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March 28, 2007

VIA E-MAIL AND OVERNIGHT DELIVERY

Mr. Dane L. Finerfrock
Director
Division of Radiation Control
Department of Environmental Quality
168 North 1950 West
P.O Box 144850
Salt Lake City, UT 84114-4850

Re: Cell 4A Lining System Design Report, Response to DRC Request for Additional Information – Round 6 Interrogatory, Cell 4A Design.

Dear Mr. Finerfrock:

We are responding to your February 8, 2007 letter, requesting additional information on the Cell 4A Lining System Design.

For ease of review, the Division of Radiation Control's ("DRC's") questions are repeated below in italics with Denison Mines (USA) Corp.'s ("DUSA's") responses following each question.

1. ***Radiation Survey Report:** IUC must demonstrate the existing cell liner subgrade has radiation and contamination levels that are acceptable. The IUC will submit a final report including sampling data and demonstrations, to the DRC. SENES Consulting previously collected sampling data that was provided to the DRC by IUC that addressed the radiation levels in the subgrade and DRC provided comments on the data in an email dated 15 September 2006. However, to fulfill this interrogatory, this report must be formally approved by the DRC prior to the start of Cell 4A liner installation.*

At the request of DRC, DUSA conducted additional clean up of lightly contaminated soils in several areas of the Cell. Following the additional clean up work DUSA conducted additional verification sampling on March 14, 2007, in conjunction with DRC representatives, to verify that final clean up standards have been met. Results of this additional sampling should be available during the first week of April and will be submitted for DRC review.

2. ***Double Liner System:** IUC must include in the technical specification provisions for an acceptable subgrade soil under the GCL to provide adequate GCL hydration and a stable and smooth surface that will not compromise GCL integrity. The section must include specifications for the preparation of additional soil, including acceptable compaction criteria and testing as required by ASTM (limited to ASTM procedures D 1556M, D 2167, or D 2922 for field density procedures and ASTM D 2216 or D 3017 for moisture content testing). Laboratory backfill testing must occur per one of the above ASTM procedures and be followed by confirmation compaction testing in the field. The section will also state that if no additional soil is required,*

the subgrade surface will be proof rolled with appropriate compaction equipment to confirm subgrade stability and identify potential areas that may strain and damage the GCL.

Technical Specifications Section 02220, Subgrade Preparation, has been revised to include requirements for subgrade compaction, moisture content, and proof-rolling. The Construction Quality Assurance Plan has been revised to include testing requirements for compaction and moisture content.

3. Liner Strength & Compatibility:

IUC must address a number of concerns with the proposed GCL field hydration plan and are as follows:

- *Justification for the 100% optimum moisture content of the GCL for liquids with pH in the 1 to 2 range. IUC must provide a basis for CETCO stating that 100% is the optimum moisture content that will provide for the optimum permeability under acidic conditions;*
- *The work plan must be modified to state that samples will be taken until optimum hydration or a maximum level is reached;*
- *The work plan must state that if field evidence indicates hydration of the GCL occurs due to lateral leakage from an edge or edges of a GCL panel, the leakage will be documented through photographs and field sketches. Samples collected from the GCL must be away from influences of lateral leakage;*
- *The work plan must show where in the test plot is located in the northeast corner and specifically at which point of the slope (top, middle, or bottom?);*
- *The work plan must confirm that sampling and maintenance between sampling events is performed by qualified personnel; and*
- *The work plan must be modified so that the final report will include at the minimum the following documentation:*
 - *Date/time*
 - *Weather conditions*
 - *Name of personnel performing the work*
 - *Methods used to place GCL/HDPE*
 - *Condition of subgrade*
 - *Sample IDs, locations, packaging, and shipment details*
 - *Photos of samples during collection*
 - *Description of samples during collection*
 - *Field diagrams (as needed)*
 - *Results of periodic inspections through out the testing period (including photos)*
 - *Repairs performed (if needed)*
 - *Records of weather conditions through out the testing period (particularly daily temperatures and precipitation)*
 - *Formal and informal test results as well as the methods used to obtain the results*

CETCO recommends the hydration of GCLs to 100% moisture content when the GCL is to be permeated by liquids other than water. The basis for this recommendation is for hydrocarbon permeation through GCLs as demonstrated by Daniel, et al (Daniel et al, 1993). The permeant in this case will be liquids with low pH. However, as discussed in our response to Interrogatory #1, the number of pore volumes anticipated to permeate the GCL is very low. Therefore, the GCL will serve to provide an effective hydraulic barrier.

Based on testing data presented as part of our response to Interrogatory #2, the GCL is expected to hydrate within the first 15 days, with minor increase beyond 15 days. IUC will collect three sets of samples at 1, 2, and 3 weeks to demonstrate hydration of the GCLs.

The GCL Hydration Work Plan has been revised to account for these comments. Based on the anticipated favorable results from this field demonstration, IUC has removed the post installation hydration requirement from the technical specifications section 02772. The revised Technical Specifications are attached.

4. **Best Available Technology:**

IUC must demonstrate that the slimes drain is designed to effectively and expediently remove the tailings solution remaining in the cell (after the cell has become full), using a modeling program. Programs suggested by UDEQ include SEEP/W, SVFLux, Vadose/W, HELP, UNSAT-H, HYDRUS-2D. The model should be run assuming a minimum head of solution on the upper liner and consider the following:

- *The potential tailings properties;*
- *Local environmental conditions;*
- *The potential of the coarser tailings material to clog the drain system over time.*
- *A conservative permeability of the coarser slimes material to account for permeability uncertainty; and*
- *Slope of the drain, drainpipe size and length.*

The model's analysis should provide an estimation of the maximum solution flow rate from the tailings into the slimes drain and the predicted ability of the slimes drain to remove the solution. IUC is also requested to devise a means to monitor the fluid head on the liner for a proper liner system drain and extraction system

Results from this evaluation will be carried into the design and revised project technical specification, CQA Plan, and drawings (if applicable).

DUSA has prepared the attached Slimes Drain Design calculation package, which provides analyses and discussions related to the design of the slimes drain system. In addition, a revised Drawing 4 of 7 is attached showing the extent of the revised slimes drainage system.

If you have any additional questions please feel free to contact me at (303) 389-4160.

Yours very truly,

DENISON MINES (USA) CORP.



Harold R. Roberts
Executive Vice President – U.S. Operations

cc: Ron F. Hochstein, DUSA
Steve D. Landau, DUSA
Gregory T. Corcoran, Geosyntec

References

Daniel, D.E., Shan, H-Y and Anderson, J.D., 1993, "Effects of Partial Wetting on the Performance of the Bentonite Component of a Geosynthetic Clay Liner", Proceedings, Geosynthetics '93, Vancouver, B.C., IFAI Publ., pp 1483-1496.



27 March 2007

Mr. Loren Morton, P.G.
Section Manager
State of Utah Department of Environmental Quality
Division of Radiation Control
168 N 1950 W
P.O. Box 144850
Salt Lake City, UT 84114-4850

Subject: Revised Geosynthetic Clay Liner Hydration Demonstration
Work Plan
International Uranium (USA) Corporation
White Mesa Mill, Cell 4A
Blanding, Utah

Dear Mr. Morton:

GeoSyntec Consultants (GeoSyntec) is pleased to submit to the Utah Department of Environmental Quality (UDEQ), on behalf of International Uranium (USA) Corporation (IUC), this Revised Work Plan to demonstrate the hydration of geosynthetic clay liner (GCL) under field conditions at the subject site. This Work Plan was revised as requested in the URS prepared "Interrogatories – Round 6", page iv, item 3, dated 8 February 2007.

OBJECTIVE

The purpose of this work plan is to outline procedures to be used to demonstrate the hydration of GCL when installed over site soils.

SCOPE OF WORK

This evaluation will consist of a field demonstration and laboratory testing. The scope of work is summarized below. Based on previous academic testing of GCL hydration (Daniel, et. al.), IUC anticipates that the GCL will reach hydration within the first 15 days of exposure to the subgrade soils. Although additional moisture will continue to be accumulated by the bentonite component of the GCL, the percentage is small relative to the initial 15 day hydration.

Mr. Loren Morton, P.G.
22 February 2007
Page 2

Field Demonstration

IUC will oversee installation of an approximately 10 foot by 15 foot sample of GCL overlying a portion of the existing soil subgrade in the northeast corner of Cell 4A at the toe of the slope, near the access ramp to the bottom of the cell. The sample will be installed in accordance with the Technical Specifications Section 02772 and the CQA Plan. In accordance with Section 02772 Part 3.02F of the Technical Specifications, the GCL will be placed with the woven geotextile facing up (against the overlying geomembrane). The GCL will be covered with an approximately 16 foot by 22 foot sample of high density polyethylene (HDPE) geomembrane with the white surface facing up, black surface against the GCL. The edges of the geomembrane will be continuously covered by sand bags or a windrow of soil to reduce surface water impacts. The one up slope side will be anchored within a 6-inch deep anchor trench to further minimize surface water migration beneath the geomembrane while still allowing the removal of the geomembrane for sampling.

Geomembrane and GCL samples will be removed from a random roll of each material located on-site for Cell 4A construction.

Laboratory Testing

Six approximately 12-inch square samples of GCL, to be obtained from the same roll as used for the field demonstration but not from the actual field demonstration sample, will be collected prior to installation of the field demonstration, each wrapped tightly in plastic, and shipped to TRI Environmental (9063 Bee Caves Road, Austin, Texas 78733 – phone number (512) 263-2101) for moisture content testing in accordance with ASTM D 5993.

After 1, 2, and 3 weeks of initial installation, IUC will return to the field demonstration to remove the geomembrane and collect six GCL specimens. During each sampling event, six approximately 12-inch square samples of GCL will be collected at the approximate locations shown on Figure 1. Care will be taken to minimize GCL exposure during sampling. During sampling events, the GCL, HDPE geomembrane, and surface water controls will be inspected and repaired, if necessary. If field evidence indicates hydration of the GCL due to lateral leakage from an edge or edges of a GCL panel, the leakage will be documented through photographs and field sketches. The samples collected from the GCL must be away from influences of such lateral leakage.

The collected samples will be tightly wrapped individually in plastic and shipped to TRI Environmental for moisture content testing in accordance with ASTM D 5993.

In addition, three soil samples will be collected from the top 3 inches of soil prior to installation of the GCL for the field demonstration. The soil will be placed in a sealed



Mr. Loren Morton, P.G.
22 February 2007
Page 3

plastic bag and shipped to TRI Environmental for moisture content testing in accordance with ASTM D 2216.

Reporting

Installation of the GCL and HDPE will be documented in accordance with the CQA Plan. Sampling events and maintenance between sampling events will be performed by qualified personnel and documented with the attached field form and photographs.

Results of the field demonstration will be compiled in a final letter report submitted to UDEQ. The letter report will be comprised of:

- Introduction
- Objectives
- Methodology
- Results
- Discussion
- Conclusions
- Attachments

The methodology section will include at a minimum, the following information for each sampling events:

- Date and time;
- Weather conditions;
- Name of personnel performing the work;
- Methods used to place GCL/HDPE
- Condition of subgrade
- Sample IDs, locations, packaging, and shipment details
- Photos of samples during collection
- Description of samples during collection
- Field diagrams (as needed)
- Results of periodic inspections through out the testing period (including photos)
- Repairs performed (if needed)
- Records of weather conditions through out the testing period (particularly daily temperatures and precipitation)
- Formal and informal test results as well as the methods used to obtain the results



Mr. Loren Morton, P.G.
22 February 2007
Page 4

Reporting and field activities will be performed under the supervision of a qualified Professional Engineer licensed in the State of Utah.

SUMMARY

If you have any questions or require additional information, please contact the undersigned at (858) 674-6559.

Sincerely,



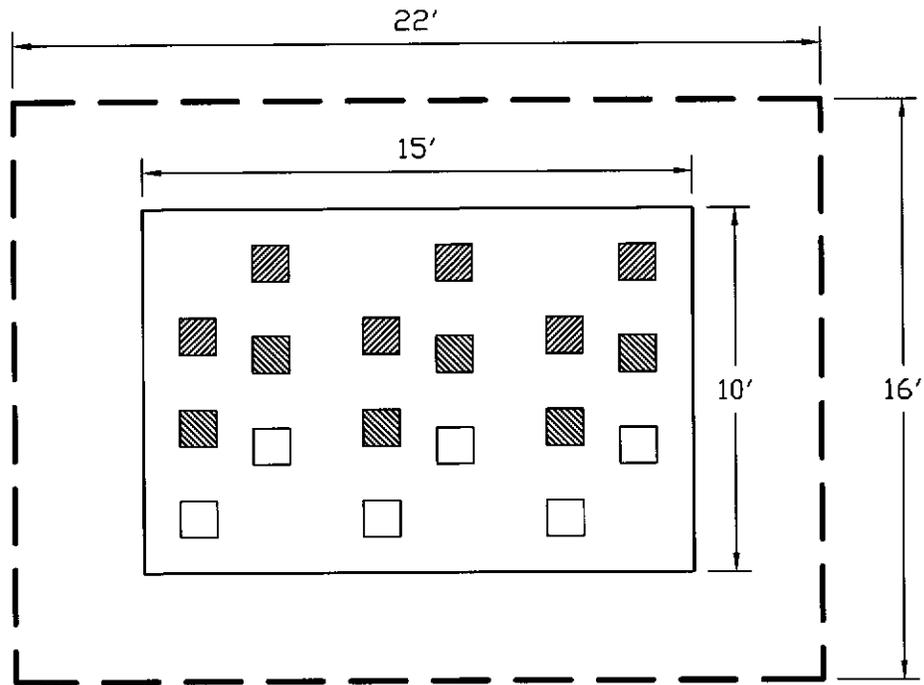
Digitally signed by Gregory T
Corcoran
DN: CN = Gregory T Corcoran, C
= US, O = GeoSyntec
Date: 2007.03.27 16:15:08 -0700

Gregory T. Corcoran, P.E.
Principal Engineer

Copy: Harold Roberts - IUC

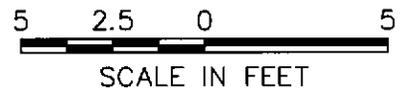


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LEGEND

-  LIMITS OF GCL
-  LIMITS OF HDPE MEMBRANE
-  12"x12" SAMPLE LOCATION - WEEK 1
-  12"x12" SAMPLE LOCATION - WEEK 2
-  12"x12" SAMPLE LOCATION - WEEK 3



GCL HYDRATION DEMONSTRATION SAMPLE LOCATIONS
 WHITE MESA MILL - CELL 4A
 BLANDING, UTAH

FIGURE NO.	1
PROJECT NO.	SC0349
DATE:	JANUARY 2007

LEGEND

- EXISTING TOPOGRAPHY (FEET ABOVE M.S.L.)
- EXISTING FENCE
- PROPOSED BASE GRADING (10' CONTOUR)
- 4" PVC PIPE
- CONCRETE STRIP DRAIN BD
- LIMIT OF LINER SYSTEM
- SPLASH PAD (NOTE 3)
- SLOPE DIRECTION AND GRADE

200 100 0 200 400
SCALE IN FEET

NOTES:

- EXISTING TOPOGRAPHY OBTAINED FROM INTERNATIONAL URANUM (USA) CORPORATION.
- REMOVE AND REPLACE FENCE AS NECESSARY TO CONSTRUCT ANCHOR TRENCH AND SPILLWAY.
- SPLASH PAD LOCATION TO BE FIELD SELECTED BY OWNER.

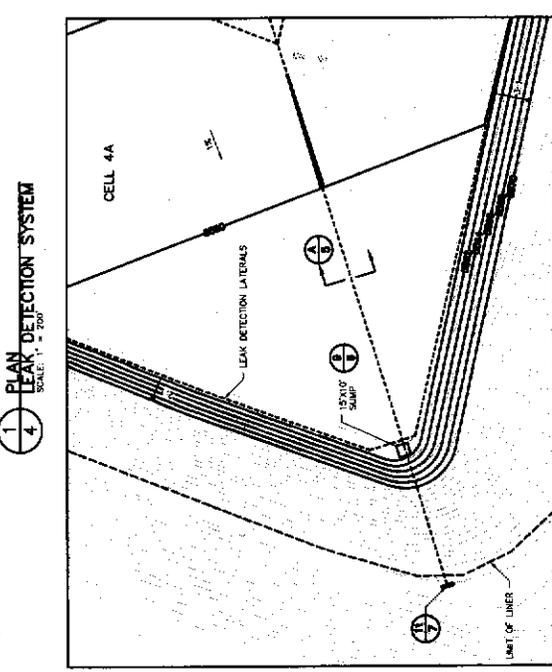
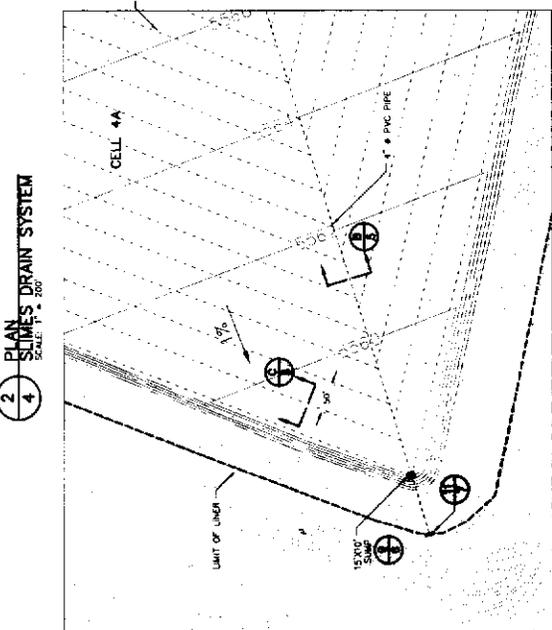
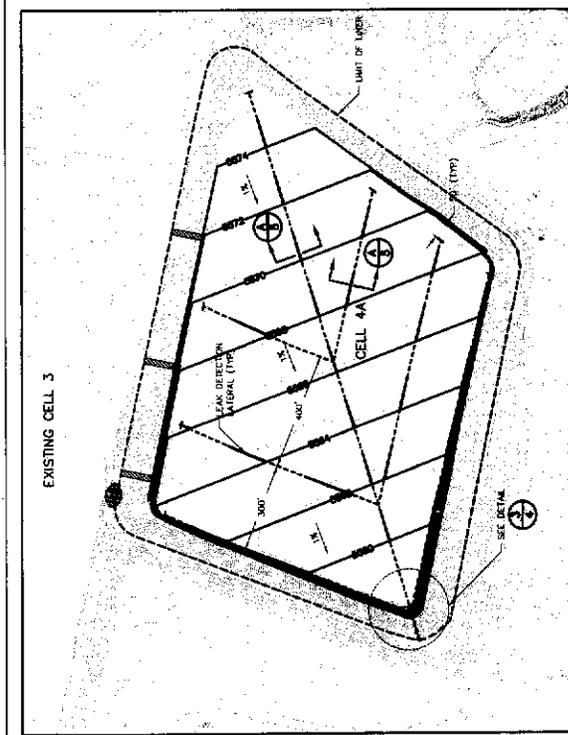
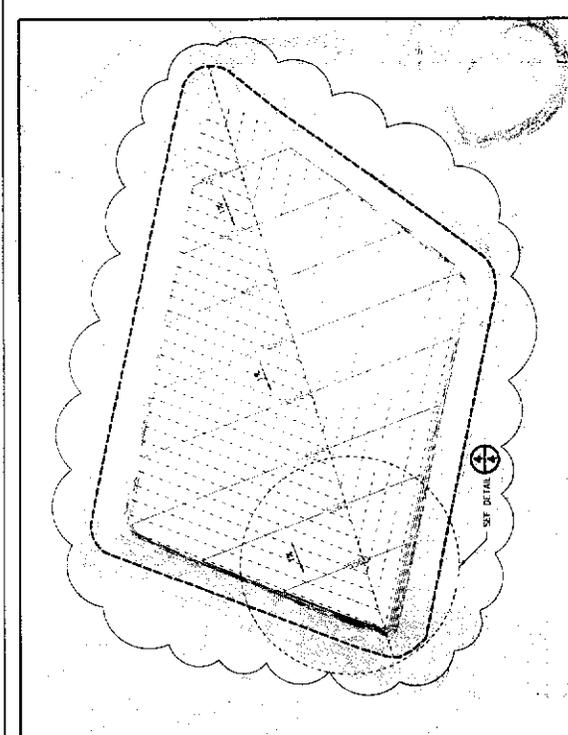
GEOSTATEC CONSULTANTS
200 W. 1000 S. SUITE 200
SALT LAKE CITY, UT 84119
PHONE: (801) 487-1111
FAX: (801) 487-1112

CELL 4A, WHITE MESA MILL
BLANDING, UTAH

PIPE LAYOUT PLAN

NO.	DATE	BY	APPROVED
1	3/17/07	GTC	GTC

DATE: JANUARY 2008
SCALE: AS SHOWN
JOB NO.: S02349-01
DRAWN BY: GTC
P.L. NO.: 03482004
CHECKED BY: GTC
DESIGNED BY: GTC
DRAWING NO.: 4 OF 7



PERMIT DRAWINGS
NOT FOR CONSTRUCTION

Dave Rupp - Fwd: Re: Cell 4A Design Documents

From: Loren Morton
To: Bob Baird; Dave Rupp
Date: 4/3/2007 9:08 AM
Subject: Fwd: Re: Cell 4A Design Documents
CC: Britt Quinby
Attachments: Britt Quinby

Dane:

Attached are signed copies of the Technical Specification, CQA Plan and Slimes Drain Calculations for the Cell 4A design. These documents were transmitted with my March 28th letter, but were unsigned copies. Please included these signed copies with the review package.

Regards,

Harold R. Roberts
Executive Vice President US Operations
Denison Mines (USA) Corp.
(303) 399-4160

Variation Between DUSA's Transmittals, only Pertaining to the
Technical Specification, CQA Plan and Slimes Drain Calculations
Per Email of April 2, 2007 and Letter of March 28, 2007

For the Construction of the
Cell 4A Lining System
D.A. Rupp

<u>Item</u>	<u>Differences Noted</u>
Revised Technical Specifications	Electronic version has certification signatures, a later date, greater content, and a different version notation at the foot of the pages.
Revised CQA Plan	Electronic version has later cover date and different version notation at the foot of the pages.
Computation Sheet for Analysis Slimes Drainage	Electronic version has certification signatures.