CELL 4A LINING SYSTEM DESIGN REPORT

FOR THE

WHITE MESA MILL
BLANDING, UTAH

Prepared for:

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APPENDICES

1. INTRODUCTION

This report presents the results of design analyses performed in support of the Cell 4A liner construction at the White Mesa Mill Facility in Blanding, Utah (site). The San Diego office of GeoSyntec Consultants, Inc. (GeoSyntec) prepared this report for International Uranium (USA) Corporation (IUSA). This report was prepared by Ms. Jane Soule of GeoSyntec. Mr. Gregory Corcoran, P.E. of GeoSyntec was in responsible charge and provided senior peer review of the work presented herein in accordance with the internal peer review policy of the firm.

1.1 Objective

The objective of this report is to present the components of the liner system and to demonstrate that the proposed Cell 4A liner system design complies with the applicable regulatory standards for the State of Utah, the U.S. Nuclear Regulatory Commission and the Federal Environmental Protection Agency (USEPA). In particular, the design is in accordance with the Utah Administrative Code (UAC) R317-6, and the Best Available Technology requirements mandated by Part I.D. of existing site Ground Water Discharge Permit No. UGW370004.

1.2 Background

Cell 4A was originally constructed in 1989 and first put into service in early 1990. The entire Cell was originally lined with a 40 mil high density polyethylene (HDPE) geomembrane which was underlain by one foot of clay on the bottom of the Cell. The Cell also had a leak detection system and a slimes drain system. The liner system experienced problems from the very early days of operation. All deposits, including silt and precipitated salts from process operations, on the top of the liner system, as well as the HDPE geomembrane, were removed in early 2005 and disposed in the Cell 3 area. The Cell 4A berms and base materials were not significantly altered during the removal of the 40-mil HDPE geomembrane.

Current site operations utilize Cells 1 and 3 for process liquids evaporation and disposal of tailings and by-products from the processing operations at the site. The capacity of these cells is diminishing and the re-construction of Cell 4A is needed to supplement evaporation/disposal capacity at the site.

The re-lined Cell 4A will be used as a tailings disposal cell for evaporation of process liquids and final storage of solids contained in the tailings and by-products from processing operations at the site.

1.3 **Report Organization**

The remainder of this design report is organized into the following sections:

- Section 2, *Background Information*, presents general information on the site and background information on the existing conditions at Cell 4A.
- Section 3, *Lining System Design,* presents the liner system design for Cell 4A. The design drawings are presented in Appendix A.
- Section 4, *Summary and Conclusions*, presents the summary, conclusions, and limitations of this technical design report.

In addition to this report, Cell 4A permit documents include Design Drawings (Appendix A), a Construction Quality Assurance (CQA) Plan (Appendix B), Technical Specifications (Appendix C), Existing Berm and Clay Liner Construction Documentation (Appendix D), and engineering design calculations (Appendix E).

2. BACKGROUND AND SITE CONDITIONS

2.1 Site Location

The location of the site is shown on Sheet 1 of the Design Drawings (Appendix A). The site is located approximately 6 miles (9.5 kilometers) south of Blanding, Utah on Highway 191. Per the Universal Transverse Mercator (UTM) Coordinate System, the site is located at 4,159,100 meters Northing and 634,400 meters Easting.

The Mill is located on a parcel of fee land, State of Utah lease property and associated mill site claims, covering approximately 5,415 acres. The site mill operations are limited to approximately 50 acres located directly east of Cell 1. The existing tailings disposal cells (Cells 1 through 3) are approximately 370 acres. Cell 4A is located south of the eastern half of Cell 3. The site plan is shown on Sheet 2 of the Design Drawings.

2.2 Climatology

The climate of southeastern Utah is classified as dry to arid continental. Although varying somewhat with elevation and terrain, the climate in the vicinity of the site can be considered as semi-arid with normal precipitation of about 13.4 in (34 cm) (WRCC, 2005). Most precipitation is in the form of rain with snowfall accounting for about 30 percent of the annual precipitation total. There are two separate rainfall seasons in the region, the first in late summer and early autumn (August to October) and the second during the winter months (December to March).

The average temperature in Blanding ranges from approximately 30 degrees Fahrenheit (°F) in January to approximately 76°F in July. Average minimum temperatures are approximately 18°F in January and maximum temperatures are approximately 91°F in July (http://www.city-data.com/city/Blanding-Utah.html).

The mean annual relative humidity is about 44 percent and is normally highest in January and lowest in July. The average annual Class I pan evaporation rate is 68 inches (173 cm) (NOAA, 1977), with the largest evaporation occurring in July. Values of pan coefficients range from 60% to 81%. The annual lake evaporation rate for the site is 47.6 inches (120.9 cm) and the net evaporation rate is 34.2 inches per year (86.8 cm/yr).

2.3 Topography

The regional topography is relatively flat, with drainage traveling from the north to south in the region. The existing Cell 4A has a surface area of approximately 40 acres and is approximately 40 feet deep at the lowest corner. The existing Cell 4A bottom slopes from the northeast to the southwest at approximately one (1) percent. Cell 4A was constructed in 1989 by building compacted fills on the south and west side of the Cell and excavating the interior to gain additional volume. The existing berms are inclined at approximately 3Horizontal:1Vertical (3H:1V), with the exception of the western berm which is inclined at approximately 2H:1V on the interior slope and 3H:1V on the exterior slope. A discussion of the berm construction is provided in Section 2.4.1 of this Section.

2.4 Existing Soil Conditions

2.4.1 Soil Berms

Based on a review of the construction field reports, the existing soil berms are constructed of compacted sandy silt, and silty to clayey sand. Based on available records, compaction tests (with nuclear gauge and sand cone) were performed at a rate of approximately 1 test per 682 cubic yards (CY) of soil fill. Additional testing included Atterberg limits (1 per approximately 3,751 CY), soil gradation (1 per approximately 3,751 CY), and moisture density relations (standard Proctor, 1 per approximately 6,804 CY). Records indicate that the berm soil was compacted to meet the project specifications of 95 percent compaction of the maximum dry density per ASTM D698 (standard Proctor) at a moisture content of ±2% of optimum. Copies of the field test data are provided in Appendix D.

Since the soil berms appear to have been constructed in general accordance with the standard industry practice, there is no need to reconstruct them.

2.4.2 Clay Liner

The liner system constructed in 1989 included a 12-inch thick layer of compacted clay on the bottom of Cell 4A. Based on construction quality assurance/quality control testing, the soil used for the compacted clay liner is a sandy lean clay. Laboratory testing during construction included sieve analyses, Atterberg limits, and compaction tests. The test results for these analyses are presented in Appendix D. This clay liner is currently exposed in the bottom of the existing Cell 4A area.

2.5 Surface Water

Surface water at the facility is diverted around all the Cells including Cell 4A. Surface water run-on into Cell 4A is limited to the perimeter access road surrounding the Cell and direct precipitation into Cell 4A.

The site has implemented a Storm Water Best Management Practices Plan in accordance with the facility permit. All site construction activities will be performed in accordance with the site Storm Water Best Management Practices Plan.

2.6 Groundwater

Groundwater is located at a depth of approximately 50 to 80 feet at the site. No changes to the existing groundwater monitoring plan are proposed by this project.

2.7 Tailings

Cell 4A will accept process liquids, tailings, and by-products associated with on-site processing operations. The liquids are typically highly acidic with a pH generally between 1 and 2. Tailings are generally comprised of ore that is ground to a maximum grain size of approximately 0.023 inches (0.6 mm).

3. LINER SYSTEM DESIGN

The liner system is designed to provide a cell for disposal of by-products from the on-site processing operations while protecting the groundwater beneath the site. The liner system is designed to meet the Best Available Technology requirements of the Utah Administrative Code (UAC) R317-6, which require that the facility be designed to achieve the maximum reduction of a pollutant achievable by available processes and methods taking into account energy, public health, environmental and economic impacts, and other costs. The liner system includes the following primary components, from top to bottom:

- Slimes drain system;
- Primary geomembrane liner;
- Leak detection system;
- Secondary geomembrane liner; and
- Geosynthetic clay liner.

These components, and related design considerations, are discussed below.

3.1 Cell Capacity and Geometry

The cell has been designed to accommodate storage of up to approximately 980 acre-feet (1.6 million cubic yards) of tailings with 3-feet of freeboard. The lowest elevation in Cell 4A is the sump located in the southwest corner at an elevation of approximately 5,556 feet above mean sea level (MSL).

Sideslopes will remain at the current inclinations, ranging from approximately 3H:1V to 2H:1V. Access to the bottom of Cell 4A for construction is provided at the northeast corner, which is inclined at approximately 6H:1V. The existing, approximately 15 feet wide, access road that surrounds the entire Cell 4A will be maintained as an unpaved road.

3.2 Earthwork

Limited earthwork for the project is expected within the bottom area of the cell and for anchor trenches at the top of the perimeter berms. As discussed in Section 1.2, the existing geomembrane liner and overlying waste materials have been removed from Cell 4A. The clay liner constructed in 1989 has been exposed and will be used as the subgrade surface for the new liner system (see Section 3.3 below). Earthwork will be limited to excavation of a 4 foot deep emergency spillway from Cell 3 to Cell 4A, excavation of the sump area in the southwest corner of the cell, minor re-grading of the bottom area of the cell for the purposes of preparing subgrade for the geosynthetic liner system installation, excavation of leak detection system trenches, and excavation of anchor trenches on top of the perimeter berms. Fill soil will consist of anchor trench backfill, as discussed in Section 3.3.5.

3.3 Liner System

A double liner system is proposed for Cell 4A, including a primary liner, leak detection system and composite secondary liner. The liner system, for both the bottom area and side slopes, consists of (from top to bottom):

- Slimes Drain System (Cell bottom only);
- 60 mil smooth HDPE geomembrane (Primary Liner);
- Geonet Drainage Layer (Leak Detection System);
- 60 mil smooth HDPE geomembrane;
- Geosynthetic Clay Liner (GCL); and } (Composite Secondary Liner)
- Prepared Subgrade.

3.3.1 Slimes Drain System

A slimes drain system will be placed on top of the primary geomembrane liner to facilitate dewatering of the tailings prior to final reclamation of the Cell. The slimes drain system will consist of perforated 4-inch diameter schedule 40 polyvinyl chloride (PVC) pipe, drainage aggregate, cushion geotextile, and geosynthetic drainage materials that will provide a means to drain the tailings disposed within Cell 4A. The slimes drain system is shown on Sheets 4, 5, and 6 of the Drawings (Appendix A).

The perforated PVC pipe is designed to resist crushing and wall buckling due to the anticipated loading associated with the maximum height of overlying tailings. The design analyses for the pipe are presented in Appendix E, while Appendix C, Section 02616 provides material specifications for the pipe and drainage aggregate.

The cushion geotextile is designed to protect the underlying primary HDPE geomembrane from puncture due to the drainage aggregate and the anticipated loading associated with the maximum height of overlying tailings. The design analyses for the cushion geotextile are presented in Appendix E, while Appendix C, Section 02771 provides material specifications.

The Slimes Drain sump will include a sideslope riser pipe to allow installation of a submersible pump for manual collection of liquids in the sump. The sump and riser pipes are shown on Sheet 6 of the Drawings (Appendix A).

3.3.2 Primary Liner

The primary liner will consist of a smooth 60-mil HDPE geomembrane. The geomembrane will have a white surface that will limit geomembrane movement and the creation of wrinkles due to temperature variations. HDPE geomembrane was selected due to its high resistance to chemical degradation and ability to survive in an acidic environment. The limit of the liner system (both primary and secondary) and details are shown on Sheets 3, 5, and 6 of the Drawings (Appendix A).

The HDPE geomembrane will be constructed in accordance with the current standard of practice for geomembrane liner installation, as outlined in the site Technical Specifications (Appendix C, Section 02770) and the site Construction Quality Assurance (CQA) Plan (Appendix B). Seams will be welded to provide a continuous geomembrane liner. Testing during construction will include both non-destructive and destructive testing, as outlined in the Technical Specifications and CQA Plan. Upon completion of construction, the geomembrane manufacturer will provide a 20-year warranty for the geomembrane.

3.3.3 Leak Detection System

The leak detection system (LDS) will underlie the primary liner and is designed to collect potential leakage through the primary liner and convey the liquid to the sump for manual detection through monitoring of sump levels. The LDS consists of a 200-mil thick geonet and a network of gravel trenches throughout the bottom of the cell. The trenches will contain a 4-inch diameter perforated schedule 40 PVC pipe, drainage aggregate, and a cushion geotextile, which will drain to a sump located in the southwest corner of the cell. The trenches will aid in rapidly conveying any seepage to the drain sump. The LDS is shown on Sheets 4, 5 and 6 of the Drawings (Appendix A).

The perforated PVC pipe is designed to resist crushing and wall buckling due to the anticipated loading associated with the maximum height of overlying tailings. The design analyses for the pipe are presented in Appendix E, while Appendix C, Section 02616 provides material specifications for the pipe and drainage aggregate.

The cushion geotextile is designed to protect the underlying secondary HDPE geomembrane from puncture due to the drainage aggregate and the anticipated loading associated with the maximum height of overlying tailings. The design analyses for the cushion geotextile are presented in Appendix E, while Appendix C, Section 02771 provides material specifications.

The LDS sump will include a sideslope riser pipe and submersible pump to allow for manual collection of liquids in the LDS sump. The LDS sump and riser pipes are shown on Sheet 6 of the Drawings (Appendix A).

3.3.4 Secondary Composite Liner System

The primary purpose of the secondary liner is to provide a flow barrier so that potential leakage through the primary liner will collect on top of the secondary liner then flow through the LDS to the LDS sump for manual collection. The secondary liner also provides an added hydraulic barrier against leakage to the subsurface soils and groundwater. The secondary liner consists of a composite liner that includes a 60-mil HDPE geomembrane overlying a GCL.

3.3.4.1 Secondary Geomembrane Liner

The geomembrane component of the secondary liner system will consist of a smooth 60-mil HDPE geomembrane and will meet the same criteria as the primary liner geomembrane (Section 3.3.2). The limit of the liner system (both primary and secondary) and details are shown on

Sheets 3, 5, and 6 of the Drawings (Appendix A).

3.3.4.2 Secondary GCL Liner

The GCL component of the secondary liner system consists of bentonite sandwiched between two geotextile layers that are subsequently needle-punched together to form a single composite hydraulic barrier material. The GCL is approximately 0.2-inches thick with a hydraulic conductivity on the order of 1×10^{-9} cm/s (Daniel and Scranton, 1996). Since 1986, GCLs have been increasingly used as an alternative to compacted clay liners (CCLs) on containment projects due to their low cost, ease of construction/placement, and resistance to freeze-thaw and wet-dry cycles. In general, the USEPA and the containment industry accepts that GCLs are hydraulically equivalent to a minimum of 2 feet of compacted clay liner consisting of 1×10^{-7} cm/sec soil materials.

To demonstrate that a secondary composite liner system consisting of a 60-mil HDPE geomembrane overlying a geosynthetic clay liner (GCL) has equivalent or better fluid migration characteristics when compared with a secondary composite liner system consisting of a 60-mil HDPE geomembrane overlying a compacted clay liner (CCL) having a saturated hydraulic conductivity less than 1×10^{-7} cm/s, GeoSyntec prepared an engineering analysis, which is presented in Appendix E. Based on this site specific analysis, which accounts for the loading conditions and anticipated liquid head on the secondary liner system, the amount of flow through the secondary liner system with CCL was evaluated to be 8.51 times greater than flow through the secondary liner system with GCL for a liquid head of 0.16in. (4 mm). Therefore, in terms of limiting fluid flow through the composite secondary liner system, the secondary liner system containing a GCL performs better than the secondary liner system containing a CCL.

The following site specific conditions must be considered prior to use of a GCL in place of CCL (Koerner and Daniel, 1993):

- Puncture Resistance: While CCLs naturally provide greater puncture resistance than GCLs due to their inherent thickness, proper subgrade preparation and design of the geotexile components of the GCL can result in protection from puncture. The geotextile components of the GCL for Cell 4A are designed to protect the overlying secondary HDPE geomembrane from puncture due to the protrusions from the subgrade and the anticipated loading associated with the maximum height of overlying tailings. The design analyses for the geotextile components of the GCL are presented in Appendix E, while Appendix C, Section 02772 provides material specifications.

- Chemical Adsorption Capacity: Due to the thickness of a CCL, the chemical adsorption capacity of a CCL is greater than that of a GCL. However, adsorption capacity is only relevant in the short term, and not considered a parameter for steady-state analyses.

- Stability: The internal strength of a GCL can be significantly lower than that of a CCL, especially at high confinement stresses. This reduced strength can have significant effects on stability, especially at disposal facilities with high waste slopes and the potential for seismic activity. Strength of the GCL and its effects on stability are not a concern at Cell 4A due to the low confining stresses expected and geometry of the Cell. Waste deposits will not be placed above the elevation of the perimeter road. Since no above grade slopes will be present, there are no long term destabilizing forces on the liner system.

- Construction Issues: For the Cell 4A liner system, GCLs may be considered superior to the CCLs with respect to construction issues. Construction of GCLs is typically much quicker and is more easily placed than a CCL, which requires moisture conditioning and compaction for placement. Further, CQA testing for a GCL is much simpler and less affected by interpretation of field staff than that for a CCL, which requires careful control of material type, moisture conditions, clod size, maximum particle size, lift thickness, etc.

- Physical/Mechanical Issues: Physical and mechanical issues include items such as the effect of freeze/thaw and wetting/drying cycles. CCLs may undergo significant increases in hydraulic conductivity as a result of freeze/thaw. Existing laboratory data suggests that GCLs do not undergo increases in hydraulic conductivity as a result of freeze/thaw. CCLs are also known to form dessication cracks upon drying which can result in significant increases in hydraulic conductivity. This increase drastically jeopardizes the effectiveness of the CCL as a barrier layer. Available laboratory data on GCLs indicates that upon re-hydration after dessication, GCLs swell and the cracks developed during drying cycles are 'self healed'. Due to the arid environment at the site, GCL performance in the Cell 4A liner system with respect to physical and mechanical issues is expected to be superior to that of a CCL.

Based on review of the above site-specific considerations, a GCL is considered superior to a CCL for use in the secondary composite liner system.

3.3.5 Subgrade

As discussed in Section 2.4.2, the subgrade in the bottom of the Cell consists of approximately 12 inches of compacted clay from the original 1989 liner construction. Prior to placement of the secondary composite liner system, the existing clay subgrade and side slopes will be prepared by minor regrading and compacting to a smooth, consistent surface.

3.3.6 Anchor Trench

The liner system will be anchored at the top of the slope with an anchor trench. The anchor trench was sized to resist anticipated maximum wind uplift forces, see Anchor Trench Capacity Calculations provided in Appendix E. The anchor trench will be 2 feet deep and 2 feet wide and filled with compacted soil, see Sheet 5 of the Design Drawings (Appendix A).

3.4 Splash Pad

Approximately three splash pads will be constructed to allow filling of Cell 4A without damaging the liner system. The splash pad consists of an additional geomembrane placed along the sideslope of the Cell extending a minimum of 5 feet from the toe of the slope. The geomembrane will protect the underlying liner system from contact with the inlet pipes. A cross section of a typical splash pad is shown on Sheet 5 of the Design Drawings (Appendix A). The locations of the splash pads will be finalized in the field during construction, based on site operational needs.

3.5 Emergency Spillway

An emergency spillway will be constructed between Cells 3 and 4A. The spillway will be approximately 4 feet deep with 8H:1V approach pads that will allow traffic moving along the top of the berm to pass through the spillway (when dry). The spillway will consist of a 6-inch thick reinforced concrete pad, designed to withstand loadings from pick-up truck traffic, see Concrete Calculations provided in Appendix E. The spillway is designed to handle the Probable Maximum Precipitation (PMP) for a 6 hour storm event for the site, see Spillway Calculations provided in Appendix E. The Cell 4A liner will extend beneath the concrete as shown on Sheet 7 of the Design Drawings (Appendix A).

4. SUMMARY AND CONCLUSIONS

This report presents the design engineering evaluations for the Cell 4A Liner System at the White Mesa Mill Facility. The calculations presented in this engineering report establish the dimensions and properties of the liner system components. The design plans and details are presented in the project Drawings (Appendix A), recommended construction quality testing and observation requirements are provided in the CQA Plan (Appendix B), and material requirements are provided in the project Technical Specifications (Appendix C).

4.1 Limitations

The professional opinions and recommendations expressed in this report are made in accordance with generally accepted standards of geotechnical practice. This warranty is in lieu of any other warranty either express or implied. We are responsible for the conclusions and recommendations contained in this report based on the data relating only to the specific project and location discussed herein. We are not responsible for use of the information contained in this report for purposes other than those expressly stated in this report. In the event that there are changes in the design or location of this project that do not conform to the project as described herein, we will not be responsible for these changes unless given the opportunity to review them and concur with them in writing. We are not responsible for any conclusions or recommendations made by others based upon the data or conclusions contained herein unless given the opportunity to review them and concur with them in writing.

Gregory T. Corcoran, P.E.
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5. REFERENCES

Daniel, D.E., and Scranton, H.G. (1996), "Report of 1995 Workshop of Geosynthetic Clay Liners," EPA/600/R-96/149, June, 93 pgs.

Koerner, R.M. and Daniel, D.E. (1993) "Technical Equivalency Assessment of GCLs to CCLs." "Proc. Seventy Annual GRI Seminar, Geosynthetic Research Institute, Philadelphia, PA."

Western Regional Climate Center (WRCC), 2005. Based on data from 12/8/1904 to 3/31/2005 at Blanding, Utah weather station (420738).

Appendix A

Design Drawings

Appendix B

Construction Quality Assurance Plan

CONSTRUCTION QUALITY ASSURANCE PLAN
for the Construction of
Cell 4A Lining System

IUC White Mesa Mill
Blanding, Utah

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JANUARY 2006

CERTIFICATION PAGE

CONSTRUCTION QUALITY ASSURANCE (CQA) PLAN FOR CELL 4A LINING SYSTEM CONSTRUCTION
INTERNATIONAL URANIUM (USA) CORPORATION
WHITE MESA MILL
BLANDING, UTAH

The Engineering material and data contained in this CQA Plan were prepared under the supervision and direction of the undersigned, whose seal as a registered Professional Engineer is affixed below.

REGISTERED PROFESSIONAL ENGINEER
No. 6020077-2202
GREGORY T.
CORCORAN
STATE OF UTAH

Gregory T. Corcoran, P.E.
Engineer of Record

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TABLES

1. INTRODUCTION

1.1 Terms of Reference

GeoSyntec Consultants (GeoSyntec) has prepared this Construction Quality Assurance (CQA) Plan for the construction of liner systems associated with the Cell 4A Lining System Construction at the International Uranium (IUC) Corporation White Mesa Mill Facility (site), located at 6425 S. Highway 191, Blanding, UT 84511. This CQA Plan was prepared by Mr. Chad Bird, E.I.T., of GeoSyntec Consultants (GeoSyntec), and was reviewed by Mr. Greg Corcoran, P.E., also of GeoSyntec, in general accordance with the peer review policies of the firm.

1.2 Purpose and Scope of the Construction Quality Assurance Plan

The purpose of the CQA Plan is to address the CQA procedures and monitoring requirements for construction of the project. The CQA Plan is intended to: (i) define the responsibilities of parties involved with the construction; (ii) provide guidance in the proper construction of the major components of the project; (iii) establish testing protocols; (iv) establish guidelines for construction documentation; and (v) provide the means for assuring that the project is constructed in conformance to the *Technical Specifications*, permit conditions, applicable regulatory requirements, and *Construction Drawings*.

This CQA Plan addresses the soils and geosynthetic components of the liner system for the project. The soils, geosynthetic, and appurtenant components include prepared subgrade, geosynthetic clay liner (GCL), geomembrane, geotextile, geonet, drainage aggregate, and polyvinyl chloride (PVC) pipe. It should be emphasized that care and documentation are required in the placement aggregate, and in the production and installation of the geosynthetic materials installed during construction. This CQA Plan delineates procedures to be followed for monitoring construction utilizing these materials.

The CQA monitoring activities associated with the selection, evaluation, and placement drainage aggregate are included in the scope of this plan. The CQA protocols applicable to manufacturing, shipping, handling, and installing all geosynthetic materials are also included. However, this CQA Plan does not specifically address either installation specifications or specification of soils and geosynthetic materials as these requirements are addressed in the *Technical Specifications*.

1.3 References

The CQA Plan includes references to test procedures in the latest editions of the American Society for Testing and Materials (ASTM).

1.4 Organization of the Construction Quality Assurance Plan

The remainder of the CQA Plan is organized as follows:

- Section 2 presents definitions relating to CQA;
- Section 3 describes the parties involved with the CQA;
- Section 4 describes the responsibilities of the CQA personnel;
- Section 5 describes site and project control requirements;
- Section 6 presents CQA documentation;
- Section 7 presents CQA of earthworks;
- Section 8 presents CQA of the drainage aggregates;
- Section 9 presents CQA of the pipe and fittings;
- Section 10 presents CQA of the geomembrane;
- Section 11 presents CQA of the geotextile;
- Section 12 presents CQA of the geonet;
- Section 13 presents CQA of the geosynthetic clay liner;
- Section 14 presents CQA surveying.