1R - 214

WORKPLANS

DATE:
2007

RICE *Operating Company*
122 West Taylor • Hobbs, NM 88240
Phone: (505) 393-9174 • Fax: (505) 397-1471

July 23, 2007

Certified Mail 7005 1820 0001 6802 1951

Emailed July 25, 2005

Mr. Wayne Price
NM Energy, Minerals and Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, NM 87504

Re: Revision: Junction Box Upgrade Work Plan Project - Geosynthetic Clay Liner

Dear Mr. Price:

Rice Operating Company (ROC) is submitting a request to revise the NMOCD-approved generic Junction Box Upgrade Work Plan. The revised elements are found at Step 6 of the attached plan.

The substance of the revision concerns utilizing a geosynthetic clay liner (GCL) fabric interchangeably with the 10-12" of compacted clay that is installed now. The installation of the GCL or the compacted clay provides a moisture barrier to reduce the rate of downward migration of constituents of concern that may remain in the vadose zone after excavation.

Also, because the OCD recognizes that in the arid climate and soils of Lea County, clay compacted to within 95% of the Standard Proctor density is less advantageous for mitigation of moisture infiltration, ROC proposes that compaction of a clay layer meet or exceed 85% of the Standard Proctor density test. The revision also includes random density testing once per five installations rather than every installation.

ROC is the operator (agent) for six salt water disposal (SWD) systems in Lea County and has no ownership of pipelines, wells, or facilities. Each SWD system is owned by a consortium of oil producers, System Partners, who provide operating capital based on percent ownership or usage.

ROC asks that the NMOCD review this plan revision for approval. Thank you for your time and consideration. We look forward to hearing from you soon. If there are any additional questions, please contact me at the above phone number.

Carolyn Doran Haynes

Carolyn Doran Haynes
Engineering Manager

Attachment
cc: SC, KP, file; Mr. Edward Hansen, NMOCD

RICE *Operating Company*

Revised July 23, 2007

Junction Box Upgrade Work Plan

1. Notify NM OneCall and spot area pipelines. Use caution to ensure pipeline integrity or temporarily re-route pipeline. Remove junction box. Per NMED guidelines, remove and contain NORM impacted soils for export to a NORM-permitted disposal facility.

2. Evaluate site by "Initial Assessment", "Assessment Criteria" and record on "Initial Report".

3. Submit by email the weekly environmental-work schedule of sites: legal description, scheduled work and groundwater depth, to both NMOCD Hobbs and Santa Fe offices. The Santa Fe NMOCD office will be given special notice of sites within a city limits or ¼ mile from a residence, business, school, public water source, etc. At these sites, work activities and results will be immediately communicated to NMOCD for concurrence or conditions of strategy.

4. Begin site work activities. Maximum suggested excavation dimension is 30 feet x 30 feet x 12 feet deep, however, do not excavate under vegetated areas. Highly impacted soils (>10,000 ppm TPH) will be properly disposed at an OCD approved facility with remaining soils remediated or blended on-site to use as backfill. During vertical and lateral excavation, procure samples at regular intervals of depth and breadth and conduct field-testing using "Quality Procedures" included in this plan. When results indicate NMOCD "Clean-up Target Concentrations" for TPH and BTEX can be met, stop excavation and review field data for chloride concentration decline trend. Graph the site "Chloride Concentration Curve" and compare to "Closure Curve Examples" and "Disclosure Curve Examples." Follow "Chloride Impact Flowchart" for closure strategy. Complete and file *FINAL REPORT* with NMOCD.

   If 12 feet vertical delineation at the source reveals Target Concentrations for TPH or BTEX will not meet NMOCD guidelines or TPH and BTEX will meet guidelines but there is not a significant decline vs depth in chloride concentration, the site-impact is judged to be outside the scope of this work plan and will become a risk-based corrective action (RBCA) project-site. (RBCA project-sites will be "GPS"-defined, evaluated, and prioritized with individual work plans submitted in due course to the NMOCD; 6-8 of these sites will be worked each year.) Procure bottom sample for lab confirmation. File *DISCLOSURE REPORT* and notify NMOCD Environmental Bureau Chief of the potential for groundwater impact.

5. Using "Quality Procedures," procure bottom and side grab-samples for BTEX PID testing* and composite-samples of bottom (5-point) and sides (4-point) for lab analysis of TPH, Chlorides using approved laboratory-testing procedures as per NMOCD guidelines.

6. Install as warranted for inhibition of downward migration of impact remaining in-place at closure locations (TPH, BTEX or chlorides), one layer of a geosynthetic clay liner with permeability (hydraulic conductivity) $\leq 1x10^{-7}$ cm/sec or a 10-12" thick clay layer (as diagramed in "Clay Layer Barrier") compacted to meet or exceed 85% of a Proctor Test ASTM-D-698 with permeability (hydraulic conductivity) $\leq 1x10^{-7}$ cm/sec. Verify clay layer compaction compliance at random, but at least once for every five installations.

7. Backfill with clean/remediated soil that meets NMOCD TPH/BTEX guidelines and will support vegetation: Chloride concentration remaining in the backfill soil will be at a level that will not inhibit the growth of vegetation, generally <1000ppm. Compact to within 2 feet below pipeline. Line junction area with 20-mil poly or compacted clay to provide secondary containment for new junction box. Construct watertight junction box around pipeline connections. Complete backfill, mounding soil away from box to prevent moisture accumulation at the box. Fertilize and seed site to restore surface vegetation. Monitor surface re-vegetation results. If warranted, conduct further surface re-vegetation activities to insure re-vegetation. Cross-sectional view in "Completed Box Site."

8. Submit Annual Report to NMOCD of site "Final Report" or "Disclosure Report" by April 1.

*Field PID tests <100ppm are considered final for BTEX. If PID is >100ppm, the BTEX composite-sample will be collected in accordance to "Quality Procedure-08" and will be composited under laboratory conditions to prevent excessive volatilization. A 15-box, 30-sample study will be made to compare field-compositing with lab-compositing BTEX results.

RICE *Operating Company*

Approved July 22, 2003

Junction Box Upgrade Work Plan

1. Notify NM OneCall and spot area pipelines. Use caution to ensure pipeline integrity or temporarily re-route pipeline. Remove junction box. Per NMED guidelines, remove and contain NORM impacted soils for export to a NORM-permitted disposal facility.

2. Evaluate site by "Initial Assessment", "Assessment Criteria" and record on "Initial Report".

3. Submit by email the weekly environmental-work schedule of sites: legal description, scheduled work and groundwater depth, to both NMOCD Hobbs and Santa Fe offices. The Santa Fe NMOCD office will be given special notice of sites within a city limits or ¼ mile from a residence, business, school, public water source, etc. At these sites, work activities and results will be immediately communicated to NMOCD for concurrence or conditions of strategy.

4. Begin site work activities. Maximum suggested excavation dimension is 30 feet x 30 feet x 12 feet deep, however, do not excavate under vegetated areas. Highly impacted soils (>10,000 ppm TPH) will be properly disposed at an OCD approved facility with remaining soils remediated or blended on-site to use as backfill. During vertical and lateral excavation, procure samples at regular intervals of depth and breadth and conduct field-testing using "Quality Procedures" included in this plan. When results indicate NMOCD "Clean-up Target Concentrations" for TPH and BTEX can be met, stop excavation and review field data for chloride concentration decline trend. Graph the site "Chloride Concentration Curve" and compare to "Closure Curve Examples" and "Disclosure Curve Examples." Follow "Chloride Impact Flowchart" for closure strategy. Complete and file *FINAL REPORT* with NMOCD.

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5. Using "Quality Procedures," procure bottom and side grab-samples for BTEX PID testing* and composite-samples of bottom (5-point) and sides (4-point) for lab analysis of TPH, Chlorides using approved laboratory-testing procedures as per NMOCD guidelines.

6. Install as warranted for inhibition of downward migration of impact remaining in-place at closure locations (TPH, BTEX or chlorides), a 10-12" thick clay layer (as diagramed in "Clay Layer Barrier"); compact to meet or exceed 95% of a Proctor Test ASTM-D-698 with permeability (hydraulic conductivity) $\leq 1x10^{-7}$ cm/sec. Verify compaction compliance at each closure site by performing at least one compaction test.

7. Backfill with clean/remediated soil that meets NMOCD TPH/BTEX guidelines and will support vegetation: Chloride concentration remaining in the backfill soil will be at a level that will not inhibit the growth of vegetation, generally <1000ppm. Compact to within 2 feet below pipeline. Line junction area with 20-mil poly or compacted clay to provide secondary containment for new junction box. Construct watertight junction box around pipeline connections. Complete backfill, mounding soil away from box to prevent moisture accumulation at the box. Fertilize and seed site to restore surface vegetation. Monitor surface re-vegetation results. If warranted, conduct further surface re-vegetation activities to insure re-vegetation. Cross-sectional view in "Completed Box Site."

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July 16, 2003

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GSE STANDARD PRODUCTS

Product Data Sheet

Bentofix® EC GCL

Bentofix® **"EC"** geosynthetic clay liner (GCL) is a lightly needlepunched reinforced composite comprised of a uniform layer of granular sodium bentonite encapsulated between a woven and a nonwoven geotextile. It is intended for use on relatively flat slope surfaces where minimal internal shear strength is required.

Product Specifications

GEOTEXTILE PROPERTIES	TEST METHOD	FREQUENCY	VALUE (ENGLISH)	VALUE (SI)
Product Code			BFIX1000EC	
Cap Nonwoven, Mass/Unit Area	ASTM D 5261	1/200,000 ft² (1/20,000 m²)	3.0 oz/yd² Typical	100 g/m² Typical
Carrier Scrim Woven, Mass/Unit Area	ASTM D 5261	1/200,000 ft² (1/20,000 m²)	3.1 oz/yd² Typical	105 g/m² Typical
BENTONITE PROPERTIES				
Swell Index	ASTM D 5890	1/100,000 lb (50,000 kg)	24 ml/2 g min	24 ml/2 g min
Moisture Content	ASTM D 4643	1/100,000 lb (50,000 kg)	12% max	12% max
Fluid Loss	ASTM D 5891	1/100,000 lb (50,000 kg)	18 ml max	18 ml max
FINISHED GCL PROPERTIES				
Bentonite, Mass/Unit Area[1]	ASTM D 5993	1/40,000 ft² (1/4,000 m²)	0.75 lb/ft² MARV	3.66 kg/m² MARV
Tensile Properties,				
Tensile Strength[4]	ASTM D 6768	1/40,000 ft² (1/4,000 m²)	30 lb/in MARV	5 kN/m MARV
Grab Strength[2]	ASTM D 4632		80 lb Typical	354 N Typical
Grab Elongation[2]	ASTM D 4632		100% Typical	100% Typical
Peel Strength[3]	ASTM D 6496	1/40,000 ft² (1/4,000 m²)	0.8 lb/in Typical	140 N/m Typical
	ASTM D 4632		5 lb Typical	22 N Typical
Hydraulic Conductivity[4]	ASTM D 5887	1/Week	5×10^{-11} m/sec max	5×10^{-11} m/sec max
Index Flux[4]	ASTM D 5887	1/Week	1×10^{-8} m³/m²/sec max	1×10^{-8} m³/m²/sec max
Internal Shear Strength[5]	ASTM D 6243	Periodically	100 psf Typical	4.8 kPa Typical
ROLL DIMENSIONS				
Width x Length[6]	Typical	Every Roll	15.5 ft x 150 ft	4.7 m x 45.7 m
Area per Roll	Typical	Every Roll	2,325 ft²	216 m²
Packaged Weight	Typical	Every Roll	2,600 lb	1,179 kg

NOTES:

- [1]Oven-dried measurement. Equates to 0.84 lb/ft² (4.1 kg/m²) when indexed to a 12% moisture content.
- [2]Measured at maximum peak, in weakest principal direction. Elongation is provided for reference only.
- [3]Modified to use a 4 in (100 mm) wide grip. The maximum peak of five specimens averaged.
- [4]4 in (100 mm) wide sample, average of 5 specimens.
- [5]Typical peak value for specimen hydrated for 24 hours and sheared under a 200 psf (9.6 kPa) normal stress.
- [6]Roll widths and lengths have a tolerance of ±1%.

DS044ec R03/07/06

North America	GSE Lining Technology, Inc.	Houston, Texas	800 435 2008	281 443 8564	Fax: 281 230 8650
South America	GSE Lining Technology Chile S.A.	Santiago, Chile		56 2 595 4200	Fax: 56 2 595 4290
Asia Pacific	GSE Lining Technology Company Limited	Bangkok, Thailand		66 2 937 0091	Fax: 66 2 937 0097
Europe & Africa	GSE Lining Technology GmbH	Hamburg, Germany		49 40 767420	Fax: 49 40 7674234
Middle East	GSE Lining Technology-Egypt	The 6th of October City, Egypt		202 2 828 8888	Fax: 202 2 828 8889

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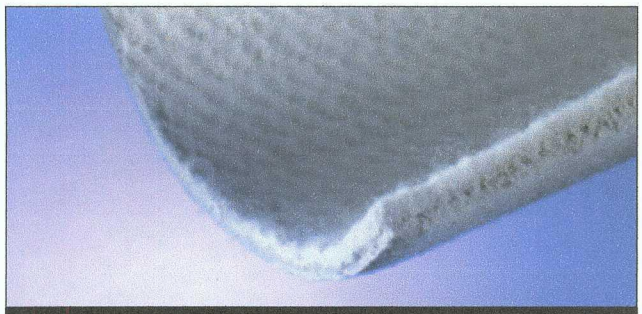
Application Sheet

Bentofix® Fabric Encased GCLs

FABRIC ENCASED GEOSYNTHETIC CLAY LINERS (GCLs)

Bentofix® GCL is produced by distributing a uniform layer of the sodium bentonite between two geotextiles. Fibers from the upper nonwoven geotextile are needlepunched through the layer of bentonite and incorporated into the lower geotextile (either a woven or a nonwoven). This process results in a strong mechanical bond between the fabrics. A proprietary heat treating process – the Thermal Lock process – is then used to modify and more permanently lock the needlepunched fibers into place.

The sodium bentonite clay utilized in Bentofix® GCL is a naturally occurring clay mineral that swells as liquid enters between its clay platelets. When hydrated under confinement, the bentonite swells to form a low permeability clay layer with the equivalent hydraulic protection of several feet of compacted clay. Unique properties, including increased internal shear resistance and long term creep resistance, make Bentofix® GCL ideal for a wide range of containment lining applications.



Bentofix® GCL.

NEEDLEPUNCHING MAKES A DIFFERENCE

By needlepunching fibers through the sodium bentonite clay layer, a completely uniform, reinforced GCL is produced with shear strength, creep resistance, and stability advantages important to any application.

HIGH SHEAR RESISTANCE

Needlepunching reinforces the otherwise weak layer of sodium bentonite clay. Unreinforced bentonite is susceptible to shear failure, even on gentle slopes. The Bentofix® GCL needlepunching process consistently reinforces the bentonite layer with thousands of high tenacity fibers that resist and transfer the shearing stresses into the encapsulating geotextiles.

UNIFORM BENTONITE CONTENT

The uniform confinement provided by the fibers from the needlepunching process resist lateral migration of the bentonite clay within the Bentofix® GCL in either the dry or hydrated state. As a result, a consistent bentonite content is preserved throughout the composite, in turn resulting in a consistent low permeability.

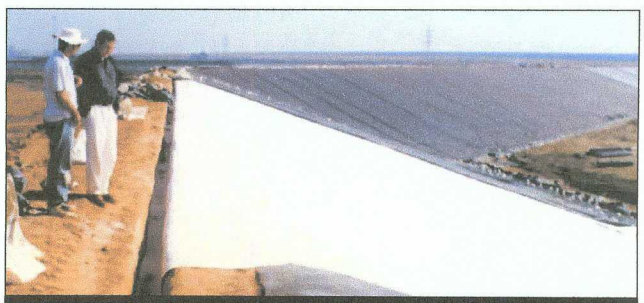
GREATER INSTALLATION DURABILITY

During installation, the needlepunched fibers hold the bentonite in place and prevent the GCL from separating. Bentofix® GCL is more durable over a wider range of installation conditions, and, because it is needlepunched, it can greatly reduce the adverse effects of premature hydration during installation.

Soil Cover Operations over Installed Bentofix® GCL.

SUPERIOR GCL SLOPE PERFORMANCE

With Bentofix® GCL, the clay component is no longer the limiting factor on side slopes. You can use Bentofix® GCL to replace compacted clay layers on steep side slopes and be assured of low permeability without sacrificing slope stability. The inherent confining stress from the needlepunching also improves the hydraulic properties of Bentofix® GCL under low confining stress applications.



Improved Slope Stability Utilizing Bentofix® GCL.

- Continued -

ASSURED QUALITY CONTROL

Because Bentofix® GCL is factory manufactured liner products, the controlled environment of the production facility allows for greater control over critical performance characteristics. The intensive manufacturing quality control program ensures consistent hydraulic and physical properties through the latest ASTM testing procedures.

The thorough manufacturing quality control minimizes the expensive and time consuming on-site quality assurance testing required for compacted clay liners. Bentofix® GCL provides consistent high quality performance.

Bentofix® Deployed in a Composite Bottom Liner System.

BENTOFIX® IS MORE VERSATILE THAN COMPACTED CLAY

Bentofix® GCL is part of an important trend toward the combined use of geosynthetics and clay materials in containment applications. In a typical composite liner system, GCL works synergistically with polyethylene and other geomembrane materials to maximize liner system efficiency.

INCREASED AIRSPACE AND LINER EFFICIENCY

In a composite landfill liner system, Bentofix® GCL can, in many cases completely replace, or significantly reduce, the required thickness of the compacted clay layer. This results in less excavation and re-compaction as well as increased containment volume. And, in a landfill, increased airspace means increased revenues.

CAPS AND CLOSURES

Bentofix® GCL are ideally suited for use in landfill caps and closures. Used alone, or in conjunction with a geomembrane, Bentofix® GCL is resistant to the deleterious effects of differential settlement and seasonal temperature fluctuations.

Bentofix® Deployed on a Landfill Closure.

BENTOFIX® IS EASY TO INSTALL

Bentofix® GCL is the widest fabric encased GCL in the industry. The widest width, coupled with available custom lengths, makes Bentofix® the most versatile GCL available.

Simple, cost-effective installation techniques make Bentofix® GCL a practical alternative to a compacted clay liner for a wide range of applications, including composite landfill liners, landfill caps, secondary containment, storm water and waste water impoundments, as well as canals, dams and reservoirs.

Deployment of Bentofix® GCL.

AP022 Bentofix R03/13/06

North America	GSE Lining Technology, Inc.	Houston, Texas	800 435 2008	281 443 8564	Fax: 281 230 8650
South America	GSE Lining Technology Chile S.A.	Santiago, Chile		56 2 595 4200	Fax: 56 2 595 4290
Asia Pacific	GSE Lining Technology Company Limited	Bangkok, Thailand		66 2 937 0091	Fax: 66 2 937 0097
Europe & Africa	GSE Lining Technology GmbH	Hamburg, Germany		49 40 767420	Fax: 49 40 7674234
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