	0.200	0.004
10-May-06	Truck Driver	3	1.35E+06	7.41E-15	7.41E-15	7.41E-15	7.41E-15	0.037	0.124	0.002
11-May-06	Loader Operator	4	1.51E+06	6.62E-15	6.62E-15	6.62E-15	6.62E-15	0.033	0.110	0.002
15-May-06	Truckhoe Operator	1	1.50E+06	6.67E-15	6.67E-15	6.67E-15	6.67E-15	0.033	0.111	0.002
16-May-06	Truck Driver	3	1.41E+06	1.35E-13	1.35E-13	1.35E-13	1.35E-13	0.675	2.250	0.045
17-May-06	Truckhoe Operator	2	1.42E+06	1.34E-13	1.34E-13	1.34E-13	1.34E-13	0.670	2.233	0.045
18-May-06	Loader Operator	4	1.13E+06	1.68E-13	1.68E-13	1.68E-13	1.68E-13	0.840	2.800	0.056
22-May-06	Truck Driver	7	7.63E+05	2.49E-13	2.49E-13	2.49E-13	2.49E-13	1.245	4.150	0.083
22-May-06	Truck Driver	5	1.15E+06	1.65E-13	1.65E-13	1.65E-13	1.65E-13	0.825	2.750	0.055
23-May-06	Loader Operator	4	1.48E+06	1.28E-13	1.28E-13	1.28E-13	1.28E-13	0.640	2.133	0.043
24-May-06	Truck Driver	8	1.41E+06	1.35E-13	1.35E-13	1.35E-13	1.35E-13	0.675	2.250	0.045
30-May-06	Truck Driver	3	1.20E+06	1.67E-13	1.67E-13	1.67E-13	1.67E-13	0.835	2.783	0.056
30-May-06	Truck Driver	5	1.20E+06	1.67E-13	1.67E-13	1.67E-13	1.67E-13	0.835	2.783	0.056
31-May-06	Truck Driver	5	1.36E+06	1.40E-13	1.40E-13	1.40E-13	1.40E-13	0.700	2.333	0.047
7-Jun-06	Truck Driver	7	1.29E+06	7.75E-15	7.75E-15	7.75E-15	7.75E-15	0.039	0.129	0.003
12-Jun-06	Truckhoe Operator	2	1.26E+06	7.94E-15	7.94E-15	7.94E-15	7.94E-15	0.040	0.132	0.003
13-Jun-06	Truck Driver	3	1.23E+06	8.13E-15	8.13E-15	8.13E-15	8.13E-15	0.041	0.136	0.003
13-Jun-06	Loader Operator	4	1.25E+06	1.52E-13	1.52E-13	1.52E-13	1.52E-13	0.760	2.533	0.051
19-Jun-06	Loader Operator	4	1.29E+06	7.75E-15	7.75E-15	7.75E-15	7.75E-15	0.039	0.129	0.003
20-Jun-06	Truck Driver	3	1.14E+06	8.77E-15	8.77E-15	8.77E-15	8.77E-15	0.044	0.146	0.003
21-Jun-06	Truckhoe Operator	5	1.19E+06	8.40E-15	8.40E-15	8.40E-15	8.40E-15	0.042	0.140	0.003
22-Jun-06	Truck Driver	9	1.45E+06	6.90E-15	6.90E-15	6.90E-15	6.90E-15	0.035	0.115	0.002
27-Jun-06	Truckhoe Operator	1	1.46E+06	6.85E-15	6.85E-15	6.85E-15	2.40E-14	0.034	0.114	0.008
28-Jun-06	Truckhoe/Loader Op	1	1.08E+06	9.26E-15	9.26E-15	9.26E-15	9.26E-15	0.046	0.154	0.003
10-Jul-06	Truck Driver	9	1.37E+06	7.30E-15	7.30E-15	7.30E-15	1.82E-14	0.037	0.122	0.006
11-Jul-06	Truck Driver	3	1.57E+06	6.37E-15	6.37E-15	6.37E-15	6.37E-15	0.032	0.106	0.002
12-Jul-06	Truck Driver	7	1.30E+06	7.69E-15	7.69E-15	7.69E-15	7.69E-15	0.038	0.128	0.003
13-Jul-06	Truck Driver	8	1.37E+06	7.30E-15	7.30E-15	7.30E-15	7.30E-15	0.037	0.122	0.002
17-Jul-06	Truck Driver	3	1.15E+06	1.66E-13	1.66E-13	1.66E-13	1.66E-13	0.830	2.767	0.055

Date	Task	Individual	Volume (milliliters)	Sample Lower Limit of Detection (LLD) (microCurie per milliliter)	Natural Uranium (microCurie per milliliter)	Thorium-230 (microCurie per milliliter)	Radium-226 (microCurie per milliliter)	Natural Uranium - % of DAC (Percent)	Thorium-230 % of DAC (Percent)	Radium-226 % of DAC (Percent)
17-Jul-06	truck	7	1.44E+06	6.94E-15	6.94E-15	6.94E-15	6.94E-15	0.035	0.116	0.002
18-Jul-06	Truck Driver	9	1.29E+06	7.75E-15	7.75E-15	7.75E-15	7.75E-15	0.039	0.129	0.003
19-Jul-06	Loader Operator	5	1.23E+06	8.13E-15	8.13E-15	8.13E-15	8.13E-15	0.041	0.136	0.003
20-Jul-06	Truck Driver	7	1.42E+06	7.04E-15	7.04E-15	7.04E-15	7.04E-15	0.035	0.117	0.002
24-Jul-06	Trackhoe Operator	4	1.50E+06	6.67E-15	6.67E-15	6.67E-15	6.67E-15	0.033	0.111	0.002
25-Jul-06	Truck Driver	7	1.28E+06	7.81E-15	7.81E-15	7.81E-15	7.81E-15	0.039	0.130	0.003
27-Jul-06	Truck Driver	5	1.04E+06	9.62E-15	9.62E-15	9.62E-15	9.62E-15	0.048	0.160	0.003
27-Jul-06	Trackhoe Operator	2	1.53E+06	6.54E-15	6.54E-15	6.54E-15	6.54E-15	0.033	0.109	0.002
28-Jul-06	Loader Operator	4	1.26E+06	7.94E-15	7.94E-15	7.94E-15	7.94E-15	0.040	0.132	0.003
1-Aug-06	Trackhoe Operator	2	1.74E+06	5.75E-15	5.75E-15	5.75E-15	5.75E-15	0.029	0.096	0.002
2-Aug-06	Truck Driver	9	1.11E+06	9.01E-15	9.01E-15	9.01E-15	9.01E-15	0.045	0.150	0.003
3-Aug-06	Truck Driver	9	1.14E+06	8.77E-15	8.77E-15	8.77E-15	8.77E-15	0.044	0.146	0.003
7-Aug-06	Trackhoe Operator	1	1.37E+06	7.30E-15	7.30E-15	7.30E-15	7.30E-15	0.037	0.122	0.002
10-Aug-06	Truck Driver	10	1.57E+06	6.37E-15	6.37E-15	6.37E-15	6.37E-15	0.032	0.106	0.002
14-Aug-06	Truck Driver	11	5.53E+05	1.81E-14	1.81E-14	1.81E-14	1.81E-14	0.091	0.302	0.006
29-Aug-06	Loader Operator	9	1.38E+06	7.25E-15	7.25E-15	7.25E-15	7.25E-15	0.036	0.121	0.002
30-Aug-06	Truck Driver	10	1.51E+06	6.62E-15	6.62E-15	6.62E-15	6.62E-15	0.033	0.110	0.002
31-Aug-06	Trackhoe Operator	5	1.40E+06	7.14E-15	7.14E-15	7.14E-15	7.14E-15	0.036	0.119	0.002
5-Sep-06	Truck Driver	12	1.51E+06	6.62E-15	6.62E-15	6.62E-15	6.62E-15	0.033	0.110	0.002
6-Sep-06	Truck Driver	10	1.13E+06	8.85E-15	8.85E-15	8.85E-15	8.85E-15	0.044	0.148	0.003
7-Sep-06	Truck Driver	5	1.01E+06	9.90E-15	9.90E-15	9.90E-15	9.90E-15	0.050	0.165	0.003
11-Sep-06	Truck Driver	11	1.51E+06	6.62E-15	6.62E-15	6.62E-15	6.62E-15	0.033	0.110	0.002
11-Sep-06	Truck Driver	10	1.33E+06	7.52E-16	7.52E-16	7.52E-16	7.52E-16	0.004	0.013	0.000
12-Sep-06	Trackhoe Operator	2	1.54E+06	6.49E-15	6.49E-15	6.49E-15	6.49E-15	0.032	0.108	0.002
13-Sep-06	Truck Driver	7	1.06E+06	9.43E-15	9.43E-15	9.43E-15	9.43E-15	0.047	0.157	0.003
14-Sep-06	Dozer Operator	4	1.43E+06	6.99E-15	6.99E-15	6.99E-15	6.99E-15	0.035	0.117	0.002
18-Sep-06	Truck Driver	12	1.42E+06	7.04E-15	7.04E-15	7.04E-15	7.04E-15	0.035	0.117	0.002
19-Sep-06	Truck Driver	5	9.22E+05	1.08E-14	1.08E-14	1.08E-14	1.08E-14	0.054	0.180	0.004
20-Sep-06	Trackhoe Operator	1	1.23E+06	8.13E-15	8.13E-15	8.13E-15	8.13E-15	0.041	0.136	0.003
21-Sep-06	Trackhoe Operator	1	1.47E+06	6.80E-15	6.80E-15	6.80E-15	6.80E-15	0.034	0.113	0.002
Average:			2.49E+06	2.71E-14	3.43E-14	3.08E-14	2.74E-14	1.72E-01	5.13E-01	9.13E-03

Notes: All results listed on the laboratory reports as being less than the specific sample's Lower Limit of Detection (LLD) are entered at the LLD value.

Air sample results to date show that the excavation workers are unlikely to receive in excess of 10% of the applicable ALI thus individual monitoring of of intakes is not required.

Derived Air Concentrations Used

	microCurie per milliliter	
Natural Uranium	2.00E-11	Year
Radium-226	3.00E-10	Week
Thorium-230	6.00E-12	Year

OAP:5/3/06

BZS_LLDs_2-1-07.xls

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

REVISED 25 March 2008
18 February 2008

To: NRC File

SUBJECT: Internal Occupational Exposure Assessment – Suspended Operations

The following occupational exposure assessment is based on air samples taken in the Sweetwater Mill and Tailings Impoundment during 2007. Annual intakes (based on airborne concentrations and exposure times) below 10% of the applicable Allowable Limits of Intake (ALI) in Table 1, Column 1 of Appendix B (5 E-2 µCi for Class Y natural uranium) do not require individual monitoring or dose assessment. This assessment is of the Mill Foreman, who is the individual on site who spends the greatest amount of time within the restricted areas and receives the largest dose.

Airborne Particulate Air Sampling Results

The results of this sampling are attached as the spreadsheet "Airborne Sampling Results". Quarterly breathing zone samples and semiannual high volume air samples in the Grinding and Precipitation Areas of the Mill Building and high volume air samples of the tailings impoundment were collected.

Time Spent in the Mill Building, Tailings Impoundment and Catchment Basin Excavation (Restricted Area)

The Mill Foreman spent a total of 230 hours (23 days) in the Sweetwater Mill and 1230 hours (123 days) in the tailings impoundment during calendar year 2007. This is a maximum estimate of time and is based upon the assumption that for each day the Mill Foreman was in the Restricted Area he spent the entire ten (10) hour day there, even though on many occasions a visit to the mill or tailings impoundment in a given day constituted only a few hours inside the building or inside the impoundment. The days he spent in each area are based on his comments in the Alpha Monitor Record, which he signed upon completion of monitoring after leaving a Restricted Area. A single high volume air sample was collected in the Catchment Basin excavation area from April 19 to May 3, 2007; however it was determined that licensed material was not being excavated, so the data is not being used. However the results are included for completeness.

Dose Calculation Method

10CFR20.1003 states, "Occupational dose does not include dose received from background radiation...". In the interest of simplicity and conservatism, however, background airborne radionuclide concentrations have not been deducted from the concentrations, derived air concentrations (DACs) or percentages of allowable limits of intake (ALIs) presented in the table on the spreadsheet or text that follows.

The following additional steps were followed to ensure that the calculated dose is conservative:

- The highest airborne concentration measured (from a single breathing zone sample) in the year (September 27, 2007 – 2.71 E-13 µCi/ml) was used for an airborne uranium concentration in the Mill Building.
- An assumption of ten (10) hours occupancy (a full working day) in either the Mill Building, tailings impoundment or Catchment Basin excavation was assumed if the Mill Foreman entered either area on a given day in spite of the fact that actual occupancy may have been far less.
- The maximum airborne concentrations for thorium-230 and radium-226, in breathing zone samples collected on the Mill Foreman, were used to calculate the doses to thorium-230 and radium-226 for the time spent in the Mill Building.

- The maximum airborne concentrations for natural uranium, thorium-230 and radium-226 based on breathing zone samples were used to calculate the doses for natural uranium, thorium-230 and radium-226 for time spent in the tailings impoundment.
- The highest breathing zone sample results for natural uranium, thorium-230 and radium-226 were used to calculate the internal dose since:
    - The breathing zone samples are believed to be more representative of worker exposure;
    - The highest breathing zone sample results for natural uranium, thorium-230 and radium-226 for the mill and tailings impoundment exceed the averages of the high volume air sample results for the above radionuclides in these areas. Thus, their use is inherently conservative.

Attached please find in addition to the spreadsheet entitled "Airborne Sampling Results", the following spreadsheets:

- Mill High Volume Air Samples
- Tailings Impoundment High Volume Air Samples
- Catchment Basin Excavation High Volume Air Samples (a single sample)
- Tailings Impoundment Breathing Zone Samples (with Non-Detect results shown as ND)
- Tailings Impoundment Breathing Zone Samples (with Non-detect results reported as the Lower Limit of Detection (LLD))
- Mill Breathing Zone Samples
- Mill Foreman Breathing Zone Samples

Dose Calculation Results

An internal dose of 7.15 E+01 millirems (71.5 millirems) was calculated for the maximally exposed individual (the Mill Foreman) on site for normal duties.

The calculated dose of 71.5 millirems is less than 15% of the limit of 500 millirems, above which individual monitoring is required as per 10 CFR 20.1502(b)(1). Thus, the maximally exposed individual received less than 5% of the ALI for natural uranium, radium-226 and thorium-230 when working in the Mill Building and Tailings Impoundment, meaning that no worker was "...likely to receive in 1 year an intake in excess of 10 percent of the applicable ALI(s) in table 1, Columns 1 and 2 of Appendix B to §20.1001-21.2401: ..." Thus, individual monitoring of occupational intake for airborne particulate radionuclides was not required.

Oscar A Paulson

Oscar A. Paulson

Kennecott Uranium Company
Sweetwater Uranium Project
Airborne Sampling Results

Breathing Zone Samples							
Date	**Location**	**Concentration**			**Percent of DAC**		
		(Natural Uranium Only)	**Radium-226**	**Thorium-230**	**Natural Uranium**	**Radium-226**	**Thorium-230**
		(microCuries/ml)	**(microCuries/ml)**	**(microCuries/ml)**			
27-Mar-07	Mill	3.41E-14	3.41E-14	3.41E-14	0.171	0.011	0.568
28-Jun-07	Mill	6.08E-14	3.04E-14	3.04E-14	0.304	0.010	0.507
27-Sep-07	Mill	2.71E-13	3.81E-14	2.10E-13	1.355	0.013	3.500
28-Dec-07	Mill	2.88E-14	1.92E-14	1.83E-13	0.144	0.006	3.050
	Average:	9.87E-14	3.05E-14	1.14E-13	4.93E-01	1.02E-02	1.91E+00
Average- Forty-six (46) samples	Tailings Impoundment	1.03E-14	1.01E-14	9.41E-15	0.052	0.003	0.157
Taken from March 14 to December 27, 2007							
Please see attached spreadsheets							
Lower Limit of Detection (LLD) value used in average if result was non-detect to produce conservative result.							
High Volume Air Sampling							
Date	**Location**	**Concentration**			**Percent of DAC**		
		Natural Uranium	**Radium-226**	**Thorium-230**	**Natural Uranium**	**Radium-226**	**Thorium-230**
		(microCuries/ml)	**(microCuries/ml)**	**(microCuries/ml)**			
29-May-07	Mill Grinding Area	1.10E-15	6.70E-16	5.62E-16	5.50E-03	2.23E-04	9.37E-03
31-May-07	Mill Precipitation Area	2.36E-15	7.25E-16	4.40E-16	1.18E-02	2.42E-04	7.33E-03
27-Sep-07	Mill Precipitation Area	9.05E-15	2.83E-16	3.95E-16	4.53E-02	9.43E-05	6.58E-03
27-Sep-07	Mill Grinding Area	6.58E-15	1.67E-15	1.29E-15	3.29E-02	5.57E-04	2.15E-02
	Average:	4.77E-15	8.37E-16	6.72E-16	2.39E-02	2.79E-04	1.12E-02
Average- twenty-seven (27) samples	Tailings Impoundment	9.15E-15	1.39E-14	1.93E-14	4.58E-02	4.63E-03	3.22E-01
Taken from May 27 to December 20, 2007							
Please see attached spreadsheets							
Maximum Measured Concentrations							
		Concentration			**Percent of DAC**		
		Natural Uranium	**Radium-226**	**Thorium-230**	**Natural Uranium**	**Radium-226**	**Thorium-230**
		(microCuries/ml)	**(microCuries/ml)**	**(microCuries/ml)**			
	Mill	2.71E-13	3.81E-14	2.10E-13	1.36E+00	1.27E-02	3.50E+00
	Tailings	8.14E-14	6.38E-14	5.92E-14	4.07E-01	2.13E-02	9.87E-01
Exposure Calculations							
Hours Worked During 2007							
	Mill	230					
	Tailings Impoundment	1230					
Exposure		**Natural Uranium**	**Radium-226**	**Thorium-230**	**Total**		
		(millirems)	**(millirems)**	**(millirems)**	**(millirems)**		
	Mill	7.79E+00	7.30E-02	2.01E+01	2.80E+01		
	Tailings	1.25E+01	6.54E-01	3.03E+01	4.35E+01		
	Total	2.03E+01	7.27E-01	5.05E+01	7.15E+01		

Notes:	Maximum airborne concentrations for uranium, radium-226 and thorium-230 were used in the calculation for each area (mill, and tailings impoundment)
	In the case of the mill, the maximum uranium concentration on a breathing zone sample was used to calculate exposure for the entire year.
	For this year the highest concentration value was on the first quarter breathing zone sample in which the value was 2.71E-13uCi/ml.
	2.71E-13 uCi/ml was used as the highest airborne uranium concentration.
	No air sample collected exceeded 10% of the Derived Air Concentration (DAC). The highest airborne natural uranium concentration detected was 1.36% of the DAC, the highest Radium-226 concentration detected was 7.00E-02 % of the DAC and the highest Thorium-230 concentration detected was .987 % of the DAC.
	No worker could have received in excess of 10 percent of the applicable ALI(s) in Table 1, Column 1 and 2 of Appendix B to 10 CFR 20.1001 - 20.2401 requiring monitoring of occupational intake.

Kennecott Uranium Company											
Sweetwater Uranium Project											
Mill Building											
High Volume Air Samples											
Sample Number	Date			Volume	Sample Lower Limit of Detection (LLD)	Natural Uranium	Thorium-230	Radium-226	Natural Uranium % of DAC	Thorium-230 % of DAC	Radium-226 % of DAC
	Start	Stop		(milliliters)	(microCurie per milliliter)	(microCurie per milliliter)	(microCurie per milliliter)	(microCurie per milliliter)	(Percent)	(Percent)	(Percent)
1	27-May-07	29-May-07	Mill Grinding Area	4.63E+09	1.00E-16	1.10E-15	5.62E-16	6.70E-16	0.0055	0.0094	0.0002
2	30-May-07	31-May-07	Mill Precipitation Area	3.86E+09	1.00E-16	2.36E-15	4.40E-16	7.25E-16	0.0118	0.0073	0.0002
3	23-Sep-07	27-Sep-07	Mill Precipitation Area	9.88E+09	1.00E-16	9.05E-15	3.95E-16	2.83E-16	0.0453	0.0066	0.0001
4	23-Sep-07	27-Sep-07	Mill Grinding Area	1.05E+10	1.00E-16	6.58E-15	1.29E-15	1.67E-15	0.0329	0.0215	0.0006
Average:				7.22E+09	1.00E-16	4.77E-15	6.72E-16	8.37E-16	2.39E-02	1.12E-02	2.75E-04
Derived Air Concentrations Used				Environmental Air Concentrations Used							
	microCurie per milliliter				microCurie per milliliter						
Natural Uranium	2.00E-11	Year		Natural Uranium	9.00E-14	Year					
Radium-226	3.00E-10	Week		Radium-226	9.00E-13	Week					
Thorium-230	6.00E-12	Year		Thorium-230	3.00E-14	Year					

Kennecott Uranium Company
Sweetwater Uranium Project
Tailings Impoundment
High Volume Air Samples

Sample Number	Date		Volume	Sample Lower Limit of Detection (LLD)	Natural Uranium	Thorium-230	Radium-226	Natural Uranium % of DAC	Thorium-230 % of DAC	Radium-226 % of DAC
	Start	Stop	(milliliters)	(microCurie per milliliter)	(microCurie per milliliter)	(microCurie per milliliter)	(microCurie per milliliter)	(Percent)	(Percent)	(Percent)
1	27-May-07	29-May-07	4.14E+09	1.00E-16	4.44E-15	1.26E-14	5.56E-15	0.0222	0.2100	0.0019
2	5-Jun-07	12-Jun-07	2.94E+09	3.40E-18	1.32E-15	4.86E-15	1.99E-15	0.0066	0.0810	0.0007
3	13-Jun-07	19-Jun-07	3.19E+09	1.00E-16	2.13E-15	1.13E-15	2.54E-15	0.0107	0.0188	0.0008
4	20-Jun-07	25-Jun-07	2.07E+09	1.00E-16	4.93E-15	3.00E-15	1.40E-15	0.0247	0.0500	0.0005
5	26-Jun-07	3-Jul-07	3.67E+09	1.00E-16	3.74E-15	1.77E-15	1.47E-15	0.0187	0.0295	0.0005
6	9-Jul-07	12-Jul-07	3.59E+09	1.00E-16	7.80E-16	4.29E-15	2.26E-15	0.0039	0.0715	0.0008
7	23-Jul-07	26-Jul-07	3.05E+09	1.00E-16	3.61E-15	1.03E-14	5.64E-15	0.0181	0.1717	0.0019
8	30-Jul-07	7-Aug-07	3.94E+09	1.00E-16	5.59E-16	1.83E-15	9.65E-16	0.0028	0.0305	0.0003
9	8-Aug-07	16-Aug-07	4.88E+09	1.00E-16	2.66E-15	3.75E-15	1.82E-15	0.0133	0.0625	0.0006
10	20-Aug-07	21-Aug-07	1.65E+09	1.00E-16	1.28E-14	6.61E-14	5.24E-14	0.0640	1.1017	0.0175
11	22-Aug-07	29-Aug-07	3.24E+09	1.00E-16	1.67E-15	3.83E-15	2.69E-15	0.0084	0.0638	0.0009
12	30-Aug-07	4-Sep-07	3.32E+09	1.00E-16	2.80E-15	1.13E-14	2.50E-15	0.0140	0.1883	0.0008
13	12-Sep-07	18-Sep-07	3.70E+09	1.00E-16	5.49E-15	7.11E-15	7.03E-15	0.0275	0.1185	0.0023
14	18-Sep-07	24-Sep-07	2.24E+09	1.00E-16	6.47E-15	1.74E-14	1.23E-14	0.0324	0.2900	0.0041
15	25-Sep-07	1-Oct-07	3.52E+09	1.00E-16	8.32E-14	7.95E-15	5.43E-15	0.4160	0.1325	0.0018
16	2-Oct-07	4-Oct-07	3.01E+09	1.00E-16	4.52E-15	1.60E-14	1.29E-14	0.0226	0.2667	0.0043
17	8-Oct-07	11-Oct-07	3.60E+09	1.00E-16	2.94E-15	7.36E-15	5.69E-15	0.0147	0.1227	0.0019
18	15-Oct-07	18-Oct-07	3.51E+09	1.00E-16	1.26E-14	1.64E-14	1.14E-14	0.0630	0.2733	0.0038
19	22-Oct-07	25-Oct-07	3.41E+09	1.00E-16	5.13E-15	2.05E-14	1.59E-14	0.0257	0.3417	0.0053
20	29-Oct-07	1-Nov-07	3.24E+09	1.00E-16	1.26E-14	3.09E-14	2.11E-14	0.0630	0.5150	0.0070
21	5-Nov-07	8-Nov-07	3.64E+09	1.00E-16	1.06E-14	2.21E-14	1.44E-14	0.0530	0.3683	0.0048
22	12-Nov-07	15-Nov-07	2.89E+09	1.00E-16	1.85E-14	9.69E-14	5.92E-14	0.0925	1.6150	0.0197
23	19-Nov-07	21-Nov-07	2.50E+09	1.00E-16	1.57E-14	5.60E-14	3.47E-14	0.0785	0.9333	0.0116
24	26-Nov-07	29-Nov-07	3.27E+09	1.00E-16	2.32E-14	7.74E-14	7.68E-14	0.1160	1.2900	0.0256
25	3-Dec-07	6-Dec-07	3.29E+09	1.00E-16	1.49E-15	4.59E-15	3.65E-15	0.0075	0.0765	0.0012
26	10-Dec-07	13-Dec-07	2.37E+09	1.00E-16	2.15E-15	1.23E-14	9.86E-15	0.0108	0.2050	0.0032
27	17-Dec-07	20-Dec-07	3.16E+09	1.00E-16	1.08E-15	4.05E-15	3.23E-15	0.0054	0.0675	0.0011
Average:			3.22E+09		9.15E-15	1.93E-14	1.39E-14	4.58E-02	3.22E-01	4.63E-03

Derived Air Concentrations Used			Environmental Air Concentrations Used		
	microCurie per milliliter			microCurie per milliliter	
Natural Uranium	2.00E-11	Year	Natural Uranium	9.00E-14	Year
Radium-226	3.00E-10	Week	Radium-226	9.00E-13	Week
Thorium-230	8.00E-12	Year	Thorium-230	3.00E-14	Year

Notes:
- Air samples were only collected when equipment was actually operating in the impoundment except for the November 25 to 26, 2006 sample.
- Air sampler was located near the northeast corner of the interior of the impoundment.
- Air sampler was pointed southwest into the prevailing wind to maximize radionuclide concentrations.
- No sample exceeded effluent limits for natural uranium, radium-226 or thorium-230 in spite of the fact that they were collected inside of the impoundment.

Kennecott Uranium Company
Sweetwater Uranium Project
Catchment Basin Excavation
High Volume Air Samples

Sample Number	Date		Volume	Sample Lower Limit of Detection (LLD)	Natural Uranium	Thorium-230	Radium-226	Natural Uranium % of DAC	Thorium-230 % of DAC	Radium-226 % of DAC
	Start	Stop	(milliliters)	(microCurie per milliliter)	(microCurie per milliliter)	(microCurie per milliliter)	(microCurie per milliliter)	(Percent)	(Percent)	(Percent)
1	19-Apr-07	3-May-07	6.18E+09	1.00E-16	5.81E-15	2.69E-15	4.21E-15	0.0291	0.0448	0.0014
Average:			6.18E+09		5.81E-15	2.69E-15	4.21E-15	2.91E-02	4.48E-02	1.40E-03

Derived Air Concentrations Used	microCurie per milliliter		Environmental Air Concentrations Used	microCurie per milliliter	
Natural Uranium	2.00E-11	Year	Natural Uranium	9.00E-14	Year
Radium-226	3.00E-10	Week	Radium-226	9.00E-13	Week
Thorium-230	6.00E-12	Year	Thorium-230	3.00E-14	Year

Notes:
Air samples were only collected when equipment was actually operating.
Air sampler was located near TMW-58 at the northern edge of the excavation restricted area.
Air sampler was pointed southwest into the prevailing wind to maximize radionuclide concentrations.
No sample exceeded effluent limits for natural uranium, radium-226 or thorium-230 during the entire course of the work.
If a concentration was listed as Non-Detect the Lower Limit of Detection (LLD) was used as a value to remain conservative.
These values are shown in red text.

Kennecott Uranium Company									
Sweetwater Uranium Project									
Tailings Impoundment									
Breathing Zone Samples									
Date	Task	Volume (milliliters)	Sample Lower Limit of Detection (LLD) (microCurie per milliliter)	Natural Uranium (microCurie per milliliter)	Thorium 230 (microCurie per milliliter)	Radium 226 (microCurie per milliliter)	Natural Uranium % of DAC (Percent)	Thorium 230 % of DAC (Percent)	Radium 226 % of DAC (Percent)
14-Mar-07	Operator	1.27E+06	7.87E-15	ND	ND	ND	ND	ND	ND
20-Mar-07	Dozer Operator	3.24E+06	3.09E-15	ND	ND	ND	ND	ND	ND
22-Mar-07	Dozer Operator	6.50E+05	1.54E-14	ND	ND	ND	ND	ND	ND
4/23/2007	Trackhoe Operator	6.77E+05	1.48E-14	ND	ND	ND	ND	ND	ND
25-Apr-07	Loader Operator	2.03E+05	4.93E-14	ND	ND	ND	ND	ND	ND
26-Apr-07	Trackhoe Operator	1.39E+06	7.19E-15	ND	ND	5.76E-14	ND	ND	0.019
30-Apr-07	Loader Operator	1.24E+06	8.06E-15	ND	ND	1.61E-14	ND	ND	0.005
10-May-07	Loader Operator	1.42E+06	7.04E-15	ND	ND	ND	ND	ND	ND
4-Jun-07	Truck Driver	4.02E+06	2.49E-15	ND	ND	ND	ND	ND	ND
5-Jun-07	Truck Driver	4.26E+06	2.35E-15	ND	ND	ND	ND	ND	ND
11-Jun-07	Truck Driver	4.08E+06	2.45E-15	ND	ND	ND	ND	ND	ND
12-Jun-08	Truck Driver	3.76E+06	2.66E-15	ND	1.06E-14	ND	ND	0.177	ND
14-Jun-07	Truck Driver	3.88E+06	2.58E-15	ND	ND	ND	ND	ND	ND
18-Jun-07	Loader Operator	1.64E+06	6.10E-15	ND	ND	ND	ND	ND	ND
21-Jun-07	Tailings Labor	3.00E+06	3.33E-15	ND	ND	ND	ND	ND	ND
26-Jun-07	Tailings Labor	3.16E+06	3.16E-15	6.33E-15	1.90E-14	ND	0.032	0.317	ND
28-Jun-07	Tailings Labor	2.09E+06	4.78E-15	1.20E-14	ND	ND	0.060	ND	ND
25-Jul-07	Trackhoe Operator	1.69E+06	5.92E-15	1.18E-14	5.92E-14	ND	0.059	0.987	ND
19-Sep-07	Trackhoe Operator	3.53E+06	2.83E-15	5.67E-15	ND	ND	0.028	ND	ND
20-Sep-07	Loader Operator	3.87E+06	2.58E-15	3.88E-15	ND	6.46E-15	0.019	ND	0.002
2-Oct-07	Truck Driver	1.41E+06	7.09E-15	1.06E-14	ND	6.38E-14	0.053	ND	0.021
3-Oct-07	Trackhoe Operator	1.01E+06	9.90E-15	2.48E-14	ND	3.47E-14	0.124	ND	0.012
4-Oct-07	Truck Driver	2.93E+06	3.41E-15	ND	ND	ND	ND	ND	ND
8-Oct-07	Truck Driver	3.63E+06	2.75E-15	1.79E-14	ND	ND	0.090	ND	ND
9-Oct-07	Trackhoe Operator	2.58E+06	3.88E-15	8.14E-14	ND	1.36E-14	0.407	ND	0.005
10-Oct-07	Truck Driver	3.03E+06	3.30E-15	3.63E-14	3.47E-14	4.95E-15	0.182	0.578	0.002
11-Oct-07	Truck Driver	2.35E+06	4.26E-15	ND	ND	ND	ND	ND	ND
22-Oct-07	Trackhoe Operator	2.92E+06	3.42E-15	ND	ND	ND	ND	ND	ND
23-Oct-07	Loader Operator	1.21E+06	8.26E-15	ND	ND	ND	ND	ND	ND
25-Oct-07	Truck Driver	3.23E+06	3.10E-15	ND	ND	1.55E-14	ND	ND	0.005
30-Oct-07	Haul Truck Operator	3.72E+06	2.69E-15	2.15E-14	2.28E-14	2.55E-14	0.108	0.380	0.009
31-Oct-07	Loader Operator	2.96E+06	3.38E-15	ND	ND	ND	ND	ND	ND
1-Nov-07	Trackhoe Operator	2.89E+06	3.46E-15	6.92E-15	ND	ND	0.035	ND	ND
5-Nov-07	Blade Operator	2.47E+06	4.05E-15	8.10E-15	ND	1.21E-14	0.041	ND	0.004
6-Nov-07	Trackhoe Operator	3.93E+06	2.54E-15	2.54E-15	ND	ND	0.013	ND	ND
8-Nov-07	Haul Truck Operator	3.19E+06	3.13E-15	ND	ND	9.40E-15	ND	ND	0.003
12-Nov-07	Trackhoe Operator	2.59E+06	3.86E-15	ND	ND	ND	ND	ND	ND
14-Nov-07	Blade Operator	3.24E+06	3.09E-15	1.54E-14	ND	ND	0.077	ND	ND
21-Nov-07	Truck Driver	9.35E+05	1.07E-14	ND	ND	ND	ND	ND	ND
3-Dec-07	Haul Truck Operator	2.85E+06	3.51E-15	ND	ND	1.40E-14	ND	ND	0.005
4-Dec-07	Trackhoe Operator	3.17E+06	3.15E-15	4.73E-15	ND	ND	0.024	ND	ND
4-Dec-07	Trackhoe Operator	3.66E+06	2.73E-15	1.09E-14	5.46E-14	ND	0.055	0.910	ND
5-Dec-07	Loader Operator	3.09E+06	3.24E-15	1.13E-14	ND	ND	0.057	ND	ND
6-Dec-07	Haul Truck Operator	2.76E+06	3.62E-15	5.43E-15	ND	ND	0.027	ND	ND
7-Dec-07	Haul Truck Operator	1.70E+06	5.88E-15	ND	ND	ND	ND	ND	ND
17-Dec-07	Trackhoe Operator	3.28E+06	3.05E-15	ND	ND	ND	ND	ND	ND
18-Dec-07	Blade Operator	3.57E+06	2.80-15	ND	ND	ND	ND	ND	ND
27-Dec-07	Haul Truck Operator	3.29E+06	3.04E-15	4.56E-15	ND	ND	0.023	ND	ND
Average:		2.64E+06	5.71E-15	1.51E-14	3.35E-14	2.28E-14	7.55E-02	5.58E-01	7.60E-03

Notes:	All results listed on the laboratory reports as being less than the specific sample's Lower Limit of Detection (LLD) are entered at the LLD value
	Air sample results to date show that the excavation workers are unlikely to receive in excess of 10% of the applicable ALI thus individual monit
	of intakes is not required.

Derived Air Concentrations Used	
	microCurie per milliliter
Natural Uranium	2.00E-11
Radium-226	3.00E-10
Thorium-230	6.00E-12

OAP:5/3/06

BZS_LLDs_2-1-07.xls

Kennecott Uranium Company
Sweetwater Uranium Project
Tailings Impoundment
Breathing Zone Samples

Date	Task	Volume (milliliters)	Sample Lower Limit of Detection (LLD) (microCurie per milliliter)	Natural Uranium (microCurie per milliliter)	Thorium-230 (microCurie per milliliter)	Radium-226 (microCurie per milliliter)	Natural Uranium - % of DAC (Percent)	Thorium-230 % of DAC (Percent)	Radium-226 % of DAC (Percent)
14-Mar-07	Operator	1.27E+06	7.87E-15	7.87E-15	7.87E-15	7.87E-15	0.039	0.131	0.003
20-Mar-07	Dozer Operator	3.24E+06	3.09E-15	3.09E-15	3.09E-15	3.09E-15	0.015	0.052	0.001
22-Mar-07	Dozer Operator	6.50E+05	1.54E-14	1.54E-14	1.54E-14	1.54E-14	0.077	0.257	0.005
23-Apr-07	Trackhoe Operator	6.77E+05	1.48E-14	1.48E-14	1.48E-14	1.48E-14	0.074	0.005	0.005
25-Apr-07	Loader Operator	2.03E+05	4.93E-14	4.93E-14	4.93E-14	4.93E-14	0.247	0.822	0.016
26-Apr-07	Trackhoe Operator	1.39E+06	7.19E-15	7.19E-15	7.19E-15	5.76E-14	0.036	0.120	0.019
30-Apr-07	Loader Operator	1.24E+06	8.06E-15	8.06E-15	8.06E-15	1.61E-14	0.040	0.134	0.005
10-May-07	Loader Operator	1.42E+06	7.04E-15	7.04E-15	7.04E-15	7.04E-15	0.035	0.117	0.002
4-Jun-07	Truck Driver	4.02E+06	2.49E-15	2.49E-15	2.49E-15	2.49E-15	0.012	0.042	0.001
5-Jun-07	Truck Driver	4.26E+06	2.35E-15	2.35E-15	2.35E-15	2.35E-15	0.012	0.039	0.001
11-Jun-07	Truck Driver	4.08E+06	2.45E-15	2.45E-15	2.45E-15	2.45E-15	0.012	0.041	0.001
12-Jun-08	Truck Driver	3.76E+06	2.66E-15	2.66E-15	1.06E-14	2.66E-15	0.013	0.177	0.001
14-Jun-07	Truck Driver	3.88E+06	2.58E-15	2.58E-15	2.58E-15	2.58E-15	0.013	0.043	0.001
18-Jun-07	Loader Operator	1.64E+06	6.10E-15	6.10E-15	6.10E-15	6.10E-15	0.031	0.102	0.002
21-Jun-07	Tailings Labor	3.00E+06	3.33E-15	3.33E-15	3.33E-15	3.33E-15	0.017	0.056	0.001
26-Jun-07	Tailings Labor	3.16E+06	3.16E-15	6.33E-15	1.90E-14	3.16E-15	0.032	0.317	0.001
28-Jun-07	Tailings Labor	2.09E+06	4.78E-15	1.20E-14	4.78E-15	4.78E-15	0.060	0.080	0.002
25-Jul-07	Trackhoe Operator	1.69E+06	5.92E-15	1.18E-14	5.92E-14	5.92E-15	0.059	0.987	0.002
19-Sep-07	Trackhoe Operator	3.53E+06	2.83E-15	5.67E-15	2.83E-15	2.83E-15	0.028	0.047	0.001
20-Sep-07	Loader Operator	3.87E+06	2.58E-15	3.88E-15	2.58E-15	6.46E-15	0.019	0.043	0.002
2-Oct-07	Truck Driver	1.41E+06	7.09E-15	1.06E-14	7.09E-15	6.38E-14	0.053	0.118	0.021
3-Oct-07	Trackhoe Operator	1.01E+06	9.90E-15	2.48E-14	9.90E-15	3.47E-14	0.124	0.165	0.012
4-Oct-07	Truck Driver	2.93E+06	3.41E-15	3.41E-15	3.41E-15	3.41E-15	0.017	0.057	0.001
8-Oct-07	Truck Driver	3.63E+06	2.75E-15	1.79E-14	2.75E-15	2.75E-15	0.090	0.046	0.001
9-Oct-07	Trackhoe Operator	2.58E+06	3.88E-15	8.14E-14	3.88E-15	1.36E-14	0.407	0.065	0.005
10-Oct-07	Truck Driver	3.03E+06	3.30E-15	3.63E-14	3.47E-14	4.95E-15	0.182	0.578	0.002
11-Oct-07	Truck Driver	2.35E+06	4.26E-15	4.26E-15	4.26E-15	4.26E-15	0.021	0.071	0.001
22-Oct-07	Trackhoe Operator	2.92E+06	3.42E-15	3.42E-15	3.42E-15	3.42E-15	0.017	0.057	0.001
23-Oct-07	Loader Operator	1.21E+06	8.26E-15	8.26E-15	8.26E-15	8.26E-15	0.041	0.138	0.003
25-Oct-07	Truck Driver	3.23E+06	3.10E-15	3.10E-15	3.10E-15	1.55E-14	0.016	0.052	0.005
30-Oct-07	Haul Truck Operator	3.72E+06	2.69E-15	2.15E-14	2.28E-14	2.55E-14	0.108	0.380	0.009
31-Oct-07	Loader Operator	2.96E+06	3.38E-15	3.38E-15	3.38E-15	3.38E-15	0.017	0.056	0.001
1-Nov-07	Trackhoe Operator	2.89E+06	3.46E-15	6.92E-15	3.46E-15	3.46E-15	0.035	0.058	0.001
5-Nov-07	Blade Operator	2.47E+06	4.05E-15	8.10E-15	4.05E-15	1.21E-14	0.041	0.068	0.004
6-Nov-07	Trackhoe Operator	3.93E+06	2.54E-15	2.54E-15	2.54E-15	2.54E-15	0.013	0.042	0.001
8-Nov-07	Haul Truck Operator	3.19E+06	3.13E-15	3.13E-15	3.13E-15	9.40E-15	0.016	0.052	0.003
12-Nov-07	Trackhoe Operator	2.59E+06	3.86E-15	3.86E-15	3.86E-15	3.86E-15	0.019	0.064	0.001
14-Nov-07	Blade Operator	3.24E+06	3.09E-15	1.54E-14	3.09E-15	3.09E-15	0.077	0.052	0.001
21-Nov-07	Truck Driver	9.35E+05	1.07E-14	1.07E-14	1.07E-14	1.07E-14	0.054	0.178	0.004
3-Dec-07	Haul Truck Operator	2.85E+06	3.51E-15	3.51E-15	3.51E-15	1.40E-14	0.018	0.059	0.005
4-Dec-07	Trackhoe Operator	3.17E+06	3.15E-15	4.73E-15	3.15E-15	3.15E-15	0.024	0.053	0.001
4-Dec-07	Trackhoe Operator	3.66E+06	2.73E-15	1.09E-14	5.46E-14	2.73E-15	0.055	0.910	0.001
5-Dec-07	Loader Operator	3.09E+06	3.24E-15	1.13E-14	3.24E-15	3.24E-15	0.057	0.054	0.001
6-Dec-07	Haul Truck Operator	2.76E+06	3.62E-15	5.43E-15	3.62E-15	3.62E-15	0.027	0.060	0.001
7-Dec-07	Haul Truck Operator	1.70E+06	5.88E-15	5.88E-15	5.88E-15	5.88E-15	0.029	0.098	0.002
17-Dec-07	Trackhoe Operator	3.28E+06	3.05E-15	3.05E-15	3.05E-15	3.05E-15	0.015	0.051	0.001
18-Dec-07	Blade Operator	3.57E+06	2.80E-15	2.80E-15	2.80E-15	2.80E-15	0.014	0.047	0.001
27-Dec-07	Haul Truck Operator	3.29E+06	3.04E-15	4.56E-15	3.04E-15	3.04E-15	0.023	0.051	0.001
Average:		2.64E+06	5.65E-15	1.03E-14	9.41E-15	1.01E-14	5.16E-02	1.52E-01	3.38E-03

Notes: All results listed on the laboratory reports as being less than the specific sample's Lower Limit of Detection (LLD) are entered at the LLD value.
Air sample results to date show that the excavation workers are unlikely to receive in excess of 10% of the applicable ALI thus individual monito
of intakes is not required.
Employees listed by title to preserve confidentiality

Derived Air Concentrations Used

	microCurie per milliliter
Natural Uranium	2.00E-11
Radium-226	3.00E-10
Thorium-230	6.00E-12

OAP:5/3/06
BZS_LLDs_2-1-07.xls

Kennecott Uranium Company
Sweetwater Uranium Project
Mill
Breathing Zone Samples

Date	Task	Volume (milliliters)	Sample Lower Limit of Detection (LLD) (microCurie per milliliter)	Natural Uranium (microCurie per milliliter)	Thorium-230 (microCurie per milliliter)	Radium-226 (microCurie per milliliter)	Natural Uranium - % of DAC (Percent)	Thorium-230 % of DAC (Percent)	Radium-226 % of DAC (Percent)
27-Mar-07	Mill Foreman	2.93E+05	3.41E-14	3.41E-14	3.41E-14	3.41E-14	0.171	0.568	0.011
28-Jun-07	Mill Foreman	3.29E+05	3.04E-14	6.08E-14	3.04E-14	3.04E-14	0.304	0.507	0.010
26-Sep-07	Precipitation - LynTek, Inc.	1.73E+06	5.78E-15	9.25E-14	8.09E-14	2.31E-14	0.463	1.348	0.008
26-Sep-07	Solvent Extraction (SX) - LynTek, Inc.	1.59E+06	6.29E-15	6.60E-14	4.09E-14	6.29E-15	0.330	0.682	0.002
27-Sep-07	Mill Foreman	1.05E+06	9.52E-15	2.71E-13	2.10E-13	3.81E-14	1.355	3.500	0.013
10-Dec-07	Solvent Extraction (SX) - LynTek, Inc.	3.79E+05	2.64E-14	1.45E-13	2.64E-14	2.64E-14	0.725	0.440	0.009
28-Dec-07	Mill Foreman	5.20E+05	1.92E-14	2.88E-14	1.83E-13	1.92E-14	0.144	3.050	0.006
Average:		8.42E+05	1.88E-14	9.97E-14	8.65E-14	2.54E-14	4.99E-01	1.44E+00	8.46E-03

Notes: All results listed on the laboratory reports as being less than the specific sample's Lower Limit of Detection (LLD) are entered at the LLD value.

Air sample results to date show that the excavation workers are unlikely to receive in excess of 10% of the applicable ALI thus individual monitoring of of intakes is not required.

Employees listed by title to preserve confidentiality

Derived Air Concentrations Used

	microCurie per milliliter
Natural Uranium	2.00E-11
Radium-226	3.00E-10
Thorium-230	6.00E-12

OAP:5/3/06

BZS_LLDs_2-1-07.xls

Kennecott Uranium Company
Sweetwater Uranium Project
Mill Foreman
Breathing Zone Samples

Date	Task	Volume (milliliters)	Sample Lower Limit of Detection (LLD) (microCurie per milliliter)	Natural Uranium (microCurie per milliliter)	Thorium-230 (microCurie per milliliter)	Radium-226 (microCurie per milliliter)	Natural Uranium - % of DAC (Percent)	Thorium-230 % of DAC (Percent)	Radium-226 % of DAC (Percent)
27-Mar-07	Mill Foreman	2.93E+05	3.41E-14	3.41E-14	3.41E-14	3.41E-14	0.171	0.568	0.011
28-Jun-07	Mill Foreman	3.29E+05	3.04E-14	6.08E-14	3.04E-14	3.04E-14	0.304	0.507	0.010
27-Sep-07	Mill Foreman	1.05E+06	9.52E-15	2.71E-13	2.10E-13	3.81E-14	1.355	3.500	0.013
28-Dec-07	Mill Foreman	5.20E+05	1.92E-14	2.88E-14	1.83E-13	1.92E-14	0.144	3.050	0.006
Average:		5.48E+05	2.33E-14	9.87E-14	1.14E-13	3.05E-14	4.93E-01	1.91E+00	1.02E-02

Notes: All results listed on the laboratory reports as being less than the specific sample's Lower Limit of Detection (LLD) are entered at the LLD value.
Air sample results to date show that the excavation workers are unlikely to receive in excess of 10% of the applicable ALI thus individual monitoring of
of intakes is not required.
Employee listed by title to preserve confidentiality

Derived Air Concentrations Used

	microCurie per milliliter
Natural Uranium	2.00E-11
Radium-226	3.00E-10
Thorium-230	6.00E-12

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

20 February 2007

Memo to File

SUBJECT: Dose Assessment/Determination of No Requirement for Individual Monitoring or Dose Calculation at the Sweetwater Uranium Project for 2006

This determination is being prepared to demonstrate that individual monitoring and dose calculation is not required at the Sweetwater Uranium Project due to the low levels of gamma radiation, airborne particulate radionuclides and radon present at the facility. The Sweetwater Uranium Project is a non-operating uranium mill, which suspended operations in the spring of 1983. This assessment is based on background data for the facility and data from radiation surveys and air sampling surveys taken at the facility during 2006.

Background

10 CFR 20 (in 20.1003) in the definition of occupational dose states, "Occupational dose does not include dose received from background radiation...." In order to assess the occupational dose received at the facility the background must be deducted from the total dose received. Background data for gamma radiation and airborne particulate radionuclides were collected in 1976 for the Environmental Report and in 1979 for the pre-operational monitoring program. The average upwind radon concentration for 2006 was used to represent the background radon concentration for the facility.

Item	Average Concentration	Dose
Background Gamma		200.7 mrem/yr (22.9uR/hr)
Airborne Particulates:		
U-nat	6.2E-16 uCi/ml	0.34 mrem/yr
Ra-226	3.9E-16 uCi/ml	0.22 mrem/yr
Th-230	3.9E-16 uCi/ml	0.65 mrem/yr
Pb-210	1.7E-14 uCi/ml	1.39 mrem/yr
Radon-222	3.58 pCi/l	340.24 mrem/yr

Note: Based on calculations prepared by Lyda Hersloff dated December 29, 1993.

The background dose for radon in working levels at the upwind monitoring site assuming daughters present is computed as follows:

(3.58 pCi/l) / (1E3 ml/l) / (1E6 pCi/uCi) = 3.58 E-9 uCi/ml
0.33 WL = 3E-8 uCi/ml (with all daughters present)
[(3.58E-9 uCi/ml) / (3E-8 uCi/ml)] * (0.33 WL) = 0.039 WL for background

The calculated equilibrium factor for the facility (1993 to 2006) average is 0.216. Given that all daughters are not present and the equilibrium factor is 0.216, the actual background radon daughter concentration is:

(0.216) * (0.039 WL) = 0.008 WL

Occupational Dose

1) **Gamma Radiation**

The average gamma dose at the facility is based on an average of survey results for twenty-eight (28) locations in the mill and twelve (12) locations in the ion exchange area and general surveys in the tailings impoundment and Catchment Basin excavation areas. The results are as follows:

Gamma Survey Results

Area	Total Dose	Background Dose	Occupational Dose
IX Area	233.0 uR/hr	22.9 uR/hr	210.1 uR/hr
Mill	73.0 uR/hr	22.9 uR/hr	50.1 uR/hr
Tailings	68.8 uR/hr	22.9 uR/hr	45.9 uR/hr
Catchment Basin Excavation	68.1 uR/hr	22.9 uR/hr	45.2 uR/hr

Approximately 263 hours (twenty-six and one-third 10-hour working days) are estimated to have been spent in the mill and 753 hours (seventy-five and one-third 10 hour working days) are estimated to have been spent in the tailings impoundment by the Mill Foreman in 2006. This estimate is based on the number of entries in the restricted area alpha survey record for 2006, and assuming that each entry constitutes a full ten (10) hour day in either the mill or tailings impoundment, as indicated. If both the mill and tailings impoundment were entered in a single day, then it was assumed that five hours were spent in each area. This assumption is very conservative since many entries in the alpha survey record are the result of a brief (1 - 2 hour) period in either the mill or tailings impoundment.

The table below estimates the gamma dose likely to be received by the Mill Foreman:

Area	Time	Occupational Dose Rate	Total Dose
Mill	263 hours	50.1 μR/hr	13.2 mrem
Tailings	753 hours	45.9 μR/hr	34.6 mrem
Catch.Basin	214 hours	45.2 μR/hr	9.7 mrem
Total			**57.5 mrem**

Since the gamma levels are low in the mill and ion exchange area and only a limited amount of time is spent in these areas, it is unlikely that personnel would receive in one year from sources external to the body a dose in excess of 10% of any of the applicable limits in 20.1201(a); therefore, individual monitoring and dose calculation for external exposure is not required. Gamma doses measured in the Ion Exchange (IX) Area were not used in the estimate due to the very small amount of time spent in that area each year. This estimate assumes a one to one to one (1:1:1) equivalence of exposure (in Roentgens) to absorbed dose (in Rads) to equivalent dose (in REMs). For gamma radiation with a Quality Factor (QF) of one (1), this is acceptable.

Personnel (Luxel) dosimeters were used on site by all personnel during 2006 even though their use was not required, in part, to confirm these calculations. The highest external dose received for the calendar year was 7 millirems, confirming the low external exposure rates on site and the inherent conservative nature of these calculations.

2) **Radon**

The average radon dose at the facility is based on an average of survey results for three (3) locations in the ion exchange area, at least fourteen (14) locations in the mill and two (2) locations in the Solvent Extraction (SX) Building taken in June and December of 2004. The results are as follows:

Radon Sampling Results

Area	Concentration	Background	Occupational Dose
IX Area	0.008 WL	0.007 WL	0.001 WL
Mill Area	0.030 WL	0.007 WL	0.023 WL

The average occupational radon dose for facility personnel is:

{[(0.023 WL) / (0.33 WL/DAC)] * 263 hours} / (2000 DAC hours/ALI) = 0.0092 ALI
(0.0092 ALI) * (5000 millirems/ALI) = 45.8 millirems

3) **Airborne Particulate Radionuclides (Uranium)**

The average airborne particulate natural uranium dose at the facility is based on high volume air samples taken in the grinding and yellowcake areas of the mill, the tailings impoundment and the Catchment Basin excavation in 2006 and four (4) breathing zone samples taken of the Mill Foreman when working in the Mill Building and ninety-six (96) breathing zone samples collected from workers in the Catchment Basin excavation. The results are as follows:

High Volume Air Sampling Results

Area	Concentration	Background	Occupational Conc.
Grinding	1.16 E-15 uCi/ml	6.2 E-16	5.41 E-16 uCi/ml
Precipitation	1.47 E-15 uCi/ml	6.2 E-16	8.48 E-16 uCi/ml
Tails Impound.	4.51 E-15 uCi/ml	6.2 E-16	3.89 E-15 uCi/ml
Catch Basin Excav.	5.29 E-15 uCi/ml	6.2 E-16	4.67 E-15 uCi/ml
Average			**2.49 E-15 uCi/ml**

Breathing Zone Samples

Date	Concentration	Percent of DAC
03/30/06	<3.84 E-14 uCi/ml	<0.174%
06/29/06	6.22 E-14 uCi/ml	0.311%
09/28/06	<6.10 E-14 uCi/ml	<0.305%
12/26/06	<6.33 E-14 uCi/ml	<0.316%

A breathing zone sample collected from a truck driver in the Catchment Basin excavation had the highest breathing zone sample value of 7.17 E-14 uCi/ml of natural uranium. Using the value of 7.17 E-14 uCi/ml (the highest measured airborne uranium concentration) coupled with a working time spent in the mill of 263 hours, the tailings impoundment of 753 hours and the Catchment Basin excavation of 214 hours in 2006 would yield the following exposure:

(7.17 E-14 uCi/ml) / (2E-11 uCi/ml/DAC) * (263+753+214 hours) = 4.41 DAC-hrs
(4.41 DAC-hrs) / (2000 DAC-hrs/ALI) = 0.002 ALI = 0.22% ALI

A dose of 4.41 DAC-hrs represents the maximum possible internal dose to natural uranium at the facility and is 0.22% of the ALI, which is below the 10% threshold that triggers monitoring and dose calculation.

This is an extremely conservative dose estimate since it applies the highest uranium concentration to all work within the restricted areas (Mill Building and tailings impoundment) at the facility. This estimate equates to an internal exposure of 11.0 millirems. The *Internal Occupational Exposure Assessment – Suspended Operations* document calculates a total dose from natural uranium, radium-226 and thorium-230 of 35.3 millirems.

This maximum possible exposure of 0.002 ALI is also below the intake limit of 10 milligrams/week for soluble natural uranium listed described in 20.1201(e) as per the calculation below:

(0.002 ALI/yr) * (5E-2 uCi/ALI) = 1.00 E-4 uCi/yr
(1.00 E-4 uCi/yr) * (1 E-6 pCi/uCi) / (677 pCi/mg) = 0.148 mg/yr total intake

This is well below the 10 milligram per week limit.

Based on the levels of airborne natural uranium, radium-226 and thorium-230 as demonstrated by the high volume air samples collected in the Mill Building, the level of natural uranium exhibited by the breathing zone samples collected in the Mill Building, the levels of natural uranium, radium-226 and thorium-230 exhibited in the high volume and breathing zone samples collected in the Catchment Basin excavation and the levels of natural uranium, radium-226 and thorium-230 exhibited in the high volume air samples collected in the tailings impoundment and the limited time spent in the mill (263 hours), the tailings impoundment (753 hours) and Catchment Basin excavation (214 hours) by the Mill Foreman in 2006, it is unlikely that personnel would receive in one year an intake in excess of 10 percent of the applicable ALI for uranium (natural) in Table 1, Columns 1 and 2 of Appendix B therefore monitoring and dose calculation for uranium (natural) is not required. It is estimated that the total dose from natural uranium, radium-226 and thorium-230 does not exceed 35.3 millirems.

Conclusions:

1) Monitoring and calculation of external dose is not required at the Sweetwater Uranium Project since no personnel are likely to receive an external occupational dose in excess of 0.5 rem.

2) Monitoring and calculation of internal dose at the Sweetwater Uranium Project is not required because:
   a) Radon dose is calculated at 0.046 rem/yr.

3) The maximum possible total occupational dose to the maximally exposed individual on site, the Mill Foreman, is as follows:

a)	Estimated external dose:	0.058 rem/yr.
b)	Estimated internal dose (particulates)	0.035 rem/yr.
c)	Estimated internal dose (radon-222)	0.046 rem/yr.
	Total:	0.139 rem/yr.

These estimates are below 10% of the applicable limits that would trigger individual monitoring.

4) Tracking of external doses was done for all site personnel during 2006 using Luxel dosimeters. Due to the proven low dose rates at the facility, use of dosimeters is not required; however, it was done to confirm external exposure data from surveys. The highest annual dose received by any individual was seven (7) millirems. This proves that the external dose estimate based upon surveys is conservative.

Oscar A. Paulson

Oscar A. Paulson

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

REVISED 25 March 2008
18 February 2008

Memo to File

SUBJECT: Dose Assessment/Determination of No Requirement for Individual Monitoring or Dose Calculation at the Sweetwater Uranium Project for 2007

This determination is being prepared to demonstrate that individual monitoring and dose calculation is not required at the Sweetwater Uranium Project due to the low levels of gamma radiation, airborne particulate radionuclides and radon present at the facility. The Sweetwater Uranium Project is a non-operating uranium mill, which suspended operations in the spring of 1983. This assessment is based on background data for the facility and data from radiation surveys and air sampling surveys taken at the facility during 2007.

Background

10 CFR 20 (in 20.1003) in the definition of occupational dose states, "Occupational dose does not include dose received from background radiation...." In order to assess the occupational dose received at the facility the background must be deducted from the total dose received. Background data for gamma radiation and airborne particulate radionuclides were collected in 1976 for the Environmental Report and in 1979 for the pre-operational monitoring program. The average upwind radon concentration for 2007 was used to represent the background radon concentration for the facility.

Item	Average Concentration	Dose
Background Gamma		200.7 mrem/yr (22.9uR/hr)
Airborne Particulates:		
U-nat	6.2E-16 uCi/ml	0.34 mrem/yr
Ra-226	3.9E-16 uCi/ml	0.22 mrem/yr
Th-230	3.9E-16 uCi/ml	0.65 mrem/yr
Pb-210	1.7E-14 uCi/ml	1.39 mrem/yr
Radon-222	3.65 pCi/l	316.38 mrem/yr

Note: Based on calculations prepared by Lyda Hersloff dated December 29, 1993.

Radon-222 concentration based on average of third and fourth quarter 2007 concentrations. First and second quarter RadTrak units destroyed/damaged by horse.

The background dose for radon in working levels at the upwind monitoring site assuming daughters present is computed as follows:

(3.65 pCi/l) / (1E3 ml/l) / (1E6 pCi/uCi) = 3.65 E-9 uCi/ml
0.33 WL = 3E-8 uCi/ml (with all daughters present)
[(3.65E-9 uCi/ml) / (3E-8 uCi/ml)] * (0.33 WL) = 0.040 WL for background

The calculated equilibrium factor for the facility (1993 to 2007) average is 0.197. Given that all daughters are not present and the equilibrium factor is 0.197, the actual background radon daughter concentration is:

(0.197) * (0.040 WL) = 0.008 WL

Occupational Dose

1) Gamma Radiation

The average gamma dose at the facility is based on an average of survey results for twenty-eight (28) locations in the mill and twelve (12) locations in the ion exchange area and general surveys in the tailings impoundment and Catchment Basin excavation areas. The results are as follows:

Gamma Survey Results

Area	Total Dose	Background Dose	Occupational Dose
IX Area	243.0 uR/hr	22.9 uR/hr	220.1 uR/hr
Mill	69.5 uR/hr	22.9 uR/hr	46.6 uR/hr
Tailings	106.8 uR/hr	22.9 uR/hr	83.9 uR/hr

Approximately 230 hours (twenty-three 10-hour working days) are estimated to have been spent in the mill and 1,230 hours (one hundred twenty-three 10 hour working days) are estimated to have been spent in the tailings impoundment by the Mill Foreman in 2007. This estimate is based on the number of entries in the restricted area alpha survey record for 2007, and assuming that each entry constitutes a full ten (10) hour day in either the mill or tailings impoundment, as indicated. If both the mill and tailings impoundment were entered in a single day, then it was assumed that five hours were spent in each area. This assumption is very conservative since many entries in the alpha survey record are the result of a brief (1 - 2 hour) period in either the mill or tailings impoundment.

The table below estimates the gamma dose likely to be received by the Mill Foreman:

Area	Time	Occupational Dose Rate	Total Dose
Mill	230 hours	46.6 μR/hr	10.7 mrem
Tailings	1230 hours	83.9 μR/hr	103.2 mrem
Total			**113.9 mrem**

Since the gamma levels are low in the mill and ion exchange area and only a limited amount of time is spent in these areas, it is unlikely that personnel would receive in one year from sources external to the body a dose in excess of 10% of any of the applicable limits in 20.1201(a); therefore, individual monitoring and dose calculation for external exposure is not required. Gamma doses measured in the Ion Exchange (IX) Area were not used in the estimate due to the very small amount of time spent in that area each year. This estimate assumes a one to one to one (1:1:1) equivalence of exposure (in Roentgens) to absorbed dose (in Rads) to equivalent dose (in REMs). For gamma radiation with a Quality Factor (QF) of one (1), this is acceptable.

Personnel (Luxel) dosimeters were used on site by all personnel during 2007 even though their use was not required, in part, to confirm these calculations. The highest external dose received for the calendar year was 11 millirems, confirming the low external exposure rates on site and the inherent conservative nature of these calculations.

2) Radon

The average radon dose at the facility is based on an average of survey results for three (3) locations in the ion exchange area, at least fourteen (14) locations in the mill and two (2) locations in the Solvent Extraction (SX) Building taken in June and December of 2007. The results are as follows:

Radon Sampling Results

Area	Concentration	Background	Occupational Dose
IX Area	0.004 WL	0.008 WL	0.000 WL
Mill Area	0.012 WL	0.008 WL	0.004 WL

The average occupational radon dose for facility personnel is:

{[(0.004 WL) / (0.33 WL/DAC)] * 230 hours} / (2000 DAC hours/ALI) = 0.0014 ALI
(0.0014 ALI) * (5000 millirems/ALI) = 7.00 millirems

3) **Airborne Particulate Radionuclides (Uranium/Radium-226/Thorium-230)**
The average airborne particulate natural uranium dose at the facility is based on high volume air samples taken in the grinding and precipitation areas of the mill and the tailings impoundment in 2007 and four (4) breathing zone samples taken of the Mill Foreman when working in the Mill Building and forty-six (46) breathing zone samples collected from workers in the tailings impoundment.

The spreadsheet entitled Airborne Sampling Results attached to the Internal Occupational Exposure Assessment – Suspended Operations, details the airborne particulate (natural uranium, radium-226 and thorium-230) concentrations. It yields a total dose from exposure to natural uranium, radium-226 and thorium-230 of 71.5 millirems to the maximally exposed individual (the Mill Foreman) from work in both the Mill and tailings impoundment. This is well below the 10% threshold that triggers monitoring and dose calculation. This is an extremely conservative dose estimate The *Internal Occupational Exposure Assessment – Suspended Operations* document calculates a total dose from natural uranium, radium-226 and thorium-230 of 71.5 millirems.

This maximum possible exposure of 20.3 millirems to natural uranium from the Mill and tailings is 0.004 ALI, and is also below the intake limit of 10 milligrams/week for soluble natural uranium listed described in 20.1201(e) as per the calculation below:

(0.004 ALI/yr) * (5E-2 uCi/ALI) = 2.03 E-4 uCi/yr
(2.03 E-4 uCi/yr) * (1 E-6 pCi/uCi) / (677 pCi/mg) = 0.300 mg/yr total intake

This is well below the 10 milligram per week limit.

Based on the levels of airborne natural uranium, radium-226 and thorium-230 as demonstrated by the high volume air samples collected in the Mill Building, the level of natural uranium exhibited by the breathing zone samples collected in the Mill Building, and the levels of natural uranium, radium-226 and thorium-230 exhibited in the high volume air samples collected in the tailings impoundment and the limited time spent in the mill (230 hours), the tailings impoundment (1230 hours) 4 hours) by the Mill Foreman in 2007, it is unlikely that personnel would receive in one year an intake in excess of 10 percent of the applicable ALI for uranium (natural) in Table 1, Columns 1 and 2 of Appendix B therefore monitoring and dose calculation for uranium (natural) is not required. It is estimated that the total dose from natural uranium, radium-226 and thorium-230 does not exceed 71.5 millirems.

Conclusions:

1) Monitoring and calculation of external dose is not required at the Sweetwater Uranium Project since no personnel are likely to receive an external occupational dose in excess of 0.5 rem.

2) Monitoring and calculation of internal dose at the Sweetwater Uranium Project is not required because:
   a) Radon dose is calculated at 0.007 rem/yr.

3) The maximum possible total occupational dose to the maximally exposed individual on site, the Mill Foreman, is as follows:

a)	Estimated external dose:	0.114 rem/yr.
b)	Estimated internal dose (particulates)	0.072 rem/yr.
c)	Estimated internal dose (radon-222)	0.007 rem/yr.
	Total:	0.193 rem/yr.

These estimates are below 10% of the applicable limits that would trigger individual monitoring.

4) Tracking of external doses was done for all site personnel during 2007 using Luxel dosimeters. Due to the proven low dose rates at the facility, use of dosimeters is not required; however, it was done to confirm external exposure data from surveys. The highest annual dose received by any individual was eleven (11) millirems. This proves that the external dose estimate based upon surveys is conservative.

Oscar A. Paulson

Oscar A. Paulson

KENNECOTT URANIUM COMPANY

RADIATION DOSIMETRY RESULTS

Deep Dose — **2006**

EMPLOYEE TITLE		EMPLOYER	January	February	March	April	May	June	July	August	September	October	November	December
FACILITY SUPERVISOR	FS	KENNECOTT URANIUM COMPANY	M	M	M	M	M	M	M	M	M	M	M	M
MILL FOREMAN	MF	KENNECOTT URANIUM COMPANY	M	M	M	M	M	M	M	M	M	M	M	M
SR. FACILITY TECHNICIAN	FT	KENNECOTT URANIUM COMPANY	M	M	M	M	M	M	Lost	M	M	M	M	M
Administrative Coordinator	AC	KENNECOTT URANIUM COMPANY	M	M	M	M	M	M	M	M	M	M	M	M
CONTRACT EMPLOYEE														
TITLE		**EMPLOYER**												
Project Manager	PM #1	ARCHER CONSTRUCTION, INC.	M	M	M	M	M	M	M	M	M	M	M	M
Project Manager	PM #2	ARCHER CONSTRUCTION, INC.	M	M	M	M	M	M	M	M	M	M	M	M
Equipment Operator	EO# 1	ARCHER CONSTRUCTION, INC.	M	M	M	M	M	M	M	M	M	M	M	M
Equipment Operator	EO# 2	ARCHER CONSTRUCTION, INC.	M	M	M	M	M	M	M	M	M	M	M	M
Equipment Operator	EO# 3	ARCHER CONSTRUCTION, INC.	M	M	M									
Equipment Operator	EO# 4	ARCHER CONSTRUCTION, INC.	M	M	M	M	M							
Equipment Operator	EO# 5	ARCHER CONSTRUCTION, INC.	M	M	M									
Equipment Operator	EO# 6	ARCHER CONSTRUCTION, INC.				M	M	M	M	M	M	M		
Equipment Operator	EO# 7	ARCHER CONSTRUCTION, INC.				M	M	M	M	M	M	M	M	M
Equipment Operator	EO# 8	ARCHER CONSTRUCTION, INC.					M	M	M	M	M	M	M	M
Equipment Operator	EO# 9	ARCHER CONSTRUCTION, INC.								M	M	M	M	M
Equipment Operator	EO# 10	ARCHER CONSTRUCTION, INC.								M	M	M	M	M
Equipment Operator	EO# 11	ARCHER CONSTRUCTION, INC.								M	M	M	M	M
Equipment Operator	EO # 12	ARCHER CONSTRUCTION, INC.										M	M	M
Equipment Operator	EO # 13	ARCHER CONSTRUCTION, INC.											Visitor # 3	M
Equipment Operator	EO # 14	ARCHER CONSTRUCTION, INC.												M
Equipment Operator	EO # 15	ARCHER CONSTRUCTION, INC.	Visitor # 3											
Equipment Operator	EO # 16	ARCHER CONSTRUCTION, INC.												Visitor # 1
Equipment Operator		ARCHER CONSTRUCTION, INC.	Visitor # 2											
VISITOR						M	M	M	M	M	M	M	M	M
VISITOR # 1			M	M	M	M	M	M	M	M	M	M	M	M
VISITOR # 2			M	M	M	M								
VISITOR # 3			M	M	M			M	M	M	M	M	M	M
Surveyor	SURV	ROBERT JACK SMITH AND ASSOCIATES**	M	M	M	M	M	M	M	M	M	M	M	M

Notes: M = Minimal repoting service of 1 MREM

Below lower limit of detection (LLD)

No longer employed by contractor.

Not yet hired

Never worked on site

Please Note: This sheet shows Deep Dose only. The External Gamma Radiation Exposure Assessment in Appendix 5 includes shallow dose as well, which is why the maximum external annual dose on the Luxel dosimeters is listed as seven (7) millirems.

KENNECOTT URANIUM COMPANY

RADIATION DOSIMETRY RESULTS — 2007

DEEP DOSE

EMPLOYEE TITLE		Dosimeter Number	EMPLOYER	January	February	March	April	May	June	July	August	September	October	November	December	Total
FACILITY SUPERVISOR	FS	24	KENNECOTT URANIUM COMPANY	M	M	M	M	M	M	M	M	M	M	M	M	0
MILL FOREMAN	MF	26	KENNECOTT URANIUM COMPANY	M	M	lost	M	M	M	M	M	M	M	M	M	0
SR. FACILITY TECHNICIAN	FT	27	KENNECOTT URANIUM COMPANY	M	M	M	M	M	M	M	M	M	2	M	M	2
ADMINISTRATIVE COORDINATOR	AC	25	KENNECOTT URANIUM COMPANY	M	M	M	M	M	M	M	M	M	M	M	M	0
DATA ENTRY	DATA - 2	63	ADECCO							M	M	M	M	M	M	0
DATA ENTRY	DATA - 1	53	ADECCO				M	M	M	M						0
CONTRACT EMPLOYEE																
TITLE			**EMPLOYER**													
Project Manager	PM #1	29	ARCHER CONSTRUCTION, INC.	M	M	28	M	M	M	3	M	M	4	M	M	35
Project Manager	PM #2	31	ARCHER CONSTRUCTION, INC.	M	M	M	M	M	M	M	M	M	M	M	M	0
Supervisor	SPV #1	51	ARCHER CONSTRUCTION, INC.			M	M	M	M	M	M	M	1	M	M	1
Equipment Operator	EO# 1	30	ARCHER CONSTRUCTION, INC.	M	M	M	M	M	M	M	M	1	4			5
Equipment Operator	EO# 2	32	ARCHER CONSTRUCTION, INC.	M	M	M	M	M								0
Equipment Operator	EO# 3	38	ARCHER CONSTRUCTION, INC.	M	M	M	M	M	M	3	2	M	6	M	M	11
Equipment Operator	EO# 4	37	ARCHER CONSTRUCTION, INC.	M	M	32	M	M								32
Equipment Operator	EO# 5	40	ARCHER CONSTRUCTION, INC.	M	M	M	M	M	M	M	M	M	5			5
Equipment Operator	EO# 6	39	ARCHER CONSTRUCTION, INC.	M	M	M	M	M	M	M	M	M	8	M	M	8
Equipment Operator	EO# 7	41	ARCHER CONSTRUCTION, INC.	M	M											0
Equipment Operator	EO# 8	43	ARCHER CONSTRUCTION, INC.	M	M											0
Equipment Operator	EO# 9	44	ARCHER CONSTRUCTION, INC.	M	M	M	M	3	M	M	M	2	4	M	M	9
Equipment Operator	EO# 10	45	ARCHER CONSTRUCTION, INC.	visitor # 1	M	2	M	M								2
Equipment Operator	EO# 11	46	ARCHER CONSTRUCTION, INC.	visitor	M	M	M	M	M							0
Equipment Operator	EO# 13	52	ARCHER CONSTRUCTION, INC.		visitor # 1	M	M	M								0
Equipment Operator	EO# 14	48	ARCHER CONSTRUCTION, INC.		M	M	M	M	M	2	M	M	3	M	1	6
Equipment Operator	EO# 15	54	ARCHER CONSTRUCTION, INC.			M	M	M	M	1	M	M	7	M	M	8
Equipment Operator	EO# 16	57	ARCHER CONSTRUCTION, INC.				visitor # 1	M								0
Equipment Operator	EO# 18	58	ARCHER CONSTRUCTION, INC.					1	M	M	M					1
Equipment Operator	EO# 19	60	ARCHER CONSTRUCTION, INC.					visitor # 1	M	2	M	M	4		2	8
Equipment Operator	EO# 20	59	ARCHER CONSTRUCTION, INC.						M	M	M	M				0
Equipment Operator	EO# 21	61	ARCHER CONSTRUCTION, INC.						M	3	M	M	3	M	M	6
Equipment Operator	EO# 22	62	ARCHER CONSTRUCTION, INC.						M	M	M	M	M	M	M	0
Equipment Operator	EO# 23	64	ARCHER CONSTRUCTION, INC.							visitor # 3	M	M	5	M	M	5
Equipment Operator	EO# 25	73	ARCHER CONSTRUCTION, INC.										M	M	1	1
Equipment Operator	EO# 26	65	ARCHER CONSTRUCTION, INC.							visitor # 1	M	1	5	M	2	8
Mechanic	MEC #1	74	ARCHER CONSTRUCTION, INC.											M	M	0
Equipment Operator	EO# 27	Not yet issued	ARCHER CONSTRUCTION, INC.													0
Equipment Operator	EO# 28	Not yet issued	ARCHER CONSTRUCTION, INC.													0
VISITOR		35		M	M	M	M	M	M	3	M	M	M	M	1	4
VISITOR # 1		36		M	M	M	M	M	M	2	M	M	M	M	lost	2
VISITOR # 3		33		M	M	M	1	M	M	M	M	M	8	M	M	9
Consultant	CON #1	66	*5 LYNTEK, INC.									M	M			0
Consultant	CON #2	68	*5 LYNTEK, INC.									M	M			0
Consultant	CON #3	67	*5 LYNTEK, INC.									M	M			0
Consultant	CON #4	71	*5 LYNTEK, INC.									M	M			0
Consultant	CON #5	72	*5 LYNTEK, INC.									M	M			0
Consultant	CON #6	70	*5 LYNTEK, INC.									M	M			0
Consultant	CON #7	69	*5 LYNTEK, INC.									M	M			0
	CON #8		LYNTEK, INC. ****												Visitor	
	CON #9		LYNTEK, INC. ****												Visitor #3	
Surveyor	SURV	28	ROBERT JACK SMITH & ASSOC.**	M	M	M	M	M	M	M	M	M	7	M	M	7
Security	SEC #1	49	SECURITAS	M	M	M	M	M	M	25	M	M	M	M	M	25
Security	SEC #2	50	SECURITAS	M	M	M	M	M	M	40	M	M	M	M	M	40

Notes: M = Minimal repoting service of 1 MREM

No longer employed by contractor.

Not on site during month

Not yet hired

Lost dosimeter

*5 Worked onsite from September 24 to September 30, 2007. Issued dosimeters for the month of October, 2007.

October 2007 dosimeters for LynTek, Inc. personnel arrived prior to September 24, 2007 and were used for work done in September, 2007.

EO# 16 Worked on site less than one (1) day - April 24, 2007

Did not work in restricted area

Dosimeter lost/Dose estimated by Landauer, Inc.

Archer Construction, Inc. employee EO#17 did not work in the restricted area hence is not listed.

Archer Construction, Inc. employee EO#27 did not work in the restricted area hence were not yet issued a dosimeter.

Archer Construction, Inc. employee EO#28 did not work in the restricted area hence were not yet issued a dosimeter.

Employees listed by number to preserve confidentiality

Note: PM # 1 (March 2007), EO # 4 (March 2007), SEC # 1 (July 2007) and SEC # 2 (July 2007) lost their dosimeters.

The dosimeters were later found and sent without controls so the background dose was not subtracted, thus the deep dose includes background which is why it is elevated.

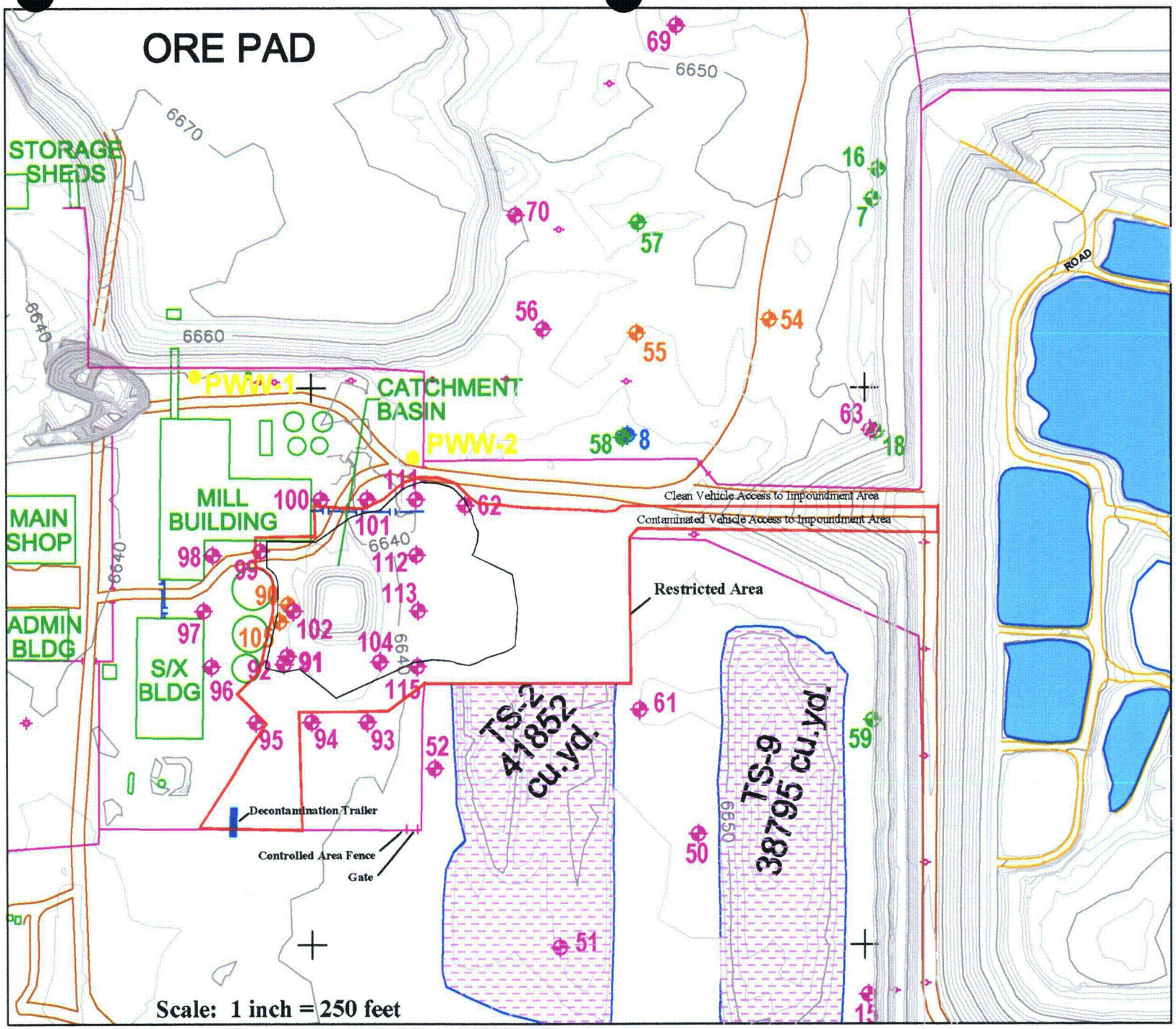
OAP

Workers new to the site were issued a visitor dosimeter until their assigned/permanent dosimeter arrived from Landauer, Inc.

B:\dosimetry 2007.xls

All exposures are less than 10% of the limits in 10 CFR 20.1502 and as such monitoring and reporting of doses is not required.

This individual tracking of doses using dosimeters exchanged on a monthly basis is being performed to insure that external doses are indeed being maintained ALARA



Catchment Basin Excavation - Restricted Area Map

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

7 February 2007

To: NRC File

Subject: Compliance with 10 Mrem Constraint Limit for 2006

The following pertains to the dose to a member of the general public from the Sweetwater Uranium Project:

- The mill is not operating so there are no emissions from any stacks.
- The only air emissions excluding radon and its progeny are particulate radionuclides from the tailings impoundment.

The following applies to these particulate emissions:

1. These emissions are monitored at Station 4A by a continuous lo-vol system.

2. The radionuclide concentrations and doses encountered at this location are as follows:

U - nat: 1.30 E-16 uCi/L	0.072 mrem/yr
Ra-226:1.00 E -16 uCi/L	0.006 mrem/yr
Th-230: 1.00 E -16 uCi/L	0.167 mrem/yr
Total:	**0.245 mrem/yr**

3. Background levels for the site are as follows:

U-nat:	6.2 E -16 uCi/L	0.34 mrem/yr
Ra-226:	3.9 E -16 uCi/L	0.22 mrem/yr
Th-230:	3.9 E -16 uCi/L	0.65 mrem/yr
Total:		**1.21 mrem/yr**

Conclusions:

- The 2006 dose from airborne particulate radionuclides was at background levels. The 10 mrem per year constraint limit was not exceeded.

Oscar A Paulson
Oscar Paulson

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

REVISED 25 March 2008

To: **NRC File**

Subject: **Compliance with 10 Mrem Constraint Limit for 2007**

The following pertains to the dose to a member of the general public from the Sweetwater Uranium Project:

- The mill is not operating so there are no emissions from any stacks.
- The only air emissions excluding radon and its progeny are particulate radionuclides from the tailings impoundment.

The following applies to these particulate emissions:

1. These emissions are monitored at Station 4A by a continuous low-volume system.

2. The radionuclide concentrations and doses encountered at this location are as follows:

U - nat: 1.00 E-16 uCi/L	0.056 mrem/yr
Ra-226:1.00 E -16 uCi/L	0.006 mrem/yr
Th-230: 1.02 E -16 uCi/L	0.170 mrem/yr
Total:	**0.232 mrem/yr**

3. Background levels for the site are as follows:

U-nat:	6.2 E -16 uCi/L	0.34 mrem/yr
Ra-226:	3.9 E -16 uCi/L	0.22 mrem/yr
Th-230:	3.9 E-16 uCi/L	0.65 mrem/yr
Total:		**1.21 mrem/yr**

Conclusions:

- The 2007 dose from airborne particulate radionuclides was at background levels. The 10 mrem per year constraint limit was not exceeded.

Oscar A Paulson
Oscar Paulson

Rio Tinto Energy America
Kennecott Uranium Company
PO Box 1500, 42 Miles NW of Rawlins
Rawlins, Wyoming 82301-1500
Tel: (307) 324-4924 Fax: (307) 324-4925

22 February 2007

Mr. Keith 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
Rockville, MD 20852-2738

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 second half of 2006 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 second half of 2006 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,

Oscar A Paulson

Oscar Paulson
Facility Supervisor

cc: Stephen J. Cohen, Project Manager
Director - USNRC DRSS, Region IV (w/o enc.)
John Lucas – Rio Tinto Energy America

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

2006
RadTrak Radon Monitor
(pCi/L)

DATE	LOCATION	RADIONUCLIDE	CONCENTRATION	STD DEVIATION/ STD COUNTING ERROR	LOWER LIMIT OF DETECTION (LLD)	
				%	pCi/L-Days	pCi/L
1/1/06 – 4/3/06	Downwind - Air 4A	Radon	2.4 pCi/L	4.9	6.0	0.06
1/1/06 – 4/3/06	Upwind - Air 2	Radon	2.6 pCi/L	4.7	6.0	0.06
4/3/06 – 7/5/06	Downwind - Air 4A	Radon	2.5 pCi/L	4.6	6.0	0.06
4/3/06 – 7/5/06	Upwind - Air 2	Radon	4.6 pCi/L	3.6	6.0	0.06
7/5/06 – 10/2/06	Downwind - Air 4A	Radon	3.1 pCi/L	4.5	6.0	0.06
7/5/06 – 10/2/06	Upwind - Air 2	Radon	3.6 pCi/L	4.2	6.0	0.06
10/2/06 – 1/2/07	Downwind - Air 4A	Radon	2.6 pCi/L	4.7	6.0	0.06
10/2/06 – 1/2/07	Upwind - Air 2	Radon	3.5 pCi/L	4.1	6.0	0.06

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

2006
DIRECT RADIATION MEASUREMENTS
(TLD)

Location	Date	Exposure Rate (mr/Qtr)	Error Estimated	Lower Limit of Detection (LLD) Millirems
TLD				
0000 - Control	1/1/06 – 4/2/06	28	0.7 mr	10^{1}
0004 - Air 4A	1/1/06 – 4/2/06	40	2.3 mr	10^{1}
TLD				
0000 - Control	4/2/06 – 7/2/06	32	1.6 mr	10^{1}
0004 - Air 4A	4/2/06 – 7/2/06	42	1.1 mr	10^{1}
TLD				
0000 - Control	7/2/06 – 10/8/06	37	1.6 mr	10^{1}
0004 - Air 4A	7/2/06 – 10/8/06	47	0.8 mr	10^{1}
TLD				
0000 - Control	10/8/06 – 1/2/07	22	0.8 mr	10^{1}
0004 - Air 4A	10/8/06 – 1/2/07	34	2.4 mr	10^{1}

[1] Please see the following copy of a letter from ThermoNUtech on Lower Limits of Detection (LLD).

Thermo NUtech
5635 Jefferson Street NE
Albuquerque, NM 87109
(505) 345-9931 • FAX (505) 761-5410

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	^{137}Cs	6	11	16	22
X-ray	mixed beam	6	11	16	22
hard beta	^{90}Sr/Y	8	13	18	26
soft beta	^{204}Tl	36	63	89	126
slow neutron	^{252}Cf mod.	5	8	11	16
fast neutron	^{252}Cf unmod.	43	74	105	148

*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.

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

CONTINUOUS LOW-VOLUME AIR PARTICULATE ANALYSIS

STATION 4A – 2006

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/ml	Error Estimate µCi/ml	LLD µCi/ml	Effluent Conc.* pCi/ml	% Effluent Concentration
1st Quarter	U-nat	<1.00 E-16	N/A	1.00 E-16	9.00 E-14	<1.11 E-01
1/1/06 – 4/3/06	Th-230	<1.00 E-16	N/A	1.00 E-16	3.00 E-14	<3.33 E-01
Air Vol in mLs	Ra-226	<1.00 E-16	N/A	1.00 E-16	9.00 E-13	<1.11 E-02
5.16 E+10	Pb-210	1.41 E-14	3.24 E-16	2.00 E-15	6.00 E-13	2.34 E+00
2nd Quarter	U-nat	1.37 E-16	N/A	1.00 E-16	9.00 E-14	1.53 E-01
4/3/06–7/2/06	Th-230	<1.00 E-16	N/A	1.00 E-16	3.00 E-14	<3.33 E-01
Air Vol in mLs	Ra-226	<1.00 E-16	N/A	1.00 E-16	9.00 E-13	<1.11 E-02
4.59 E+10	Pb-210	1.33 E-14	4.53 E-16	2.00 E-15	6.00 E-13	2.21 E+00
3rd Quarter	U-nat	1.14 E-16	N/A	1.00 E-16	9.00 E-14	1.26 E-01
7/2/06 – 10/2/06	Th-230	<1.00 E-16	N/A	1.00 E-16	3.00 E-14	<3.33 E-01
Air Vol in mLs	Ra-226	<1.00 E-16	N/A	1.00 E-16	9.00 E-13	<1.11 E-02
4.40 E+10	Pb-210	2.41 E-14	4.09 E-16	2.00 E-15	6.00 E-13	4.02 E+00
4th Quarter	U-nat	1.70 E-16	N/A	1.00 E-16	9.00 E-14	1.89 E-01
10/2/06 – 1/2/07	Th-230	<1.00 E-16	N/A	1.00 E-16	3.00 E-14	<3.33 E-01
Air Vol in mLs	Ra-226	<1.00 E-16	N/A	1.00 E-16	9.00 E-13	<1.11 E-02
3.35 E+10	Pb-210	2.30 E-14	6.66 E-16	2.00 E-15	6.00 E-13	3.83 E+00

LLD's are as published in Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Year for Thorium-230
Week for Radium-226
Day for Lead-210

RIO TINTO
ENERGY AMERICA

Memorandum

Oscar Paulson
Facility Supervisor
Kennecott Uranium Company

22 February 2007

To: File – 10 CFR 40.65 Report

Subject: Dose to the General Public in Millirems per Year as Represented by the Nearest Resident – Second Half 2006

The following is a dose calculation for the nearest resident (the contract security guard) for the second half of 2006.

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 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 thermo- luminescent 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.
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	3.6 pCi/l	342.1
Total			**544.01**

Notes:

1. An equilibrium factor of 0.216 was used for radon based on twenty (20) 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 background radon concentration at the upwind air station (Air 2) for the period was used to calculate background radon dose.
4. Calculation: (Radon concentration (pCi/l))*(Equilibrium factor)*(0.44 rems/pCi/l) = Dose (rems)

SECURITY TRAILER

		Average Concentration	Dose (mrem)
Gamma Exposure:			162.00
Airborne Particulates:			
	U nat	1.42 E-16 µCi/ml	0.08
	Ra-226	1.00 E-16 µCi/ml	0.01
	Th-230	1.00 E-16 µCi/ml	0.17
Gases:			
	Radon-222	2.13 pCi/l	202.4
Total			**364.66**

Notes:

1. An equilibrium factor of 0.216 was used for radon based on twenty (20) comparisons of radon-222 and radon-222 daughter concentrations over 14 years.
2. Downwind airborne particulate concentrations and gamma doses for the third and fourth quarters of 2006 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 2006 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 third and fourth quarters of 2006, converted to an annual dose rate.

The net (dose to the nearest resident minus background dose) annual TEDE from the licensed operations for the second half of 2006 is **0** mrem/year which is below the 100 mrem/year dose limit to members of the general public.

Oscar A Paulson

Oscar Paulson
Avg dose.doc

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

Date	Radon Concentration (pCi/L)	Exposure (WL)	Equilibrium Factor
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[1]	0.012	0.33
7/1/01 – 12/31/01	2.78	0.013[2]	0.47
1/1/02 – 6/30/02	2.48	0.009[2]	0.34
7/1/02 – 12/31/02	2.80	0.003[2]	0.11
1/1/03 – 6/30/03	2.40	0.004[2]	0.17
7/1/03 – 12/31/03	3.75[3]	0.006[2]	0.16
1/1/04 – 6/30/04	2.08	0.003[2]	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
Average			**0.216**

[1] This value is based upon an average of three (3) RadTrak detectors. The second quarter RadTrak detector in the Security Trailer bedroom was lost.
[2] Average of two (2) measurements
[3] 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 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: Equilibrium Factor = Exposure (WL) * 100 / Concentration (pCi/L)

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

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

REVISED 25 March 2008
20 February 2008

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 second 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 second 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,

Oscar A 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	Downwind - Air 4A	Radon	2.0 pCi/L	5.5	6.0	0.06
1/2/07 – 4/2/07	Upwind - Air 2	Radon	16.9 pCi/L [1]	2.1	6.0	0.06
4/2/07 – 7/3/07	Downwind - Air 4A	Radon	2.9 pCi/L	4.7	6.0	0.06
4/2/07 – 7/3/07	Upwind - Air 2	Radon	--- pCi/L Damaged [1]	N/A	6.0	0.06
7/3/07 – 10/3/07	Downwind - Air 4A	Radon	3.7 pCi/L	4.2	6.0	0.06
7/3/07 – 10/3/07	Upwind - Air 2	Radon	3.9 pCi/L	4.1	6.0	0.06
10/3/07 – 1/2/08	Downwind - Air 4A	Radon	3.2 pCi/L	4.4	6.0	0.06
10/3/07 – 1/2/08	Upwind - Air 2	Radon	3.4 pCi/L	4.2	6.0	0.06

[1] Please see attached information entitled "Upwind RadTrak Radon Monitoring".

Upwind Radtrak Radon Monitoring Station

April 2, 2007

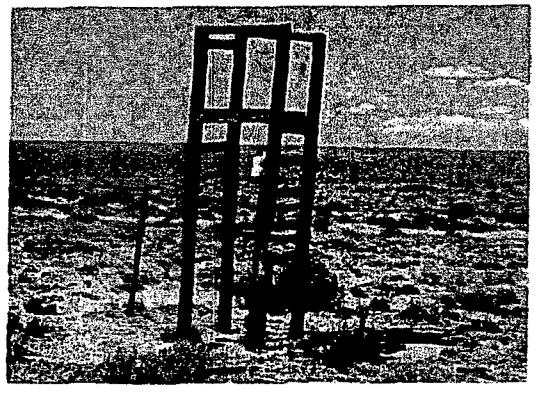
On April 2, 2007 when retrieving the first quarter upwind RadTrak radon monitor at the upwind air monitoring station (Air 2) it was discovered that the steel fence post on which the radon detector was mounted was knocked down. The detector was intact and sent to Landauer, Inc. for reading. The first 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
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Fax: (307)-324-4925
Cellular: (307)-320-8758

E-mail: paulson@tribcsp.com

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

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E-mail: oscar.paulson@riotinto.com

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.

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E-mail: oscar.paulson@riotinto.com

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

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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
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

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7/30/2007

Kennecott Uranium Company - Sweetwater Uranium Facility

UPWIND RADON DATA
RADTRAK DATA ONLY
AIR 2 MONITORING STATION

	START DATE	END DATE	DETECTOR TYPE	STATION AIR 2 pCi/L	AIR 2 Averages pCi/L	AIR 2 Averages - For First Quarters pCi/L	AIR 2 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

	START DATE	END DATE	DETECTOR TYPE	STATION AIR 2 pCi/L	AIR 2 Averages pCi/L	AIR 2 Averages - For First Quarters pCi/L	AIR 2 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

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

	START DATE	END DATE	DETECTOR TYPE	STATION AIR 2 pCi/L	AIR 2 Averages pCi/L	AIR 2 Averages - For First Quarters pCi/L	AIR 2 Averages - For Second Quarters pCi/L
	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

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

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

Location	Date	Exposure Rate (mr/Qtr)	Error Estimated	Lower Limit of Detection (LLD) Millirems
TLD				
0000 - Control	1/2/07 – 4/2/07	25	0.8 mr	10^{1}
0004 - Air 4A	1/2/07 – 4/2/07	34	1.1 mr	10^{1}
TLD				
0000 - Control	4/2/07 – 7/2/07	22	1.8 mr	10^{1}
0004 - Air 4A	4/2/07 – 7/2/07	34	1.7 mr	10^{1}
TLD				
0000 - Control	7/2/07 – 10/3/07	23	1.0 mr	10^{1}
0004 - Air 4A	7/2/07 – 10/3/07	32	2.3 mr	10^{1}
TLD				
0000 - Control	10/3/07 – 1/2/08	30	2.4 mr	10^{1}
0004 - Air 4A	10/3/07 – 1/2/08	42	0.9 mr	10^{1}

[1] Please see the following copy of a letter from ThermoNUtech on Lower Limits of Detection (LLDs).

Thermo NUtech
5635 Jefferson Street N
Albuquerque, NM 8710
(505) 345-8531 • FAX (505) 761-5416

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	^{137}Cs	6	11	16	22
X-ray	mixed beam	6	11	16	22
hard beta	$^{90}Sr/Y$	8	13	18	26
soft beta	^{204}Tl	36	63	89	125
slow neutron	^{252}Cf mod.	5	8	11	16
fast neutron	^{252}Cf unmod.	43	74	105	148

*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.

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

CONTINUOUS LOW-VOLUME AIR PARTICULATE ANALYSIS

STATION 4A – 2007

Quarter/Date Sampled Air Volume	Radionuclide	Concentration µCi/ml	Error Estimate µCi/ml	LLD µCi/ml	Effluent Conc.* pCi/ml	% Effluent Concentration
1st Quarter	U-nat	<1.00 E-16	N/A	1.00 E-16	9.00 E-14	<1.11 E-01
1/2/07 – 4/2/07	Th-230	<1.00 E-16	N/A	1.00 E-16	3.00 E-14	<3.33 E-01
Air Vol in mLs	Ra-226	<1.00 E-16	N/A	1.00 E-16	9.00 E-13	<1.11 E-02
3.56 E+10	Pb-210	1.81 E-14	3.31 E-16	2.00 E-15	6.00 E-13	3.01 E+00
2nd Quarter	U-nat	<1.00 E-16	N/A	1.00 E-16	9.00 E-14	<1.11 E-01
4/2/07–7/2/07	Th-230	<1.00 E-16	N/A	1.00 E-16	3.00 E-14	<3.33 E-01
Air Vol in mLs	Ra-226	<1.00 E-16	N/A	1.00 E-16	9.00 E-13	<1.11 E-02
4.21 E+10	Pb-210	2.29 E-14	5.39 E-16	2.00 E-15	6.00 E-13	3.81 E+00
3rd Quarter	U-nat	<1.00 E-16	N/A	1.00 E-16	9.00 E-14	<1.11 E-01
7/2/07 – 10/1/07	Th-230	<1.00 E-16	N/A	1.00 E-16	3.00 E-14	<3.33 E-01
Air Vol in mLs	Ra-226	<1.00 E-16	N/A	1.00 E-16	9.00 E-13	<1.11 E-02
4.94 E+10	Pb-210	1.59 E-14	4.03 E-16	2.00 E-15	6.00 E-13	2.65 E+00
4th Quarter	U-nat	<1.00 E-16	N/A	1.00 E-16	9.00 E-14	<1.11 E-01
10/1/07 – 1/2/08	Th-230	1.08 E-16	3.21 E-17	1.00 E-16	3.00 E-14	3.85 E-01
Air Vol in mLs	Ra-226	<1.00 E-16	N/A	1.00 E-16	9.00 E-13	<1.11 E-02
4.68 E+10	Pb-210	2.07 E-14	5.65 E-16	2.00 E-15	6.00 E-13	3.44 E+00

LLD's are as published in Reg. Guide 4.14
*Effluent Concentration from the NEW 10 CFR Part 20 - Appendix B - Table 2
Year for Natural Uranium
Year for Thorium-230
Week for Radium-226
Day for Lead-210

RIO TINTO
ENERGY AMERICA

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 – Second Half 2007

The following is a dose calculation for the nearest resident (the contract security guard) for the second 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 thermo-luminescent 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	3.65 pCi/l	316.4
Total		**518.3**

Notes:

1. An equilibrium factor of 0.197 was used for radon based on twenty-two (22) 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. Calculation: Radon concentration (pCi/l))*(Equilibrium factor)*(0.44 rems/pCi/l) = Dose (rems)

SECURITY TRAILER

	Average Concentration	Dose (mrem)
Gamma Exposure:		148.00
Airborne Particulates:		
U nat	1.00 E-16 µCi/ml	0.06
Ra-226	1.00 E-16 µCi/ml	0.01
Th-230	1.08 E-16 µCi/ml	0.18
Gases:		
Radon-222	2.10 pCi/l	182.0
Total		**330.3**

Notes:

1. An equilibrium factor of 0.197 was used for radon based on twenty-two (22) comparisons of radon-222 and radon-222 daughter concentrations over 14 years.
2. Downwind airborne particulate concentrations and gamma doses for the third and fourth 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, second, third and

fourth quarters of 2007 and is based on an average of RadTrak units located in two (2) locations; the kitchen and the bedroom. Radon concentrations in the Security Trailer for the fourth quarter of 2007 are based on a unit located in a single location (the bedroom). The unit placed in the kitchen for the fourth quarter of 2007 was lost.

4. The gamma dose rate is based upon the TLD dosimeters for the third and fourth 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 A Paulson

Oscar Paulson
Avg dose.doc

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

Date	Radon Concentration (pCi/L)	Exposure (WL)	Equilibrium Factor
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[1]	0.012	0.33
7/1/01 – 12/31/01	2.78	0.013[2]	0.47
1/1/02 – 6/30/02	2.48	0.009[2]	0.34
7/1/02 – 12/31/02	2.80	0.003[2]	0.11
1/1/03 – 6/30/03	2.40	0.004[2]	0.17
7/1/03 – 12/31/03	3.75[3]	0.006[2]	0.16
1/1/04 – 6/30/04	2.08	0.003[2]	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
6/30/07 – 12/31/07	2.10[4]	0.0001	0.005
Average			**0.197**

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

[2] Average of two (2) measurements

[3] Fourth quarter 2003 concentration only. Landauer, Inc. lost the third quarter 2003 RadTrak units.

[4] This value is based upon an average of three (3) RadTrak detectors. The fourth quarter RadTrak detector in the Security Trailer kitchen was lost.

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, unless otherwise noted.

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: Equilibrium Factor = Exposure (WL) * 100 / Concentration (pCi/L)

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

Kennecott Uranium Company			
Sweetwater Uranium Project			
Catchment Basin Area Gamma Survey			
Date:	18-Nov-03	**Rate meter:**	Ludlum Model 12S
Time:		**Serial Number:**	11816
		Calibration Date:	28-Oct-03
Check Source:	Cs-137	**Probe:**	
		Serial Number:	
Serial Number:	2304	**Calibration Date:**	
Counts:	240	**Background:**	
Location		**Reading**	
Catchment Basin			
	1	50.0	microR/hour
	2	40.0	microR/hour
	3	35.0	microR/hour
	4	60.0	microR/hour
	5	40.0	microR/hour
	6	50.0	microR/hour
	7	30.0	microR/hour
	8	40.0	microR/hour
	9	40.0	microR/hour
	10	30.0	microR/hour
	11	50.0	microR/hour
	12	60.0	microR/hour
	13	35.0	microR/hour
	14	30.0	microR/hour
	15	35.0	microR/hour
	16	40.0	microR/hour
	17	40.0	microR/hour
	18	55.0	microR/hour
	19	40.0	microR/hour
	20	40.0	microR/hour
	21	40.0	microR/hour
	22	60.0	microR/hour
	23	27.0	microR/hour
	24	30.0	microR/hour
	Average:	41.5	
	Standard Deviation:	9.8	
	Median:	40.0	
	Maximum:	60.0	
	Minimum:	27.0	
Tailings Monitor Wells #:			
	90	65.0	microR/hour
	91	30.0	microR/hour
	92	30.0	microR/hour
	93	40.0	microR/hour
	94	27.0	microR/hour
	95	22.0	microR/hour
	96	24.0	microR/hour
	97	30.0	microR/hour
	98	45.0	microR/hour
	99	40.0	microR/hour
	100	35.0	microR/hour
	101	40.0	microR/hour
	102	75.0	microR/hour
	103	45.0	microR/hour
	104	50.0	microR/hour
	111	50.0	microR/hour
	112	35.0	microR/hour
	113	30.0	microR/hour
	114	30.0	microR/hour
	115	40.0	microR/hour
	Average:	39.2	
	Standard Deviation:	13.0	
	Median:	37.5	
	Maximum:	75.0	
	Minimum:	22.0	

Kennecott Uranium Company

Sweetwater Uranium Project

Catchment Basin Area Gamma Survey

Date:	20-Apr-06	**Rate meter:**	Ludlum Model 2350-1
Time:		**Serial Number:**	192613
		Calibration Date:	13-Feb-06
Check Source:	Cs-137	**Probe:**	Ludlum Model: 44-10
		Serial Number:	PR-206932
Serial Number:	2304	**Calibration Date:**	12-Feb-06
Counts:	275 microR/hour	**Background:**	21.6 microR/hour

Location		Reading	
West End/South Wall/Upper Bench			
	West end	37.7	microR/hour
		40.1	microR/hour
		45.0	microR/hour
		45.4	microR/hour
		46.5	microR/hour
		41.7	microR/hour
		35.1	microR/hour
		40.9	microR/hour
		42.8	microR/hour
		37.7	microR/hour
		40.0	microR/hour
		40.4	microR/hour
		39.3	microR/hour
		37.1	microR/hour
		45.9	microR/hour
		48.1	microR/hour
		46.1	microR/hour
		62.7	microR/hour
		47.3	microR/hour
	End at Stop sign	71.2	microR/hour
East End Lower South Bench			
	Start at Stop sign	69.7	microR/hour
		46.5	microR/hour
		51.9	microR/hour
		44.6	microR/hour
		38.6	microR/hour
		42.3	microR/hour
		33.3	microR/hour
		37.4	microR/hour
		40.5	microR/hour
		36.9	microR/hour
		40.5	microR/hour
		33.1	microR/hour
		38.9	microR/hour
	West end	40.5	microR/hour
West End Lower Bench			
	Start at South end	32.5	microR/hour
		34.7	microR/hour
		36.7	microR/hour
		42.1	microR/hour
	At TMW-112	45.8	microR/hour
		52.4	microR/hour
Stopped 100' south of gate due to equipment			
Excavation Center/Lower Bench			
	West end	46.2	microR/hour
		47.4	microR/hour
		43.0	microR/hour
		43.4	microR/hour
		33.2	microR/hour
		55.0	microR/hour
		119.0	microR/hour
		35.0	microR/hour

Location		Reading	
		52.3	microR/hour
		52.8	microR/hour
	Middle of road by Stop sign	61.2	microR/hour
Lower Bench/North Side E to W			
	Stop sign	54.9	microR/hour
		54.8	microR/hour
		43.8	microR/hour
		55.5	microR/hour
		73.5	microR/hour
		75.4	microR/hour
		53.4	microR/hour
		92.0	microR/hour
		56.4	microR/hour
	Stop at TMW-62	48.9	microR/hour
North Side/Upper Bench/East to West			
		47.8	microR/hour
		57.0	microR/hour
		58.9	microR/hour
		42.8	microR/hour
		47.4	microR/hour
		60.6	microR/hour
		64.7	microR/hour
		42.6	microR/hour
		44.1	microR/hour
		40.6	microR/hour
		30.9	microR/hour
	TMW-62	30.5	microR/hour
		33.5	microR/hour
		41.6	microR/hour
	Trackhoe/West end	45.7	microR/hour
Upper Bench/West End			
	North end	70.1	microR/hour
		59.4	microR/hour
	Fire hydrant	59.3	microR/hour
	Corner Mill building	108.0	microR/hour
		38.9	microR/hour
		127.0	microR/hour
		47.3	microR/hour
	Pipe to Catchment Basin	58.8	microR/hour
		104.0	microR/hour
		53.6	microR/hour
		50.5	microR/hour
		50.4	microR/hour
		82.0	microR/hour
		68.2	microR/hour
	South end by entry road	38.5	microR/hour
South to North Section thru Center Catchment Basin			
	South end excavation	42.4	microR/hour
		39.6	microR/hour
		39.5	microR/hour
		44.3	microR/hour
		29.9	microR/hour
		41.9	microR/hour
		40.2	microR/hour
	North edge basin	96.7	microR/hour
		41.4	microR/hour
		57.0	microR/hour
	North bench/Highwall	40.8	microR/hour
	Average:	50.4	
	Standard Deviation:	18.0	
	Median:	45.2	
	Maximum:	127.0	
	Minimum:	29.9	

Kennecott Uranium Company			
Sweetwater Uranium Project			
Catchment Basin Area Gamma Survey			
Date:	16-May-06	**Rate meter:**	Ludlum Model 2350-1
Time:		**Serial Number:**	192613
		Calibration Date:	13-Feb-06
Check Source:	Cs-137	**Probe:**	Ludlum Model: 44-10
		Serial Number:	PR-206932
Serial Number:	2304	**Calibration Date:**	12-Feb-06
Counts:	273 microR/hour	**Background:**	19.3 microR/hour
Location		**Reading**	
West Face/Tank Slab ±10' below surface, South to North			
	South end	54.6	microR/hour
		53.6	microR/hour
		72.8	microR/hour
		86.7	microR/hour
		87.1	microR/hour
		157.0	microR/hour
	South SX drain	229.0	microR/hour
	SX Drain	298.0	microR/hour
	North SX Drain	262.0	microR/hour
	(West TMW 90/102)		
		256.0	microR/hour
		268.0	microR/hour
		148.0	microR/hour
		83.7	microR/hour
		50.7	microR/hour
		43.2	microR/hour
		37.6	microR/hour
	North end	36.5	microR/hour
North Wall at Southeast Corner Mill			
	Heading West	42.8	microR/hour
		32.6	microR/hour
		33.3	microR/hour
		47.5	microR/hour
		34.8	microR/hour
	Near TMW-99	34.9	microR/hour
North South Line thru TMW-90 & TMW-91			
	North end by Mill	36.6	microR/hour
		36.7	microR/hour
		98.0	microR/hour
		164.0	microR/hour
	TMW-90	129.0	microR/hour
		132.0	microR/hour
		148.0	microR/hour
		91.0	microR/hour
		77.9	microR/hour
	TMW-91	62.5	microR/hour
	TMW-92	41.5	microR/hour
		37.3	microR/hour
		36.6	microR/hour
		36.0	microR/hour
	South end line	33.3	microR/hour
South Wall/20' below Surface @ Old Fence Line/TMW-113			
	East end	33.7	microR/hour
		36.2	microR/hour
		36.1	microR/hour

Location		Reading	
		31.3	microR/hour
		53.9	microR/hour
		59.2	microR/hour
		46.9	microR/hour
	West end	45.9	microR/hour
West wall/South end		45.2	microR/hour
		53.0	microR/hour
		52.0	microR/hour
		59.2	microR/hour
		55.9	microR/hour
		63.5	microR/hour
		147.0	microR/hour
		266.0	microR/hour
		292.0	microR/hour
		281.0	microR/hour
		247.0	microR/hour
		153.0	microR/hour
Southeast Corner Mill		94.0	microR/hour
North Wall West to East			
Southeast Corner Mill		53.1	microR/hour
		51.8	microR/hour
		58.1	microR/hour
		65.4	microR/hour
		36.7	microR/hour
		45.9	microR/hour
		50.6	microR/hour
		48.8	microR/hour
		53.7	microR/hour
		55.2	microR/hour
		46.1	microR/hour
		56.5	microR/hour
		44.0	microR/hour
	TMW-111	35.5	microR/hour
TMW-112 East to West			
	TMW-112	43.3	microR/hour
		48.1	microR/hour
		72.9	microR/hour
		124.0	
		76.5	microR/hour
		63.2	microR/hour
		65.8	microR/hour
		79.8	microR/hour
	Wall	115.0	microR/hour
TMW-113 East to West			
	TMW-113	33.7	microR/hour
		35.4	microR/hour
		36.0	microR/hour
		40.7	microR/hour
		59.2	microR/hour
		42.5	microR/hour
		45.6	microR/hour
	West wall	56.1	microR/hour
	Average:	83.4	
Standard Deviation:		69.3	
	Median:	53.8	
	Maximum:	298.0	
	Minimum:	31.3	

Kennecott Uranium Company
Sweetwater Uranium Project

Catchment Basin Area Gamma Survey

Date:	06-Jun-06	**Rate meter:**	Ludlum Model 2350-1
Time:		**Serial Number:**	192618
		Calibration Date:	13-Feb-06
Check Source:	Cs-137	**Probe:**	Ludlum Model: 44-10
		Serial Number:	PR-206932
Serial Number:	2304	**Calibration Date:**	12-Feb-06
Counts:	275 microR/hour	**Background:**	36.2 microR/hour

Location		Reading	
6610 Highwall North/East End Going West on North Wall			
	Start	46.7	microR/hour
		62.5	microR/hour
		69.7	microR/hour
		65.5	microR/hour
		69.0	microR/hour
		64.7	microR/hour
Skipped area by TMW-62 due to Trackhoe			
Resumed at fence line		48.1	microR/hour
		63.2	microR/hour
		72.0	microR/hour
		61.4	microR/hour
		69.3	microR/hour
		75.9	microR/hour
		62.6	microR/hour
		53.3	microR/hour
		58.7	microR/hour
		67.6	microR/hour
		76.3	microR/hour
		72.2	microR/hour
		71.3	microR/hour
	Northwest corner	69.5	microR/hour
West Wall			
	North end	67.7	microR/hour
		83.9	microR/hour
		61.4	microR/hour
		69.9	microR/hour
	Southwest corner	65.8	microR/hour
South Wall			
	West end	73.6	microR/hour
		79.4	microR/hour
		51.9	microR/hour
		56.4	microR/hour
		66.7	microR/hour
		84.2	microR/hour
		56.7	microR/hour
		48.6	microR/hour
		59.1	microR/hour
		52.1	microR/hour
		60.5	microR/hour
		57.8	microR/hour
	By TMW-113	63.1	microR/hour
		59.3	microR/hour
		55.2	microR/hour
Second Trackhoe Area			
Across pit from TMW-62		60.7	microR/hour
		63.4	microR/hour
		56.7	microR/hour
		76.0	microR/hour
		90.1	microR/hour
		71.9	microR/hour
		55.2	microR/hour
		49.7	microR/hour
		52.5	microR/hour
		49.1	microR/hour
Pit Center East-West Line			
Between TMW-112 & TMW-113		46.7	microR/hour
		49.2	microR/hour
		46.7	microR/hour
		50.5	microR/hour
		34.0	microR/hour
		36.7	microR/hour
		56.9	microR/hour
		88.2	microR/hour
		74.3	microR/hour
	West Wall	70.0	microR/hour
	Average:	62.5	
	Standard Deviation:	11.7	
	Median:	62.6	
	Maximum:	90.1	
	Minimum:	34.0	

From: Stephen Cohen [mailto:SJC7@nrc.gov]
Sent: Tuesday, May 09, 2006 11:49 AM
To: Paulson, Oscar (KEC)
Subject: Oscar:

Oscar:

I have three e-mail addresses for you, so I'm sending this message to multiple addresses to see which ones work.

We can allow your contractor to consume water within the restricted zone. However, you would need to prepare an SOP for doing so and submit it to us for review. The SOP should state the type of bottle to be used, the manner in which Kennecott will ensure that an exposure does not occur, and conditions under which water cannot be consumed in the restricted zone. If you have any questions, please call me.

Steve

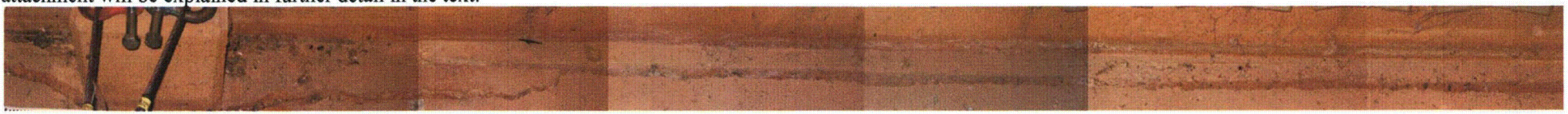
Mill Floor Crack

When the Mill Building was constructed there was no joint installed between the eastern foundation grade beam and the slab on grade. In 1990 a separation/crack was observed between the slab on grade and the eastern foundation grade beam. This separation pre-dated the Catchment Basin excavation by over fifteen (15) years.

The Catchment Basin excavation was dug to its initially designed size by July 17, 2006. An organic seep was observed in the northern wall east of the Mill Building at that time. The excavation was extended north along the east side of the Mill Building to remove those contaminated soils. This resulted in a forty-foot (40) highwall being created beneath the east wall of the Mill Building. With the excavation of this material, lateral confining support was lost on the foundation grade beam, resulting in the footing rotating slightly and separating further from the slab on grade. Measurements were taken at eleven (11) locations along the separation. These measurements are documented in the report in Appendix 1. Photographs of these points are also included in the report.

Following are a series of more detailed images o f the separation.

This image shows the magnitude of a section of the crack. Please note the cables attached to a beam attached to a footing on the crack's far side. The purpose of this attachment will be explained in further detail in the text.

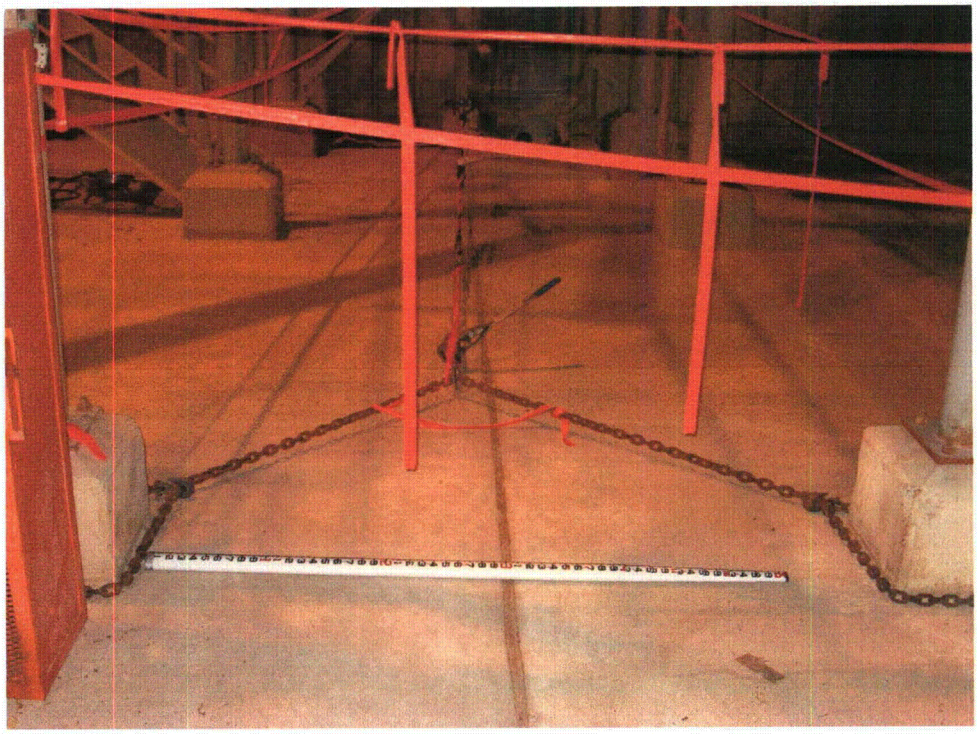


The images below show the eastern eighteen (18) feet of the crack:

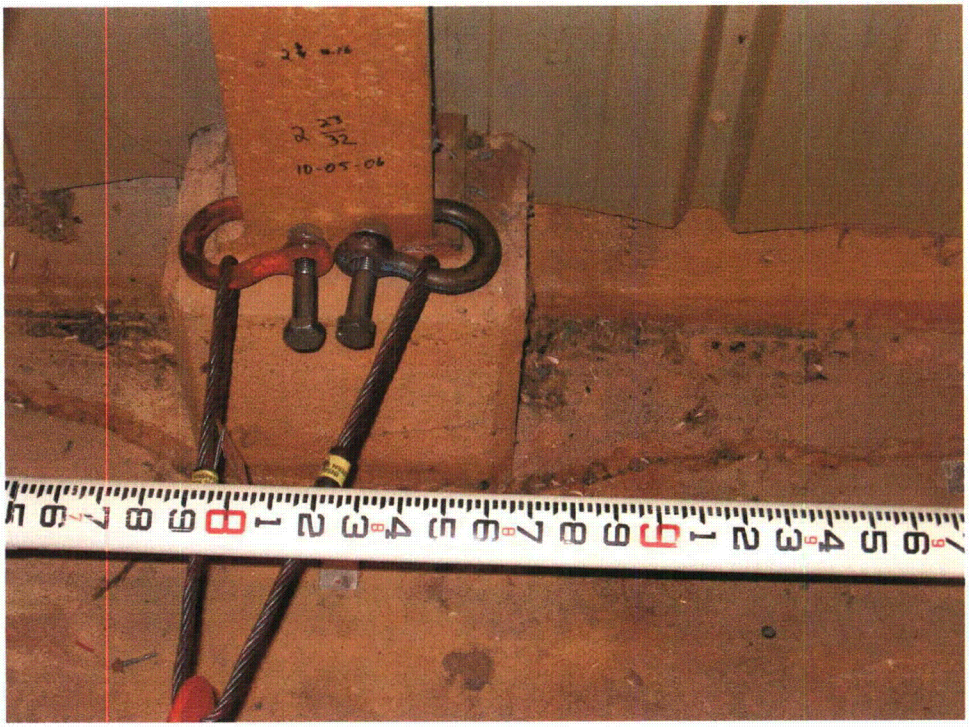
The image below shows the next eighteen- (18) feet of the crack:

These sections are included as examples. The entire crack was photographically documented on October 23, 2006.

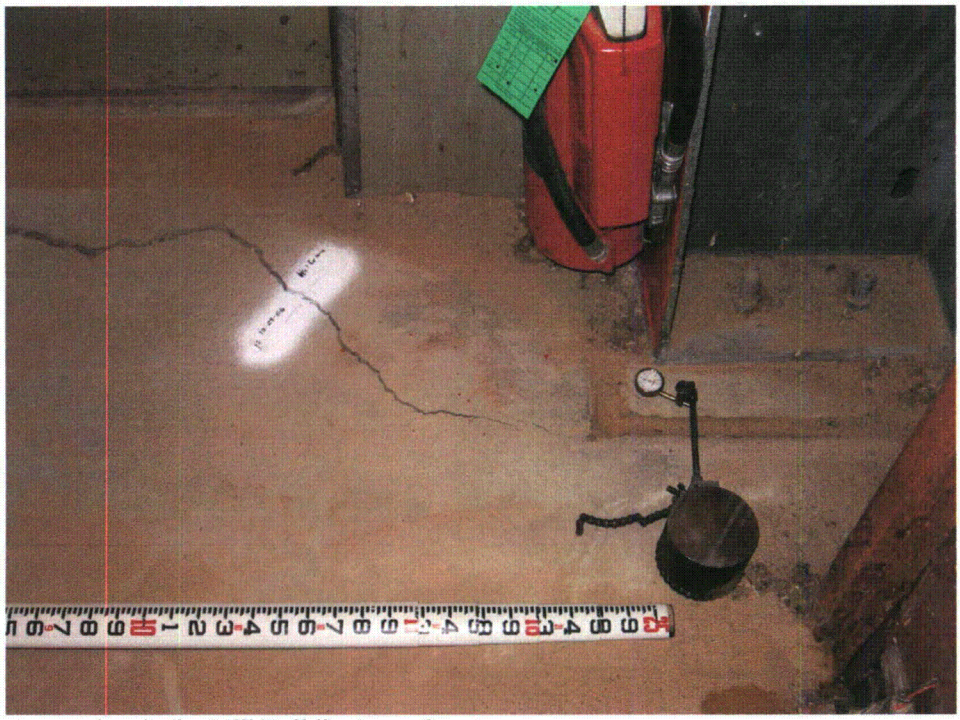
In order to support the eastern foundation grade beam until the excavation was backfilled cables were attached to vertical steel beams attached to the eastern foundation grade beam. These cables were attached to come-alongs and attached to the thickener footings inside the Counter-Current Decantation area inside the Mill Building. These come-alongs exerted a restraining force on the footing. This is shown in the images below:



The other end of the restraint (point of attachment) to the vertical beam on the footing is shown below:



As described in the report an attempt was also made to measure vertical motion as opposed to east to west motion on the crack. No indication of foundation settlement was found as described in the report. An image of the vertical motion measurement point is included below:



This measurement was taken in the Mill Building's southeast corner.

Due to the presence of the crack, the following was done:

- The vertical beams above the crack were tied back to the thickener footings to inhibit further motion.
- The situation was discussed with Stephen Cohen of the Nuclear Regulatory Commission (NRC) in several telephone conversations and an email dated November 7, 2006, included in Appendix 12 of Section IV – Excavation/Grid Release.
- It was concluded that further excavation should cease in spite of the fact that some grid composite samples beneath the east wall of the Mill Building exceeded 16.4 picoCuries per gram Radium-226 (background of 1.4 picoCuries per gram plus fifteen (15) picoCuries per gram above background for soils more than six (6) inches below surface) and commence backfilling immediately to prevent further motion along the crack and possible collapse of the wall into the excavation.
- Backfilling began immediately with construction of a compacted fill buttress in the excavation. The construction of this buttress is discussed in further detail in the section on backfilling.
- A structural engineer was engaged to evaluate the situation. His report is attached.
- Prior to restart of the mill, his recommendations regarding pinning the foundation to the beam will be implemented.

JVA, Incorporated
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Boulder, CO 80302
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info@jvajva.com

November 5, 2007

QED Associates
204 Walnut Street, Suite200
Fort Collins, CO 80524

RE: KUC Mill Building
Structural Assessment Report
JVA Project #12480

Dear Kent:

Please find our assessment of the structural condition of the Mill Building at the KUC facility.

STRUCTURAL ASSESSMENT REPORT

EXECUTIVE SUMMARY

The distress in the slab-on-grade along the east wall of the Mill Building is a result of the deep excavation being too close to the foundation. This permitted the footings to rotated slightly and either crack or separate from the edge of the slab. While not detrimental to the overall structure, repairs should be implemented to ensure any small additional settlement does not have any further impact on the foundation. Stitching the foundation grade beam to the slab-on-grade would be an acceptable solution that can be performed with the currently available personnel.

INTRODUCTION

On September 5, 2007 I met Oscar Paulson of Kennecott Uranium Company (KUC) at the Sweetwater County Facility in Wyoming to assess some observed foundation movement along the east wall of the Mill Building. This movement is manifest as a gap between the edge of the slab and the face of the perimeter grade beam. The gap changes to an actual crack in the slab at the column pilasters and at the doorway stoop. Coincidental to the discovery of this movement was a large-scale excavation just to the east of the building and very near to the building's foundation. The circumstantial opinion is this excavation is the root cause of the current distress observed in the building foundation. Additional information on the excavation itself can be found in

memos dated February 19, 2003 and October 13, 2006 by Tio Tinto Technical Services and a Technical Memorandum dated July 12, 2006 by MFG, Inc.

The scope of our investigation was to provide observation and assessment of the distress, any impact this distress may have on the structure of the building and recommendations on any repair that may be required. Our observations were limited to a visual survey of the east end of the building, data field recording of the crack monitoring program by KUC, pictures of the current conditions and oral interviews with KUC personnel. No material testing was performed as part of the investigation. Data reduction and analysis of the crack monitoring was performed in the office and is included as an attachment to this report.

STRUCTURE

In addition to the construction design drawings provided by KUC prior to the site visit, an archive search while on site did produce some limited information on the building structure itself. Generally, the Mill building is an industrial, pre-fabricated metal building. This particular structure was designed and fabricated by Kirby Building Systems in Houston, Texas.

The structural system is comprised of moment frames spaced along the length to the building. The frames provide the primary gravity and lateral support for the building. Lateral bracing normal to these frames is accomplished with cross bracing between two or more of the frames. The end walls simply enclose the building and are not part of the primary gravity or lateral systems. The east wall under investigation is one of these end walls.

The foundation drawings describe a perimeter grade beam spanning between isolated spread footings at frost depth. The spread footings are located under the metal building columns with a concrete pier extending to grade. The main floor is a heavy, 12" thick slab-on-grade with two mats (top & bottom) of reinforcing. The slab was originally poured directly against the face of the grade beam without an isolation joint or bond breaker.

SITE VISIT and ANALYSIS

At the time of the site visit, the excavation east of the building had been backfilled and a limited amount (approximately 6 feet) of surcharge was also in place. As I understand from KUC personnel, the entire excavation was backfilled and compacted generally as outlined per the MFG report. No quality control testing was performed to verify that compaction was meeting the reports requirements. I also understand moisture conditioning was

halted during the winter months due to freezing concerns and compaction preformed with whatever in-situ moisture contend present at the time.

Currently, the column bases along the east wall are tied to tank foundations back in the building. The distress in the building is manifest as a gap or crack in the slab-on-grade along the entire east end of the building. At some locations, instead of this gap between the edge of the slab and the face of the foundation grade beam, a crack in the floor around the pilasters has opened up. The width of the gap (crack) currently ranges from about 5/8" to as much as an 1 ¼".

Although the crack was first noticed around 1990, gap monitoring has been taking place since October 5, 2006 at discrete locations along the wall. These locations are identified on the attached foundation drawing. The field data was copied and is recorded in the spreadsheet that is also attached. The data shows that gap (crack) growth through January of 2007 was about 3/16", with a maximum of 5/16". After January 2007, the gap started to close, presumably due to the backfilling reaching the level of the building foundation. The total gap (crack) growth to the present is limited to about 1/16". Therefore, the present gap (crack) width is basically the same as when the monitoring began back in October 2006.

At location K, a dial indicator was set up to measure possible differential vertical movement between the foundation and the slab-on-grade. These measurements, while erratic, provide not indication of foundation settlement.

CONCLUSIONS & RECOMMENDATIONS

The observed distress in the slab-on-grade is the buildings response to the excavation that was taking place. While the excavation started 5 feet or so away from the building, this left the cut very close to the edge of the footing; in fact, the footing at the southeast corner was exposed. Removal of this confining pressure so close to the edge of the footings could have allowed the footing and grade beam to rotate outward. The fact that the slab was constructed without any bond breaker to isolate it from the grade beam is the reason cracks developed in the slab at the pilasters. I didn't observe any settlement along the wall, although some minor amount is probable.

Metal buildings of this type are relatively flexible structures and can undergo a fair amount of foundation movement without any detrimental effects. The end wall in question is simply a closure wall and is not part of the building's primary

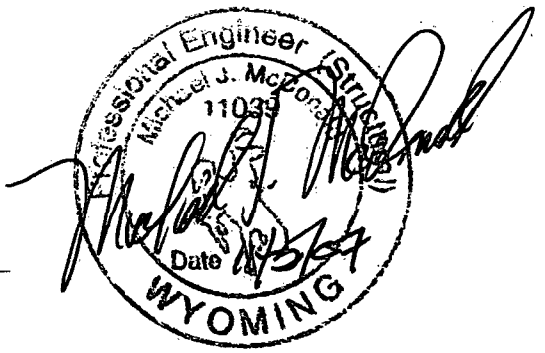
CONSULTING ENGINEERS

structural system. The distress I observed, while of concern, has little affect the buildings strength and serviceability.

Compacted backfill in deep excavations can typically be expected to settle about 1%, or about 5" in this case. This settlement, while not directly under the foundation, could result in some small additional movement along the east wall. Due to the isolation of the site and the difficulties in getting contractors qualified to work on site, I suggest doweling the top of the grade beam into the 12" slab-on-grade along the length of the east foundation as shown in an attach sketch. This is a relatively simple procedure that can be performed with the currently available work force. After the foundation has been stabilized, the crack can be filled with grout.

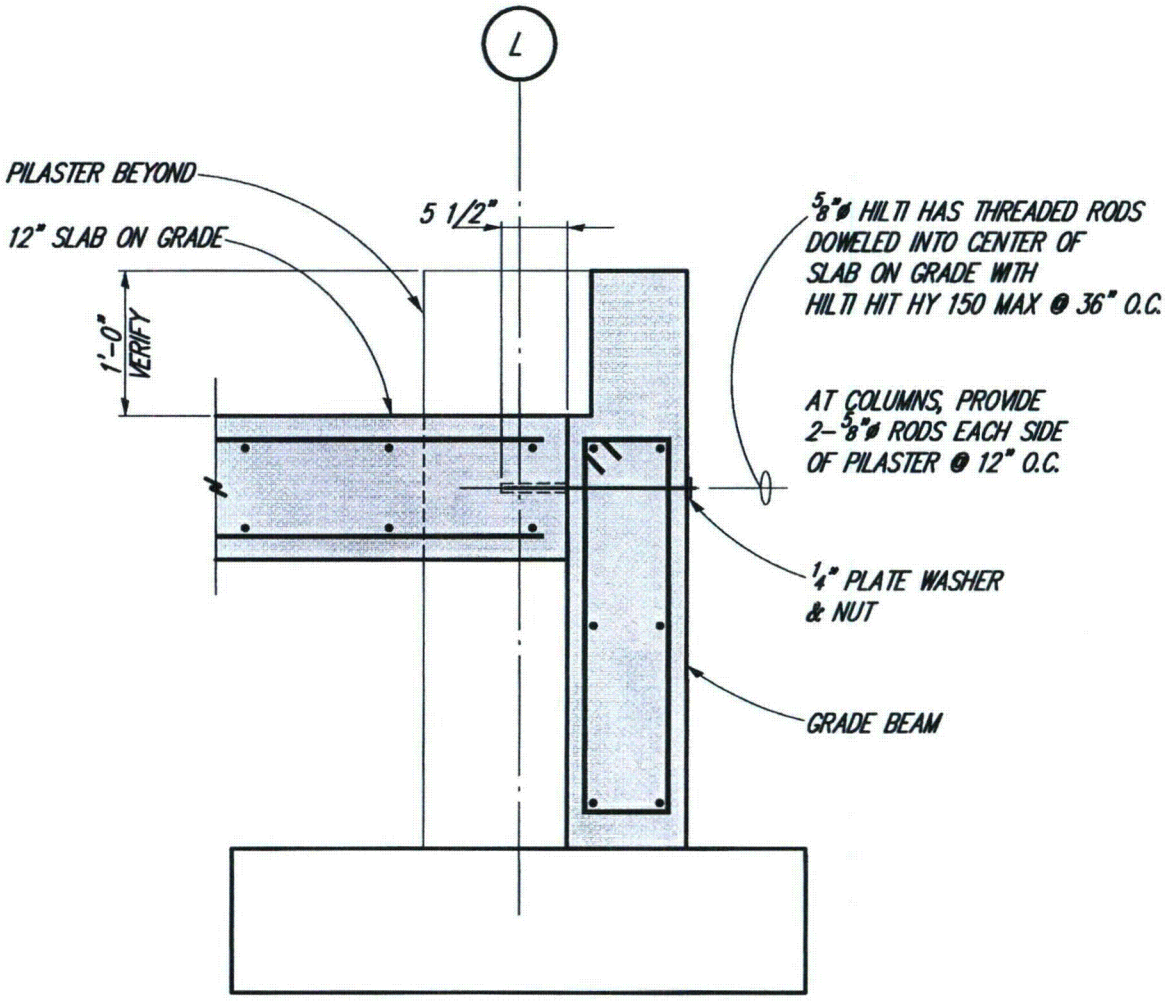
Please feel free to call with any questions.

Sincerely,
JVA, INCORPORATED



Michael McDonald, P.E.
Regional Manager, Fort Collins

Enclosure: Field Data
Data locations
Repair Diagram (S)



SECTION 1/S1 3/4"=1'-0

0 6" 1' 2' 3'

Project Name: KENNECOTT MILL BUILDING INSPECTION		Scale: AS NOTED	
JVA, Incorporated 25 Old Town Square Suite 200 Fort Collins, CO 80524	REPAIR DIAGRAM	Date: 09/18/07	Drawing Number:
		Job #: 12480	

Kennecott Uraniun Field Data

Sweetwater County, Wyoming

Crack Measurements

Date	Crack A		Crack B		Crack C		Crack D		Crack E		Crack F		Crack G		Crack H		Crack I		Crack J		Crack K	
	Field Measurement (in.)	delta (in)	Field Measurement (in.)	delta (in)	Field Measurement (in.)	delta (in)	Field Measurement (in.)	delta (in)	Field Measurement (in.)	delta (in)	Field Measurement (in.)	delta (in)	Field Measurement (in.)	delta (in)	Field Measurement (in.)	delta (in)	Field Measurement (in.)	delta (in)	Field Measurement (in.)	delta (in)	Field Measurement (in.)	delta (in)
)/5/2006	8 1/2		3 7/16		2 9/16				2 23/32		6 23/32		3		2		6				0.000	
/16/2006	8 17/32	1/32	3 1/2	1/16	2 19/32	1/32	2 27/32		2 3/4	1/32	6 3/4	1/32	3 1/32	1/32	2 1/32	1/32					-0.002	-0.002
/30/2006	8 9/16	1/32	3 17/32	1/32	2 5/8	1/32	2 55/64	1/64	2 13/16	1/16	6 25/32	1/32	3 3/32	1/16	2 1/16	1/32	6 1/8	1/8			-0.004	-0.002
1/2/2006	8 5/8	1/16	3 9/16	1/32	2 5/8	0	2 7/8	1/64	2 13/16	0	6 13/16	1/32	3 3/32	0			6 5/32	1/32	4		-0.006	-0.002
1/6/2006	8 5/8	0			2 5/8	0	2 7/8	0	2 13/16	0			3 1/8	1/32	2 1/16	0			4	0	-0.007	-0.001
/13/2006	8 5/8	0	3 9/16	0	2 21/32	1/32	2 29/32	1/32	2 13/16	0	6 13/16	0	3 1/8	0	2 1/16	0	6 5/32	0	4 1/32	1/32	0.007	0.014
/20/2006							2 29/32		2 27/32	1/32	6 11/16	- 1/8	3 1/8	0					4 1/32	0	0.009	0.002
/27/2006	8 5/8	0					2 13/16	- 3/32	2 7/8	1/16	6 11/16	- 1/8	3 1/8	0					4 1/32	0	0.010	0.003
2/4/2006	8 5/8	0			2 21/32	0	2 15/16	1/8	2 29/32	1/32	6 11/16	0	3 5/32	1/32	2 5/64	1/64		0			-0.015	-0.025
/13/2006	8 5/8	0	3 19/32	1/32	2 11/16	1/32	2 15/16	0	2 7/8	- 1/32	6 27/32	5/32	3 5/32	0	2 1/16	- 1/64		0	4 1/16	1/32	-0.016	-0.001
/20/2006	8 5/8	0	3 5/8	1/32	2 11/16	0	2 31/32	1/32	2 29/32	1/32	6 29/32	1/16	3 5/32	0	2 1/16	0		0	4 3/32	1/32	0.017	0.033
/26/2006	8 5/8	0			2 25/32	3/32	2 31/32	0	2 29/32	0	6 29/32	0	3 5/32	0	2 1/16	0		0	4 3/32	0	0.017	0.001
/3/2007	8 21/32	1/32			2 23/32	- 1/16	3	1/32	2 15/16	1/32	6 29/32	0	3 3/16	1/32				0	4 3/32	0	0.017	0.000
/8/2007	8 21/32	0			2 23/32	0			2 15/16	0	6 29/32	0	3 3/16	0		0	6 1/4	3/32	4 3/32	0		
/18/2007	8 11/16	1/32			2 25/32	1/16	3 1/16	1/16	3	1/16	6 31/32	1/16	3 1/4	1/16		0			4 5/32	1/16	0.020	0.003
/29/2007	8 11/16	0			2 3/4	- 1/32					7	1/32	3 9/32	1/32		0		0	4 5/32	0	0.034	0.014
/7/2007							3 1/16	0	2 15/16	- 1/16			3 1/4	- 1/32					4 5/32	0	0.033	-0.001
/23/2007	8 5/8	- 1/16			2 5/8	- 1/8										0		0	4 1/8	- 1/32		
/1/2007	8 11/16	1/16					2 27/32	- 7/32	2 25/32	- 5/32	6 3/4	- 1/4	3 1/16	- 3/16		0		0	4	- 1/8	-0.036	-0.069
/5/2007	8 9/16	- 1/8	3 15/32	- 5/32	2 5/8	0	2 7/8	1/32	2 3/4	- 1/32	6 3/4	0	3 3/32	1/32		0	6 1/8	- 1/8	4	0		
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erential thru 1/29/07		3/16		3/16		3/16		7/32		5/16		5/32		9/32		1/16		1/4		5/32		
l Differential		1/16		1/32		1/16		1/32		1/16		- 3/32		3/32		1/16		1/8		0		

QED Associates civil engineering consultants

November 6, 2007

Oscar Paulson
Sweetwater Uranium Facility
Kennecott Uranium Company
P.O. Box 1500
Rawlins, WY 82301-1500

RE: Mill Building – Structural Integrity

Dear Oscar:

Cracking of the floor of the mill building along its eastern wall has been observed. The Nuclear Regulatory Commission (NRC) requested that a report be provided from a structural engineer describing the condition of the cracking and its potential impact to the structural integrity of the mill building. Michael McDonald of JVA Consulting Engineers (JVA) visited the site, observed the cracking, reviewed mill design drawings, and performed a brief analysis of the cracking data as a response to this NRC request. JVA's report is attached to this cover letter, and provides the detail of JVA's findings and recommendations.

Summary. The structure of the mill building is comprised of moment frames spaced around the perimeter of the building. Outer walls enclose the structure, but are not part of the primary gravity or lateral systems that provide the structural strength. The foundation drawings depict a perimeter grade beam spanning between spread footings and building columns. The slab-on-grade is a 12-inch thick reinforced concrete floor poured directly against the face of the grade beam without an isolation joint. JVA concluded that the distress in the slab-on-grade near the east wall of the mill building is a result of deep excavation just east of the mill. However, JVA concluded that this observed distress has little effect on the building's strength and serviceability.

Recommendations. Settlement of backfilled soil associated with the nearby excavation is to be expected, and could result in small additional movement along the east wall. JVA recommended that dowels be used to connect the slab-on-grade to the grade beam to address this potential, mitigation that can be performed with the currently available personnel. A drawing of this mitigation measure is included in the attached JVA report.

If you have any questions regarding these observations and recommendations, please do not hesitate to contact either me or Michael McDonald.

Best regards,

QED Associates

Kent Bruxvoort

Kent Bruxvoort, P.E.

cc: Michael McDonald, JVA Consulting Engineers