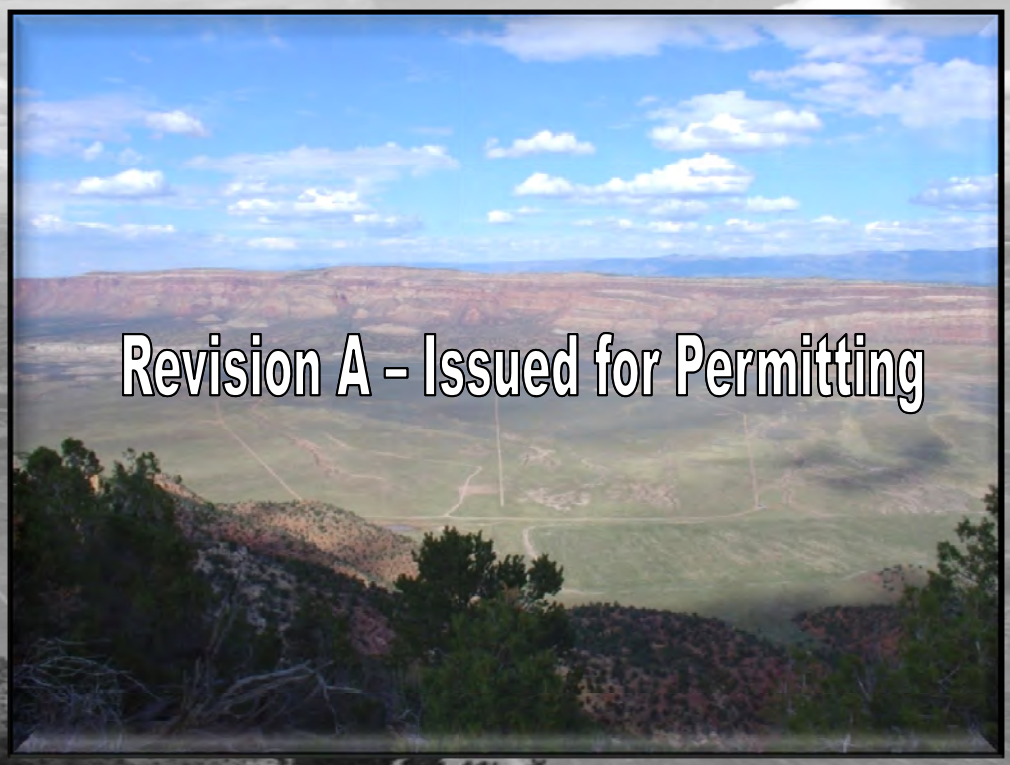
Technical Specifications
Piñon Ridge Project
Montrose County, Colorado



Prepared for:

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Submitted by:

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September 2008

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TECHNICAL SPECIFICATIONS
PIÑON RIDGE PROJECT

REVISION A – ISSUED FOR PERMITTING

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TABLE OF CONTENTS

DIVISION 1
GENERAL REQUIREMENTS

SECTION 01050.0 CONSTRUCTION STAKING AND CONSTRUCTION DOCUMENTATION

PART 1: GENERAL

1.01 SUMMARY:

This Section defines the control staking services required by the **CONTRACTOR**. All staking and surveying will be the responsibility of the **CONTRACTOR** unless otherwise specifically defined in this section. All grade checking and transferring of lines and grades from **OWNER**-installed stakes will be the responsibility of the **CONTRACTOR**. **OWNER** refers to Energy Fuels Resources Corporation (EFRC).

1.02 CONTROL STAKES:

Control stakes which are reference points for all construction work will be conspicuously marked. It shall be the responsibility of the **CONTRACTOR** to inform his employees and his subcontractors of their importance and the necessity for their preservation. At least seventy-two (72) hours' written advance request for removal of control stakes shall be given to the **OWNER**. A total of ten (10) control stakes will be provided to the **CONTRACTOR** by the **OWNER** for this work.

Control stakes shall be set one time only.

1.03 FLAGGING CODE:

A color code will be established by the **CONTRACTOR** during the course of the project indicating specific colors for the various kinds of stakes to be set.

1.04 STAKING:

A. The **OWNER** will provide vertical and horizontal reference control stakes in the proximity of the work as discussed in Article 1.02 of this Section.

B. The **CONTRACTOR** shall be responsible for setting construction and grade stakes and for proper preservation of control points.

1.05 CONSTRUCTION DOCUMENTATION:

A. The **CONTRACTOR** shall be responsible for accurately surveying the locations and elevations, and where applicable, the type, thickness, and geometry of any and all pipes and fittings, ditches, geosynthetic materials, breaks in fill or cut slopes, general grading, change in fill or synthetic material type, and any other aspect of the work to facilitate construction and as required by the **MANAGER**.

B. Submittals by **CONTRACTOR** upon Completion of Work:

Within seven (7) calendar days after completion of the Work, **CONTRACTOR** shall furnish **MANAGER** with "Record Drawings" of the Work. The Record Drawings will be drawn at a scale of 1 inch equals 100 feet with 2-foot topographic contour interval, on a 24-inch by 36-inch sheet. All surveying Record Drawings shall be signed and sealed by the Colorado-licensed surveyor who directed the work. The required surveying shall be carried out on a 50-ft by 50-ft grid with additional survey points required to define the topographic features of the various facilities (i.e., toe of slope, crest of slope, breaks in grade), unless otherwise directed by **MANAGER**. The Record Drawings shall include elevations and locations for the following:

1. Diversion channel (or pipe) plan and hydraulic profile view along the diversion channel alignments, with location limits of culverts, Riprap, and other hydraulic features.

2. Tailings Cell Underdrain plan view showing the surveyed limits and elevations of the Tailings Cells, Coarse and Fine Underdrain Fill, Underdrain Sump, Underdrain Collection Pipe and trench alignment, and Underdrain Riser Pipes with elevations every approximately 100 feet, or on every break in grade.

3. Prepared subgrade for the Tailings Cells, Ore Stockpile Pads, Evaporation Ponds, Mill Foundations, and Stormwater Collection Ponds on a 10-foot contour interval, including perimeter berm and access road construction, or wall elevations, where applicable.

4. Limits of the facility liner systems in plan view with contours on a 2-foot contour interval, which includes:

   a. A plan drawing showing the top of the upper primary geosynthetic liner, including location of geomembrane panels, in the Tailings Cells, Evaporation Ponds, Stormwater Collection Ponds, Ore Stockpile Pad, and containment channels.

   b. A plan drawing showing the top of the lower secondary geosynthetic liner, including location of geomembrane panels, in the Tailings Cells and Evaporation Ponds, with the Leak Detection System (LDS) sump and riser pipe system, where applicable.

5. Ore Stockpile Pad retaining wall profile drawn at a scale of 1 inch equals 10 feet.

6. Surveyed locations and dimensions of mill foundations.

7. Surveyed limits and elevations of site access roads, including minor access roads (i.e., perimeter and water well access).

8. Surveyed limits and elevations of any stockpile material.

9. Surveyed limits of license boundary.

The Record Drawings and surveying report will be signed and stamped by a Professional Land Surveyor registered in the State of Colorado. In addition, the survey documentation shall include a complete list of surveyed points with coordinates and elevations and a comparison to the design coordinates and elevations, where applicable. The documentation shall also indicate variance from design tolerances, where applicable, and shall indicate compliance with the design.

C. Submittal:

CONTRACTOR will submit completed survey documentation and Record Drawings within seven (7) calendar days upon completion of the Work in the following manner:

1. Submit two (2) reproducible copies to the **MANAGER**.

2. Submit two (2) non-reproducible copies to the **MANAGER** on IBM compatible compact disks (CD) on Autocad Version 2007 or newer format.

D. The **CONTRACTOR** will be responsible for performing the following survey activities associated with the Construction Quality Assurance Report that will be prepared by the **ENGINEER OF RECORD**:

1. Provide northing, easting, and elevation and depth verifications for all subgrade, Leak Detection Fill and Coarse and Fine Underdrain Fill on a 50-ft by 50-ft grid with additional survey points at all breaks in grade.

2. Provide northing, easting, and elevation for geomembrane panel intersections and destructive samples.

3. Provide continuous northing, easting, and elevation reference for QA/QC field testing and sampling location identification.

4. Provide verification that no slopes exceed 2.5(H):1(V), without specific approval from the **ENGINEER OF RECORD**.

Northings, eastings, and elevations for Items 1, 2, and 3 will be performed on a daily basis and results will be provided to the **MANAGER** in both electronic and hardcopy format within 24 hours of performing the survey.

*** END OF SECTION ***

SECTION 01400.1 EARTHWORKS CONSTRUCTION QUALITY ASSURANCE (CQA) PLAN

PART 1: INTRODUCTION

This plan addresses the construction quality assurance (CQA) procedures for the installation of the earthworks (soils) components of the Ore Stockpile Pads, Stormwater Collection Ponds, Tailings Cells, Evaporation Ponds, Mill Pad, access roads, and site grading and drainage at the Piñon Ridge Project in Montrose County, Colorado. This program has been developed to assure that the construction of the soil components are in compliance with the project SPECIFICATIONS and to demonstrate that the regulatory requirements for the construction are achieved.

The objective of this plan is to assure that proper materials, construction techniques, and procedures are followed by the **CONTRACTOR** and that the intent of the design is met. This plan also provides the means for resolution of problems that may occur during construction.

This plan addresses quality assurance (QA), not quality control (QC). This CQA Plan is independent of the QC programs conducted by the **CONTRACTOR**. The intent of the CQA Plan is to provide verification and testing to demonstrate that the **CONTRACTOR** has met its obligations in the supply and installation of earthwork (soils) materials according to the design, project SPECIFICATIONS, contractual, and regulatory requirements. QC is provided by the **CONTRACTOR** and refers to those actions taken by the **CONTRACTOR** to ensure that materials and workmanship meet the requirements of the DRAWINGS and SPECIFICATIONS.

QA testing shall be performed at the place of installation. QC testing may be performed at the point of processing, from the stockpile, or at the place of installation.

PART 2: DESCRIPTION OF PARTIES

The following section provides descriptions of the parties including their responsibilities and qualifications.

2.01 OWNER

In this CQA Plan, **OWNER** refers specifically to Energy Fuels Resources Corporation (EFRC). EFRC is the **OWNER** and will operate the mill.

2.02 MANAGER

In this CQA Plan, **MANAGER** refers to the company or individual appointed by the **OWNER**. **MANAGER** is the official representative of the **OWNER** and is responsible for all construction activities including oversight and direction during construction. **MANAGER** is also responsible for coordinating construction and CQA activities for the project.

MANAGER shall serve as communications coordinator for the project, initiating preconstruction and resolution meetings. As communications coordinator, **MANAGER** will serve as a liaison between all parties involved in the project to ensure that ongoing communications are maintained. **MANAGER** and **ENGINEER OF RECORD** shall be responsible for the resolution of all CQA issues.

Duties for this position include the following:

1. Review and approval of DRAWINGS and SPECIFICATIONS for all soil components of the Ore Stockpile Pads, Stormwater Collection Ponds, Tailings Cells, Evaporation Ponds, Mill Pad, access roads, and site grading and drainages.

2. Preconstruction coordination with the CQA Monitor(s) to ensure that the CQA Monitor(s) has performed similar reviews of the DRAWINGS and SPECIFICATIONS to ensure that the CQA Plan can be implemented.

3. Coordination of all construction activities associated with **CONTRACTOR**.

4. Scheduling and coordinating construction activities with required CQA testing and activities.

5. Overseeing the construction QC operations performed by the **CONTRACTOR**.

6. Approve specific corrective measures to be implemented during construction when deviations from these SPECIFICATIONS occur.

7. Ensure that required QA testing has been performed in accordance with the CQA Plan and to the satisfaction of the CQA Monitor.

8. Ensure that the CQA personnel are provided with all documentation required in the CQA Plan and project SPECIFICATIONS, including current DRAWINGS and SPECIFICATIONS.

2.03 DESIGN ENGINEER

In this CQA Plan, **DESIGN ENGINEER** refers specifically to Golder Associates Inc. for the Ore Stockpile Pads, East Stormwater Pond, Tailings Cells, and Evaporation Ponds, and refers specifically to Kleinfelder West Inc. for the Mill Pad, site grading, site drainage, West Stormwater Pond, and site access roads. The **DESIGN ENGINEER** is the firm(s) responsible for the design and preparation of the DRAWINGS and SPECIFICATIONS. **DESIGN ENGINEER** is responsible for approving all DESIGN and SPECIFICATION changes, modifications, or clarifications encountered during construction that pertain to the facility in which they designed.

2.04 ENGINEER OF RECORD

In this plan, **ENGINEER OF RECORD** for the Ore Stockpile Pads, East Stormwater Pond, Tailings Cells, and Evaporation Ponds refers specifically to Golder Associates Inc., and refers specifically to Kleinfelder West Inc. for the Mill Pad, site grading, site drainage, West Stormwater Pond, and site access roads. **ENGINEER OF RECORD** is the firm(s) responsible for the design and preparation of the DRAWINGS and SPECIFICATIONS, and for confirming that the construction was performed in compliance with the DRAWINGS and SPECIFICATIONS. **MANAGER** and **ENGINEER OF RECORD** shall be responsible for the resolution of all quality assurance issues.

2.05 CQA MONITOR

The CQA Monitor is the firm(s) or individuals responsible for performing the CQA tasks outlined in this CQA Plan for the **ENGINEER OF RECORD**. The CQA Monitor is the official CQA representative of the **OWNER** and has the responsibility of overseeing the CQA aspects of the Work. In this CQA Plan, the CQA Monitor reports to the **ENGINEER OF RECORD**. The CQA Monitor shall promptly inform the **MANAGER** of any aspect of the Work that is not in compliance with the CQA Plan, DRAWINGS, or SPECIFICATIONS. The **MANAGER** will direct the **CONTRACTOR** to take corrective action as required to correct the noncompliant Work. The specific responsibilities of the CQA Monitor include:

1. Review the DRAWINGS, SPECIFICATIONS, and related guidance documents.

2. Review all **CONTRACTOR** QC submittals and make appropriate recommendations regarding compliance with the DRAWINGS and SPECIFICATIONS.

3. Obtain construction samples and perform material evaluation testing as required.

4. Monitor foundation preparation activities as discussed in Article 6.02.01 and material placement as discussed in Article 6.02.02.

5. Assure that testing equipment used and tests performed are conducted according to SPECIFICATIONS and industry standards.

6. Document and report test results to **MANAGER**.

7. Report any deficiencies to **MANAGER** that are not corrected to the satisfaction of the CQA Monitor, including design or SPECIFICATION changes.

8. Prepare a CQA Report describing the construction, approved deviations from SPECIFICATIONS or DRAWINGS and details, details of all field and laboratory test data, tests results (both laboratory and field), and professional opinion that construction was completed in accordance with the DRAWINGS and SPECIFICATIONS. The CQA Report will be signed and sealed by the **ENGINEER OF RECORD**.

9. Monitor the ambient air temperature and fill temperature, as outlined in specification Section 02200.

10. Maintain an on-site soils laboratory and perform regular calibration of equipment.

2.06 EARTHWORKS CONTRACTOR

The Earthworks Contractor, also referred to as "**CONTRACTOR**", is responsible for proper processing, delivery and placement of all components as shown on the DRAWINGS and as outlined in the SPECIFICATIONS.

PART 3: LINES OF COMMUNICATION

The CQA Monitor shall be capable of direct communication with **MANAGER**, **DESIGN ENGINEER** and **ENGINEER OF RECORD** at all times. Deficiencies that can be easily remedied, such as unsatisfactory test results, will be dealt with directly between the CQA Monitor and **CONTRACTOR**. The CQA Monitor will also discuss any deficiencies with the **ENGINEER OF RECORD**.

PART 4: DEFICIENCIES

When deficiencies (items that do not meet SPECIFICATIONS or DRAWINGS) are discovered, the CQA Monitor will promptly determine the nature and extent of the problem and notify the **CONTRACTOR**. If unsatisfactory test results identify a deficiency, additional tests will be performed to define the extent of the deficient area.

CONTRACTOR shall correct the deficiency to the satisfaction of the CQA Monitor. If **CONTRACTOR** is unable to correct the problem, the CQA Monitor will notify **MANAGER** and **ENGINEER OF RECORD** which will assist in problem resolution. If the solution involves a design revision, the **DESIGN ENGINEER** shall also be contacted.

The CQA Monitor shall retest and the **MANAGER** and **ENGINEER OF RECORD** shall approve the corrected deficiencies before any additional related work is performed by **CONTRACTOR**. All retests and related documentation shall be recorded by the CQA Monitor and included in the CQA Report.

PART 5: MEETINGS

This section identifies and describes the meetings to be held during the course of the construction. Meetings shall be held in order to clearly define construction activities and goals in order to facilitate construction.

5.01 PRE-CONSTRUCTION MEETING

MANAGER will hold a pre-construction meeting at the site prior to the start of construction. **MANAGER**, **DESIGN ENGINEER, ENGINEER OF RECORD**, CQA Monitor, **CONTRACTOR**, and others designated by **MANAGER** shall attend this meeting. The purpose of this meeting will be to:

1. Review the construction DRAWINGS, CQA Plan, and SPECIFICATIONS.
2. Define the responsibilities of each party.
3. Define lines of communication and authority.
4. Review method of documentation, testing procedures, and reporting inspection data.
5. Establish testing protocols and procedures for correcting and documenting construction deficiencies.
6. Discuss any changes that may be needed to ensure that construction will be completed in compliance with the design.

This meeting will be documented by **MANAGER** or his designee and copies will be distributed to all parties.

5.02 PROGRESS MEETINGS

MANAGER will hold progress meetings daily, or at a frequency agreed to between **MANAGER** and CQA Monitor. At a minimum, this meeting will be attended by the CQA Monitor and **CONTRACTOR**. The purpose of this meeting will be to:

1. Review the previous day's accomplishments and activities.
2. Review scheduled work location and activities for the day.
3. Discuss any issues or potential construction problems.
4. Review test data.

This meeting will be documented by the CQA Monitor.

5.03 DEFICIENCY MEETINGS

Special meetings will be held, as needed, to discuss potential problems or deficiencies. At a minimum, these meetings will be attended by the CQA Monitor and **CONTRACTOR**. If the problem relates to a design issue, **MANAGER**, **DESIGN ENGINEER,** and **ENGINEER OF RECORD** should also participate. The meeting will be documented by the CQA Monitor.

PART 6: EARTHWORKS CQA

Construction of the Ore Stockpile Pads, Stormwater Collection Ponds, Tailings Cells, Evaporation Ponds, Mill Pad, access roads, surface water diversions, site grading, and other specified earthworks shall be in accordance with the DRAWINGS and SPECIFICATIONS. A CQA monitoring and testing program shall be implemented by the **OWNER** to ensure construction compliance by the **CONTRACTOR**. The CQA testing program shall consist of construction testing of materials used in the various site facilities. The types of materials are defined in the SPECIFICATIONS. During construction, the CQA Monitor shall sample and test these soil types to determine if they meet SPECIFICATIONS. The CQA Monitor shall obtain and test soil samples in accordance with American Society for Testing and Material (ASTM) standards ASTM D75 and ASTM D420. All tests shall be performed by the CQA Monitor on-site or in a geotechnical laboratory approved by **MANAGER**.

6.01 CONSTRUCTION TESTING

During construction, the CQA Monitor shall test earthwork components to verify that the construction is in accordance with the SPECIFICATIONS. Testing shall be performed on soil used in the construction to confirm the materials meet SPECIFICATIONS. The CQA Monitor shall conduct testing after final placement of the materials. The tests to be performed, and the testing frequency, for each material type are listed in Table 01400.1-1. The testing frequencies specified in Table 01400.1-1 shall be increased when the CQA Monitor determines that construction conditions (such as adverse weather, equipment breakdown, improperly ballasted compactor, excessive lift thickness, improper soil type, improper moisture conditioning, and compaction) warrant additional tests. Additional tests will be approved by **MANAGER** and directed by the CQA Monitor. QC testing is the responsibility of the **CONTRACTOR**.

6.02 CONSTRUCTION MONITORING

The CQA Monitor will monitor earthwork components of the construction to verify that the construction is in accordance with the SPECIFICATIONS. The CQA Monitor shall identify inadequate construction methodologies or materials that may adversely impact the performance of the facility being constructed and existing structures. The CQA Monitor will record visual observations throughout the construction process to ensure that the materials are placed to the minimum dimensions as shown on the DRAWINGS.

6.02.01 Foundation Preparation

The CQA Monitor shall observe and document the foundation preparation including:

1. Stripping and excavation activities required to remove any surface vegetation and topsoil. The CQA Monitor will document that topsoil materials, as determined by the **MANAGER** and **ENGINEER OF RECORD**, are removed and placed in a topsoil stockpile.

2. Stripping, excavation and processing activities are required to ensure that **CONTRACTOR** places the material in the appropriate stockpile (e.g. Structural Fill, Coarse Underdrain Fill, Fine Underdrain Fill, Leak Detection Fill, Cushion Material) if stockpiling is necessary.

3. Foundation subgrade preparation to confirm that the surface of the subgrade is free of soft, organic, and otherwise deleterious materials (such as debris, branches, vegetation, mud, ice, or frozen materials).

4. Construction of access roads, site grading and drainage, tailings cells, ore stockpile pads, evaporation ponds and erosion control features to verify compliance with the DRAWINGS and SPECIFICATIONS.

6.02.02 Placement of Materials

During placement of Structural Fill, Coarse Underdrain Fill, Fine Underdrain Fill, Leak Detection Fill, Anchor Trench Fill, Cushion Material, Roadway Subgrade Fill, Pipe Bedding Fill, Aggregate Base Course Material, Diversion Berm Fill, Stormwater Diversion Pipe Backfill, Riprap, and Random Fill, the CQA Monitor shall:

1. Verify the use of appropriate fills.

2. Monitor and document material placement, including soil type, particle size, loose lift thickness, moisture conditioning process, compaction equipment and methods used to attain compaction, including number of passes, uniformity of compaction coverage, compacted lift thickness, bonding of lifts and in-place moisture content and dry density is in compliance with the SPECIFICATIONS.

3. Monitor surface preparation to verify that the surface is suitable for geosynthetic (i.e., geomembrane or geosynthetic clay liner) installation as discussed in Section 02200 of the SPECIFICATIONS.

4. Monitor the placement of fill to ensure that **CONTRACTOR** exercises care in the vicinity of pipes and that the underlying geosynthetics are not damaged.

5. Monitor equipment being used to place Leak Detection Fill, Coarse Underdrain Fill, Fine Underdrain Fill, Aggregate Base Coarse Material, Pipe Bedding Fill, and Cushion Material over geosynthetics to verify that the **CONTRACTOR** places the material in accordance with the SPECIFICATIONS.

6. Monitor the placement of Structural Fill and other site grading materials to confirm that they comply with Section 02200 of the SPECIFICATIONS.

7. Monitor the fill temperature as identified in Section 02200 of the SPECIFICATIONS.

PART 7: DOCUMENTATION

Documentation by the CQA Monitor shall consist of daily record-keeping, construction problem resolutions, design and SPECIFICATION changes, photographic records of construction, weekly progress reports, chain of custody forms for test sample tracking, and a CQA Report.

7.01 DAILY RECORD KEEPING

Daily records kept by the CQA Monitor shall consist of field notes, observation and testing data sheets, summary of the daily meeting with **CONTRACTOR**, and reporting of construction problems and resolutions. The CQA Monitor shall submit this information on a regular basis to **MANAGER** for review.

7.02 SOILS OBSERVATION AND TESTING FORMS

The CQA Monitor will document soils observations on forms that generally include the following information:

1. Date, project name, location, and weather data, including high and low daily temperatures and precipitation (if any).

2. A site plan showing work areas and test locations.

3. Descriptions of ongoing construction detailing work areas and equipment utilized by **CONTRACTOR**.

4. Summary of test results and samples obtained, with locations and elevations.

5. Resolutions of deficient test results.

6. Test equipment calibrations, if necessary.

7. Summary of meetings held.

8. Signature or initials of the CQA Monitor.

7.03 PHOTO DOCUMENTATION

The CQA Monitor shall photograph the various phases of construction. Photographs shall be identified by location, time, date, and name of the CQA Monitor taking the photograph.

7.04 DESIGN AND SPECIFICATION CHANGES

During construction, the need to address design and SPECIFICATION changes, modifications, or clarifications may arise. In such cases, the CQA Monitor shall notify **MANAGER**, who shall notify the **DESIGN ENGINEER** and the **ENGINEER OF RECORD**. Design and SPECIFICATION changes shall only be made with written agreement from **MANAGER** and **DESIGN ENGINEER**, and may require review and/or approval by the regulatory agency.

7.05 WEEKLY PROGRESS REPORTS

The CQA Monitor shall prepare weekly progress reports summarizing construction and CQA activities. This report shall be submitted to **MANAGER** and shall include the following information:

1. Date, project name, and location.
2. Summary of construction-related activities.
3. Summary of samples taken and test results.
4. Summary of deficiencies and/or defects and resolutions.
5. Signature of the CQA Monitor.

7.06 CQA REPORT

At the completion of the project, the CQA Monitor shall submit to **MANAGER** a CQA Report. This report shall confirm that the Work has been performed in compliance with the DRAWINGS and SPECIFICATIONS, and will contain the following information:

1. Summary of construction activities.
2. Photographic documentation.
3. Test data sheets.
4. CQA test results, including date, test locations and resolutions of deficient test results.
5. Copies of surveyors' certificates.
6. Fill temperature monitoring results.
7. Staff schedule summary.
8. A description of significant construction problems and the resolution of these problems.
9. Changes to the DRAWINGS or SPECIFICATIONS, and the justification for these changes.
10. Record Drawings.
11. A statement that construction was completed in compliance with the DRAWINGS and SPECIFICATIONS, signed, and sealed by the **ENGINEER OF RECORD.**

TABLE 01400.1-1
SOIL CONSTRUCTION MINIMUM TESTING FREQUENCY[1]
VOLUME PER TEST

Test and ASTM Designation	Prepared Subgrade (cy)	Structural Fill, Anchor Trench Fill, Diversion Berm Fill, Stormwater Diversion Pipe Backfill, Roadway Subgrade Fill (cy)	Cushion Material, Random Fill (cy)	Aggregate Base Course Material (cy)	Coarse Underdrain Fill, Fine Underdrain Fill, Leak Detection Fill, Pipe Bedding Fill, Riprap (cy)
Compaction (ASTM D698)	50,000	50,000	50,000	--	Note 4
Compaction (ASTM D1557)	--	--	--	50,000	--
Particle Size[2] (ASTM C117, C136, D1140)	50,000	50,000	50,000	50,000	5,000
Atterberg Limit (ASTM D4318)	--	50,000	50,000	--	5,000
Moisture Content[3] (ASTM D6938)	2,000	2,000	5,000	2,000	Note 4
Nuclear Density[3] (ASTM D6938)	2,000	2,000	5,000	2,000	Note 4

1. Tests shall be performed at the specified frequency or one per material type, whichever is greater.
2. Use the USCS for description and identification (ASTM D2488).
3. In-place moisture content and in-place density.
4. Will be placed in accordance with an approved method specification.

*** END OF SECTION ***

SECTION 01400.2 GEOSYNTHETIC CQA PLAN

PART 1: INTRODUCTION

This plan addresses the CQA procedures for the installation of the geosynthetic components used for the construction of the Ore Stockpile Pads, Stormwater Collection Ponds, Tailings Cells, Evaporation Ponds, and other construction components at the Piñon Ridge Project in Montrose County, Colorado. This program has been developed to assure that the construction of the geosynthetic components are in compliance with the project SPECIFICATIONS, and to demonstrate that the regulatory requirements for the construction are achieved.

The objective of this plan is to assure that proper materials, construction techniques, and procedures are followed by the **CONTRACTOR** and that the intent of the design is met. This program also intends to identify problems that may occur during construction and provide the means for resolution of these problems.

This program addresses quality assurance, not quality control. This CQA Plan is independent of the QC programs conducted by the MANUFACTURERS, **INSTALLERS**, and **CONTRACTORS**. The intent of the CQA Plan is to provide independent third party verification and testing, to demonstrate that the **INSTALLER** and **CONTRACTORS** have met their obligations in the supply and installation of geosynthetic materials according to the design, project SPECIFICATIONS, and contractual and regulatory requirements. QC is provided by the MANUFACTURERS, **INSTALLERS**, and **CONTRACTORS** and refers to those actions taken by them to ensure that their materials and workmanship meet the requirements of the plans and project SPECIFICATIONS.

PART 2: DESCRIPTION OF PARTIES

The following section provides descriptions of the parties including their responsibilities and qualifications.

2.01 OWNER

In this CQA Plan, **OWNER** refers specifically to Energy Fuels Resources Corporation (EFRC). EFRC is the **OWNER** and will operate the mill.

2.02 MANAGER

In this CQA Plan the **MANAGER** refers specifically to the individual appointed by the **OWNER**. The **MANAGER** is the official representative of the **OWNER** responsible for all construction activities including oversight and direction during construction. **MANAGER** is also responsible for coordinating construction and CQA activities for the project.

MANAGER shall serve as communications coordinator for the project initiating preconstruction and resolution meetings. As communications coordinator, the **MANAGER** shall serve as a liaison between all parties involved in the project to ensure that ongoing communications are maintained. The **MANAGER** and **ENGINEER OF RECORD** shall also be responsible for the resolution of all CQA issues that arise during the installation of the geosynthetics.

Duties for this position include the following:

1. Review and approval of design DRAWINGS and project SPECIFICATIONS for all geosynthetic components of the Ore Stockpile Pads, Stormwater Collection Ponds, Tailings Cells, Evaporation Ponds, and other site features.

2. Preconstruction coordination with the CQA Monitor to ensure that the CQA Monitor has performed similar reviews of the design DRAWINGS and project SPECIFICATIONS to ensure that the CQA Plan can be implemented.

3. Coordination of all construction activities associated with the **CONTRACTOR**.

4. Scheduling and coordinating construction activities with required CQA testing and activities.

5. Overseeing the QC operations performed by the **CONTRACTOR**.

6. Approve specific corrective measures to be implemented during construction when deviations from the SPECIFICATIONS occur.

7. Ensure that required QC and QA testing has been performed in accordance with the CQA Plan and to the satisfaction of the CQA Monitor.

8. Ensure that the CQA personnel are provided with all documentation required in the CQA Plan and project SPECIFICATIONS, including current DRAWINGS and SPECIFICATIONS.

2.03 DESIGN ENGINEER

In this CQA Plan the **DESIGN ENGINEER** refers specifically to Golder Associates Inc. for the Ore Stockpile Pads, East Stormwater Pond, Tailings Cells, and Evaporation Ponds, and refers specifically to Kleinfelder West Inc. for the site drainage and West Stormwater Pond. The **DESIGN ENGINEER** is the individual or firm responsible for the design and preparation of the project construction DRAWINGS and project SPECIFICATIONS. The **DESIGN ENGINEER** is responsible for approving all design and project SPECIFICATION changes, modifications, or clarifications encountered during construction.

2.04 ENGINEER OF RECORD

In this plan, **ENGINEER OF RECORD** for the Ore Stockpile Pads, East Stormwater Pond, Tailings Cells, and Evaporation Ponds refers specifically to Golder Associates Inc., and refers specifically to Kleinfelder West Inc. for the site drainage and West Stormwater Pond. **ENGINEER OF RECORD** is the individual or firm responsible for confirming the construction was performed in compliance with the DRAWINGS and SPECIFICATIONS. **MANAGER** and **ENGINEER OF RECORD** will be responsible for the resolution of all quality assurance issues.

2.05 CQA MONITOR

The CQA Monitor is the firm or individuals responsible for performing the CQA tasks outlined in this CQA Plan for the **ENGINEER OF RECORD**. The CQA Monitor is the official CQA representative of the **OWNER** and has the responsibility of overseeing the CQA aspects of the Work. In this CQA Plan, the CQA Monitor reports to the **ENGINEER OF RECORD**. The CQA Monitor shall promptly inform the **MANAGER** of any aspect of the Work that is not in compliance with the CQA Plan, DRAWINGS, or SPECIFICATION. The **MANAGER** will direct the **CONTRACTOR** to take corrective action as required to correct the noncompliant Work. The specific responsibilities of the CQA Monitor include:

1. Review the DRAWINGS, SPECIFICATIONS, and related guidance documents.

2. Review all **CONTRACTOR** QC submittals and make appropriate recommendations.

3. Obtain and test geosynthetic conformance samples during geosynthetics manufacture regarding compliance with the DRAWINGS and SPECIFICATIONS.

4. Observe geosynthetic material delivery, unloading, and storage.

5. Observe prepared subgrade prior to geosynthetic deployment.

6. Monitor and document geosynthetic material placement, trial seam testing, non-destructive testing, seaming and repair operations, and destructive testing.

7. Identify seam samples for CQA destructive testing.

8. Assure that testing equipment used, and tests performed are conducted according to project SPECIFICATIONS and industry standards.

9. Inspect liner surface for punctures, rips, tears, or other deficiencies, including observation of conductive testing, mark deficiencies for corrective action, and observe and document repairs.

10. Perform or observe, document, and report test results to **MANAGER** as required.

11. Report any deficiencies to **MANAGER** that are not corrected to the satisfaction of the CQA Monitor, including design or SPECIFICATION changes.

12. Prepare a CQA Report describing the construction, approved deviations from SPECIFICATIONS or DRAWINGS and details, subgrade acceptance forms, test data and results (both laboratory and field), QC submittals, geomembrane panel layout Record Drawing prepared by the CQA Monitor, and professional opinion that construction was completed in compliance with the DRAWINGS and SPECIFICATIONS. The CQA Report will be signed and sealed by the **ENGINEER OF RECORD**.

2.06 GEOSYNTHETICS MANUFACTURER

The Geosynthetics Manufacturer, also referred to as the "MANUFACTURER," is responsible for production of the geosynthetic components outlined in this plan. Each MANUFACTURER must verify prior to construction that the MANUFACTURER can produce material that meets the requirements outlined in the project SPECIFICATIONS.

2.07 GEOSYNTHETICS INSTALLATION CONTRACTOR

The Geosynthetics Installation Contractor, also referred to as the "**CONTRACTOR**" or "**INSTALLER**," is responsible for installation of the geosynthetic components, as outlined in the project SPECIFICATIONS. The **INSTALLER** must meet the requirements outlined in the project SPECIFICATIONS.

The **INSTALLER** will be responsible for storage, handling, deploying, temporary geomembrane or geosynthetic anchoring, seaming, repairs and non-destructive testing, in accordance with the project plans, SPECIFICATIONS and the **INSTALLER**'s internal quality control program. It is the **INSTALLER**'s responsibility to see that all submittals are received as outlined in the project SPECIFICATIONS.

2.08 EARTHWORKS CONTRACTOR

The Earthworks Contractor, also referred to as "**CONTRACTOR**" is responsible for proper delivery and placement of earthwork components as shown on the DRAWINGS and as outlined in the project SPECIFICATIONS.

PART 3: LINES OF COMMUNICATION

The CQA Monitor shall be capable of direct communication with the **MANAGER**, **DESIGN ENGINEER**, **ENGINEER OF RECORD** and **CONTRACTOR** at all times. Deficiencies that can be easily remedied, such as unsatisfactory test results, will be dealt with directly between the CQA Monitor, **INSTALLER**, and/or **CONTRACTORS**.

PART 4: DEFICIENCIES

When deficiencies (items that do not meet project requirements) are discovered, the CQA Monitor shall promptly determine the nature and extent of the problem and notify the **INSTALLER** or **CONTRACTOR**. If unsatisfactory test results identify a deficiency, additional tests will be performed to define the extent of the deficient area.

The **INSTALLER** or **CONTRACTOR** shall correct the deficiency to the satisfaction of the CQA Monitor. If the **CONTRACTOR** is unable to correct the problem, the CQA Monitor will notify the **MANAGER** and **ENGINEER OF RECORD** who will assist in problem resolution. If the solution involves a design revision, the **DESIGN ENGINEER** shall also be contacted.

The corrected deficiency shall be retested and/or approved by the **MANAGER** and **ENGINEER OF RECORD** before any additional related work is performed by the **INSTALLER** or **CONTRACTOR**. All retests and related documentation shall be recorded by the CQA Monitor and included in the final CQA Report.

PART 5: MEETINGS

This section identifies and describes the meetings to be held during the course of the construction. Meetings shall be held in order to clearly define construction activities and goals in order to facilitate construction.

5.01 PRE-CONSTRUCTION MEETING

MANAGER will hold a pre-construction meeting at the site prior to the start of construction. The **DESIGN ENGINEER**, **MANAGER**, **ENGINEER OF RECORD**, CQA Monitor, **INSTALLER**, **CONTRACTOR**, and others designated by the **MANAGER** shall attend this meeting. The purpose of this meeting will be to:

1. Review the construction DRAWINGS, CQA Plan, and SPECIFICATIONS.
2. Define the responsibilities of each party.
3. Define lines of communication and authority.
4. Review method of documentation, testing procedures, and reporting inspection data.
5. Establish testing protocols and procedures for correcting and documenting construction deficiencies.
6. Discuss any changes that may be needed to ensure that construction will be completed in compliance with the design.

This meeting will be documented by **MANAGER** or his designee and copies will be distributed to all parties.

5.02 PROGRESS MEETINGS

MANAGER will hold progress meetings daily, or as agreed to between **MANAGER** and CQA Monitor. At a minimum, this meeting will be attended by the CQA Monitor, **INSTALLER** and **CONTRACTOR**. The purpose of this meeting will be to:

1. Review all the previous day's accomplishments and activities.
2. Review scheduled work location and activities for the day.
3. Discuss any issues or potential construction problems.

This meeting will be documented by the CQA Monitor.

5.03 DEFICIENCY MEETINGS

Special meetings will be held, as needed, to discuss potential problems or deficiencies. At a minimum, these meetings will be attended by the CQA Monitor and **INSTALLER** or **CONTRACTOR**. If the problem relates to a design issue, the **MANAGER**, **DESIGN ENGINEER,** and **ENGINEER OF RECORD** should also participate. The meeting will be documented by the CQA Monitor.

PART 6: GEOSYNTHETICS CQA

Construction of the Ore Stockpile Pads, Stormwater Collection Ponds, Tailings Cells, Evaporation Ponds or other specified geosynthetics must be in compliance with the DRAWINGS and SPECIFICATIONS. The **OWNER** shall implement a CQA monitoring and testing program to ensure construction compliance by the **CONTRACTOR**. The quality assurance program shall consist of reviewing **CONTRACTOR** quality control submittals, material conformance testing, and construction monitoring and testing.

The types of geosynthetics used in the Ore Stockpile Pads, Stormwater Collection Ponds, Tailings Cells, Evaporation Ponds, and other specified geosynthetic construction includes high density polyethylene (HDPE) pipe, HDPE geomembrane, HDPE geonet, geosynthetic clay liner (GCL), drainage geocomposite, and geotextile. These geosynthetics are defined in the project SPECIFICATIONS. Prior to and during construction, geosynthetics as indicated in these SPECIFICATIONS shall be sampled and tested to determine if they meet project SPECIFICATIONS. All tests shall be performed in a geosynthetics laboratory approved by the **MANAGER** and **ENGINEER OF RECORD**.

6.01 REVIEW QUALITY CONTROL SUBMITTALS

Prior to geosynthetic installation, the CQA Monitor shall review the **INSTALLER**'s quality control submittals to evaluate or confirm that these materials meet project requirements. The CQA Monitor shall review the QC submittals that are outlined in Section 02710.0 (Piping), Section 02776.0 (Geomembrane), Section 02776.1 (Geosynthetic Clay Liner), Section 02777.0 (Geotextile), and Section 02621.0 (Drainage Geocomposite and Geonet) of the SPECIFICATIONS.

6.02 GEOSYNTHETIC CONFORMANCE TESTING

Prior to geosynthetic installation, the CQA Monitor shall obtain samples of the geosynthetic materials for conformance testing to confirm that these materials meet project requirements. The conformance testing frequency shall be at a rate of one (1) test per 150,000 square feet. Samples shall be taken across the entire width of the roll and shall not include the first three (3) feet. The samples shall be three (3) feet wide by the roll width. The CQA Monitor shall mark on the sample the machine direction, roll number, and date the sample was obtained, and forward the sample to a third party geosynthetic laboratory. As a minimum, the following conformance tests shall be conducted:

1. Geomembrane: Compound Density (ASTM D1505)
   Carbon black content (ASTM D1603)
   Thickness (ASTM D5199/D5994)
   Tensile strength (ASTM D6693)
   Project requirements are outlined in Section 02776.0, Article 2.01.

2. Geocomposite: Transmissivity (ASTM D4716)
   Ply Adhesion (ASTM D7005)
   Project requirements are outlined in Section 02621.0, Article 2.01.

3. Geonet: Transmissivity (ASTM D4716)
   Project requirements are outlined in Section 02621.0, Article 2.01.

4. GCL: Bentonite Swell Index (ASTM D5890)
   Bentonite Mass/Area (ASTM D5993)
   Project requirements are outlined in Section 02776.1, Article 2.01.

5. Geotextile: Mass Per Unit Area (ASTM D5261)
   Puncture (ASTM D4833)
   Apparent Opening Size (ASTM D4751)
   Project requirements are outlined in Section 02777.0, Article 2.01.

Conformance tests shall be performed in compliance with the project SPECIFICATIONS. The CQA Monitor shall review the test results and shall report any nonconformance to the **MANAGER**, **ENGINEER OF RECORD,** and the **INSTALLER**.

6.03 GEOSYNTHETIC CONFIRMATORY TESTING

Prior to geosynthetic procurement, the **CONTRACTOR** shall supply samples of the proposed geosynthetic liner system materials for confirmatory interface shear testing in accordance with ASTM D5321. Testing shall be conducted on the various liner interfaces:

1. Tailings cell primary geomembrane liner versus drainage geocomposite.

2. Tailings cell secondary geomembrane liner versus geosynthetic clay liner (GCL).

3. GCL versus on-site soils anticipated as subgrade materials (for both the Ore Stockpile Pads and the Tailings Cells).

Interface shear testing shall be conducted by a qualified third party geosynthetics testing laboratory.

6.04 CONSTRUCTION MONITORING AND TESTING

The CQA Monitor shall monitor geosynthetic components of the construction to verify that the construction is in compliance with the project SPECIFICATIONS. The CQA Monitor shall identify inadequate construction methodologies or materials which may adversely impact the performance of the facility being constructed and existing structures. Visual observations throughout the construction process shall be made to ensure that the materials are placed to the lines and grades as shown on the DRAWINGS.

The CQA Monitor shall review the following submittals by the **INSTALLER** during the project:

1. Verification that a qualified land surveyor has verified all lines and grades.

2. Subgrade surface acceptance certificates for each area to be covered by the lining system, signed by the **INSTALLER**.

The CQA Monitor shall:

1. Inspect all geosynthetic materials delivered to site. The CQA Monitor shall document any damage and notify **MANAGER**.

2. Obtain geosynthetic packaging identification slips for verification and generation of an on-site materials inventory.

3. Observe subgrade conditions prior to geosynthetics installation and verify that any deficiencies, as defined in Section 02200.0 of the SPECIFICATIONS, are corrected.

4. Observe permanent anchoring of geosynthetics to verify that design and project SPECIFICATIONS are met.

5. Observe that required overlap distances are met.

6. Monitor and record ambient air temperatures.

7. Verify that no continuous horizontal seams are placed on slopes unless approved by **ENGINEER OF RECORD**.

8. Observe and document that all soil materials placed on top of the geosynthetics are done in such a manner as to ensure that the geosynthetics are not damaged.

6.04.01 Geomembrane

During geomembrane installation, the CQA Monitor shall observe and document deployment, trial seams, field seaming, non-destructive and destructive seam testing, and repairs to assess that the installation is in compliance with the SPECIFICATIONS.

Deployment - The CQA Monitor shall verify that only approved materials are used, each panel is given a unique panel number, no geomembrane is placed during unsuitable weather conditions as outlined in Section 02776.0 (Article 1.05) of the SPECIFICATIONS, the geomembrane is not damaged during installation, and anchoring is performed in compliance with the SPECIFICATIONS and design DRAWINGS. The CQA Monitor shall record the deployment on the deployment log form.

Trial Seams - The CQA Monitor shall verify that seaming conditions are performed in compliance with the SPECIFICATIONS, tests are performed at required intervals, specified test procedures are followed, and retests are performed in compliance with the SPECIFICATIONS. If the ambient air temperature measured by the CQA Monitor is above 35°F for the entire day, the **INSTALLER** shall perform trial seams at the beginning of each crew shift, and immediately following any work stoppage (i.e., for lunch, weather conditions, etc.) of 30 minutes or more for each seaming apparatus used that day. If the ambient air temperature measured by the CQA Monitor is below 35°F for the entire day, the **INSTALLER** shall perform four (4) trial seams, at approximately the same time interval throughout the scheduled work day. Each Seamer shall make at least one trial seam each day. Seaming operation shall not commence until the CQA Monitor has determined that the seaming process is meeting the SPECIFICATION requirement and is acceptable. The CQA Monitor shall record the trial weld results on the trial seam log form.

Field Seaming - The CQA Monitor shall verify that only approved equipment and personnel perform welding, all welding is performed under suitable conditions as specified in the project SPECIFICATIONS, specified overlaps are achieved, seams are oriented in compliance to project requirements, and that grinding techniques and extrudate meet project requirements for extrusion welding. The CQA Monitor shall record all field seaming on field seaming log forms.

Non-Destructive Seam Continuity Testing - The CQA Monitor shall verify that all seams and repair are non-destructively tested in compliance with the project SPECIFICATIONS. If a seam cannot be tested, the CQA Monitor shall observe cap strip operations. The CQA Monitor shall verify that test equipment and gauges are functioning properly and that test procedures are in compliance with the project SPECIFICATIONS. The CQA Monitor shall verify that the seams and repairs with failing test results are repaired and/or re-tested until passing results are achieved. The CQA Monitor shall record all non-destructive test locations on the vacuum test and pressure test log forms.

Electrical Leak Survey - The CQA Monitor shall observe electrical leak survey of the upper primary geomembrane liner installed within the tailings cells and evaporation ponds. The electrical leak detection survey shall be conducted following the procedures outlined in ASTM D6747-04.

Destructive Seam Testing - The **INSTALLER** shall obtain samples, at locations selected by the CQA Monitor, of the field seamed geomembrane approximately 24 inches along and 12 inches across the seam and centered over the seam as follows:

1. A minimum of one sample per day.
2. A minimum of one sample for each geomembrane seamer.
3. A minimum of one sample every 750 feet of seaming.
4. Seams that appear suspect to the CQA Monitor.

The CQA Monitor shall witness the testing of destructive seam samples by the **INSTALLER**. The **INSTALLER** shall mark all samples with their roll and seam number, date, machine number, welding technician identification, extruder and nozzle/wedge temperature, and ambient air temperature.

The **INSTALLER** shall test all destructive samples in compliance with the project SPECIFICATIONS.

The **INSTALLER** shall be responsible for patching all areas cut for test samples in accordance with the SPECIFICATIONS and MANUFACTURER's requirements and performing non-destructive testing (i.e., vacuum box) of the seams. The CQA Monitor shall record test locations on the geomembrane defect log forms. Additional testing information will be recorded on the geomembrane seam destructive sample log form. The CQA Monitor shall track failing tests as described in the SPECIFICATIONS.

Repairs - The CQA Monitor shall observe and document that all repair materials, techniques, and procedures used for repairs are approved in advance and meet the requirements of the project SPECIFICATIONS. The CQA Monitor shall verify that all defects and repairs are marked, recorded, repaired, tested, and wrinkles are addressed, prior to being covered by other materials; and that repairs are performed as specified, including proper patch size or dimension. The CQA Monitor shall record defects and repairs on the defect and repair log forms.

6.04.02 Geotextile

During geotextile installation, the CQA Monitor shall observe and document deployment, field seaming, and repairs to assess that the installation is in compliance with the SPECIFICATIONS.

Deployment - The CQA Monitor shall verify that the subgrade is free of deleterious materials prior to deployment, anchoring is achieved as specified, specified methods are used to minimize wrinkles and protect underlying layers during cutting of materials, and deployment procedures are performed in compliance with the project SPECIFICATIONS.

Seams - The CQA Monitor shall verify sufficient overlap and that the specified seam procedures were followed in compliance with the project SPECIFICATIONS.

Repairs - The CQA Monitor shall verify that all repairs are performed in compliance with the SPECIFICATIONS.

Protection - The CQA Monitor shall observe and document that all soil materials placed on top of the geosynthetics are done in such a manner as to ensure that the geosynthetics and underlying materials are not damaged.

6.04.03 Polyethylene Pipe and Fittings

During polyethylene pipe installation, the CQA Monitor shall observe and document that the installation is in compliance with the project SPECIFICATIONS. CQA monitoring of the polyethylene pipe and fittings will include the following:

Placement - Observation that the handling procedures used do not damage the pipe, backfill (Coarse Underdrain Fill, Fine Underdrain Fill, Pipe Bedding Fill, Stormwater Diversion Pipe Backfill, and Leak Detection Fill) is placed in compliance with the requirements of the project SPECIFICATIONS so as not to damage the pipe, any foreign material is removed from the interior of the pipe, and indentations on the pipe are within the MANUFACTURER's allowable limits.

Joints and Connections - Monitoring of the jointing and connection operations to verify that the **CONTRACTOR** follows the SPECIFICATIONS and the pipe MANUFACTURER's recommendations, verification that the pipes are clean when installed, that perforated sections of pipe are aligned properly prior to connection, pipe boot connections are made in the field using the specified rings and clamps, and that pipe caps are installed on pipe ends.

Nondestructive Testing - Observe any required testing of the pipe to verify compliance with the project SPECIFICATIONS.

6.04.04 Geosynthetic Clay Liner (GCL)

During GCL installation, the CQA Monitor shall observe and document that the installation is in compliance with the project SPECIFICATIONS. CQA monitoring of the GCL will include the following:

Deployment - The CQA Monitor shall verify that the subgrade is free of deleterious materials prior to deployment, anchoring is achieved as specified, and deployment procedures are performed in compliance with the project SPECIFICATIONS.

Seams - The CQA Monitor shall verify sufficient overlap and that the specified seam procedures were followed in compliance with the project SPECIFICATIONS.

Repairs - The CQA Monitor shall verify that all repairs are performed in compliance with the SPECIFICATIONS.

Protection - The CQA Monitor shall observe and document that all soil materials placed on top of the geosynthetics are done in such a manner as to ensure that the geosynthetics and underlying materials are not damaged.

6.04.05 Drainage Geocomposite and Geonet

During drainage geocomposite and geonet installation, the CQA Monitor shall observe and document that the installation is in compliance with the project SPECIFICATIONS. CQA monitoring of the drainage geocomposite and geonet will include the following:

Deployment - The CQA Monitor shall verify that the subgrade is free of deleterious materials prior to deployment, anchoring is achieved as specified, and deployment procedures are performed in compliance with the project SPECIFICATIONS.

Seams - The CQA Monitor shall verify sufficient overlap procedures were followed in compliance with the project SPECIFICATIONS.

Protection - The CQA Monitor shall observe and document that all materials placed on top of the geosynthetics are done in such a manner as to ensure that the geosynthetics and underlying materials are not damaged.

PART 7.0 DOCUMENTATION

Documentation by the CQA Monitor shall consist of daily record-keeping, documentation of construction problem resolutions, documentation of design and SPECIFICATION changes, photographic records, weekly progress reports, chain of custody forms for test sample tracking, and a CQA Report.

7.01 DAILY RECORD KEEPING

The CQA Monitor shall keep daily records consisting of field notes, observation and testing data sheets, summary of the daily meeting with the **INSTALLER** or **CONTRACTOR**, and reporting of construction problems and resolutions. This information shall be submitted on a regular basis to the **MANAGER** for review.

7.02 GEOSYNTHETIC OBSERVATION AND TESTING FORMS

The CQA Monitor shall document geosynthetic observations and test results on forms which include the following information:

1. Date, project name, location, and weather data.

2. Identification of panel or seam numbers.

3. Description of ongoing construction, detailing deployment areas.
4. Numbering system identifying test or sample number.
5. Location and identification of repairs and date of repair.
6. Measurements for geomembrane panels or seams.
7. Welding machine temperatures and settings.
8. Welding machine and technician identifications.
9. Location of tests and test results.
10. Identification of testing technicians and time of tests.
11. Signature or initials of the CQA Monitor.

7.03 PHOTO DOCUMENTATION

The CQA Monitor shall photograph the various phases of construction.

7.04 DESIGN AND SPECIFICATION CHANGES

During construction, the need to address design and SPECIFICATION changes, modifications, or clarifications may arise. In such cases the CQA Monitor shall notify the **MANAGER**, which will notify the **DESIGN ENGINEER** and **ENGINEER OF RECORD**. Design and SPECIFICATION changes shall only be made with written agreement from the **MANAGER** and **DESIGN ENGINEER**.

7.05 WEEKLY PROGRESS REPORTS

The CQA Monitor shall prepare weekly progress reports summarizing all construction and CQA activities. This report shall be submitted to the **MANAGER** and shall include the following information:

1. Date, project name, and location.
2. Summary of construction related activities.
3. Summary of geomembrane or other geosynthetics deployed (per day).
4. Summary of samples taken and test results.
5. Summary of geosynthetic areas completed, and approved for subsequent construction (i.e., placement of Leak Detection Fill, Cushion Material, Coarse Underdrain Fill, or Fine Underdrain Fill).
6. Summary of deficiencies and/or defects and resolutions.
7. Signature of the CQA Monitor.

7.06 CQA REPORT

At the completion of the project, the CQA Monitor shall submit to the **MANAGER** a CQA Report. This report shall confirm that the work has been performed in compliance with the design DRAWINGS and project SPECIFICATIONS and will contain the following information:

1. Summary of construction activities.
2. Observation and test data sheets.

3. Photographic documentation.
4. CQA staff scheduling.
5. **CONTRACTOR'S** subgrade acceptance forms.
6. Temperature monitoring results.
7. Geosynthetic QC documents.
8. Geosynthetic QA documents.
9. Geomembrane installation observations, such as for deployment, trial seams, defect repair, destructive testing and non-destructive testing.
10. Sampling, testing locations, and test results.
11. Changes to the design DRAWINGS or project SPECIFICATIONS and the justification for these changes.
12. Record Drawings.
13. A statement that construction was completed in compliance with the DRAWINGS and SPECIFICATIONS, signed, and sealed by the **ENGINEER OF RECORD**.

*** END OF SECTION ***