Bratcher, Mike, EMNRD

From: Mike Griffin [Mikeg@vadose.us]
Sent: Wednesday, June 02, 2010 8:03 PM
To: Bratcher, Mike, EMNRD
Cc: Roy Rascon ; Elliot Werner; 'Michael C Griffin'; 'Barry Archer'
Subject: Melrose Info
Attachments: bentofix_bfg5000.pdf; NAUE > Products > Bentofix; PR-137A.doc; 3f. Electromagnetic Survey Data.xlsx

Good Morning, Mike:
Attached, please find a copy of the bentonite matting specs, a revised protocol to include a minimum 36" covering of the matting & a new plat map showing the location of the cores (look at the tabs on the bottom of the electromagnetic survey spread sheet).

The line is described as a 3" wrapped steel trunk line for brine disposal. I spoke to Roy who advised that the pumper told him that the pipeline corridor had been the scene of some spills or seeps in the past. We did not get any time reference when these seeps or spills may have occurred.

Mike Griffin
President
Whole Earth Environmental
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PR-137A

Remediation Protocol
Melrose Energy Co.
State 647 AC711 # 89

1.0 Purpose

This protocol is to provide a detailed outline of the steps to be employed in the remediation and closure of the State 647 AC711 # 89 location in Eddy County, New Mexico.

2.0 Scope

This protocol is site specific for the State 647 AC711 # 89 remediation project.

3.0 Preliminary

Prior to any field operations, Whole Earth Environmental shall conduct the following activities:

3.1 Client Review

3.1.1 Whole Earth shall meet with cognizant personnel within Melrose and the NMOCD to review and approve this protocol.

3.1.2 Changes to this protocol will be documented and submitted for final review by all parties prior to the initiation of actual field work.

4.0 Safety

4.1 Prior to work on the site, Whole Earth shall obtain the location and phone numbers of the nearest emergency medical treatment facility. We will review all safety related issues with the appropriate Client personnel, sub-contractors and exchange phone numbers.

4.2 A tailgate safety meeting shall be held and documented each day. All sub-contractors must attend and sign the daily log-in sheet.

4.3 Anyone allowed on to location must be wearing sleeved shirts, steel toed boots, and long pants. Each vehicle must be equipped with two way communication capabilities.

4.4 Prior to any excavation, New Mexico One Call will be notified. If lines are discovered within the area to be excavated they shall be marked with pin flags on either side of the line at maximum five-foot intervals.

5.0 Remediation

5.1 The affected area shall be excavated to the depth of the buried steel line (originally buried approximately 18" below ground surface). All excavated materials shall be sent to commercial disposal. A bentonite mat shall be placed within the excavated area and beneath the flowline extending to a minimum distance of 10' on either side of the line.

5.2 The affected area will be backfilled with a minimum of 24" of fresh topsoil overlain by a minimum of 1' of caliche to minimize erosion.

6.0 Closure Report

6.1 At the conclusion of the project, Whole Earth shall prepare a closure report that contains the following minimum information:

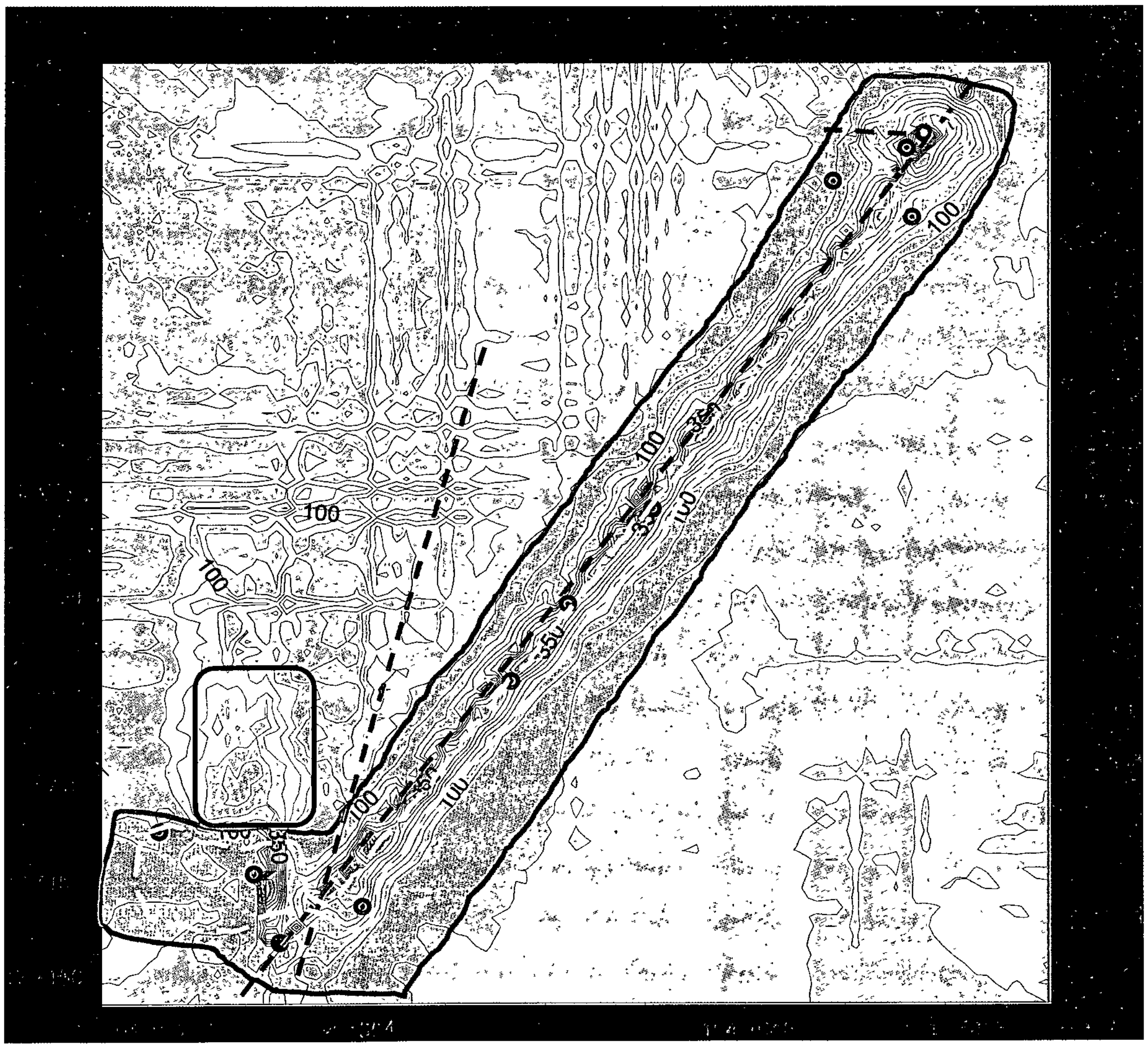
- Photographs of the location prior to remediation
- Photographs of the site at the point of maximum excavation
- Photographs of the bentonite matting being laid under the flowline
- Final photographs of the restored site
- Satellite photographs of the location
- Copies of this protocol
- Disposal manifests of all soils sent to commercial disposal
- Laboratory analytical reports
- Boring Logs

MELROSE OPERATING STATE 647-711 #89 LEAK SITE
EM38 SURVEY VERTICAL 0'>5' BGS

NORTH

blue solid line = survey area
red dashed line = pipelines
yellow long dash line = leak area

white center outer red line = leak origin
red center outer line black = sample pts by TNT
black square = fenced area



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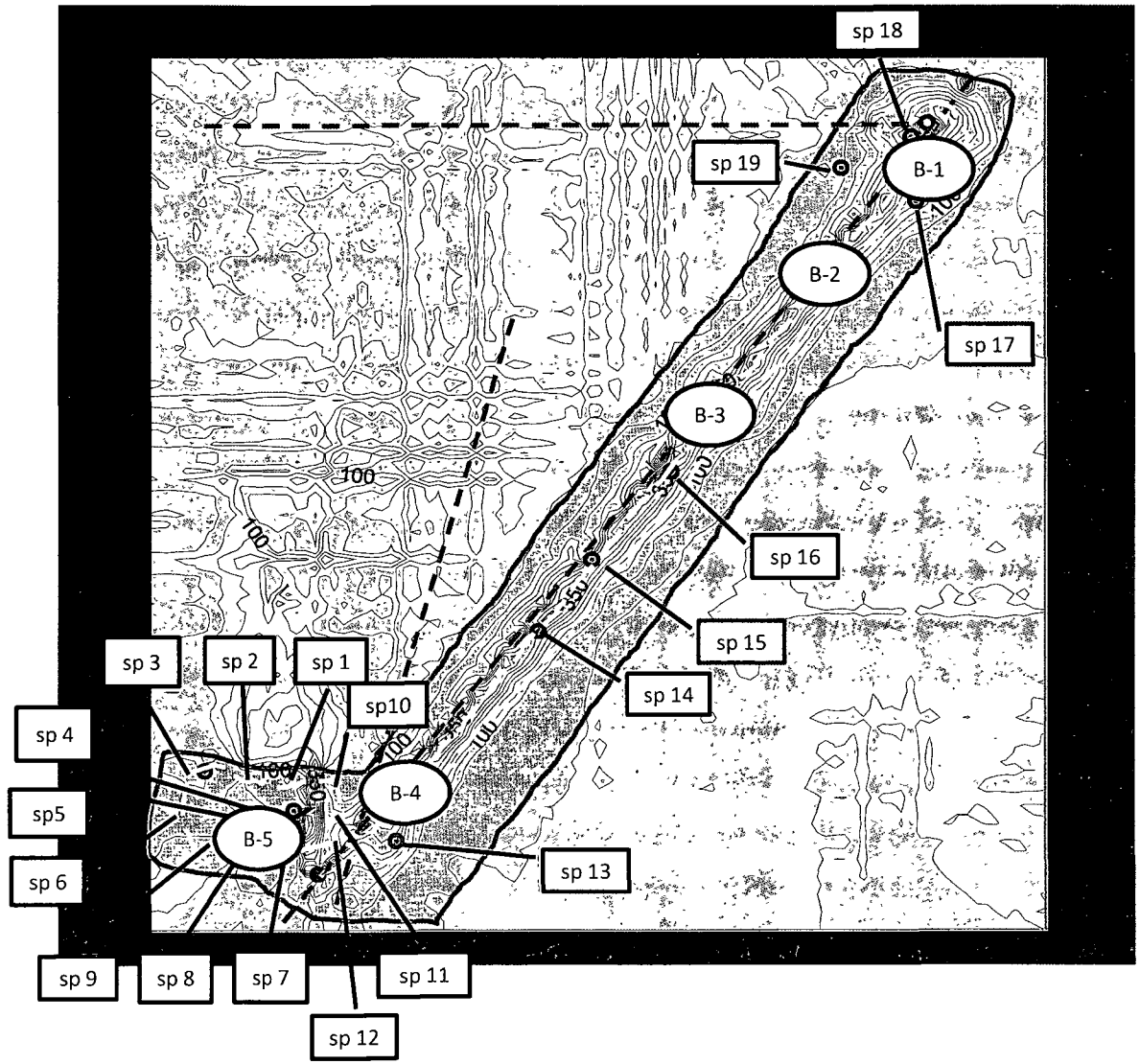

MELROSE OPERATING STATE 647-711 #89 LEAK SITE
EM38 SURVEY VERTICAL 0'>5' BGS

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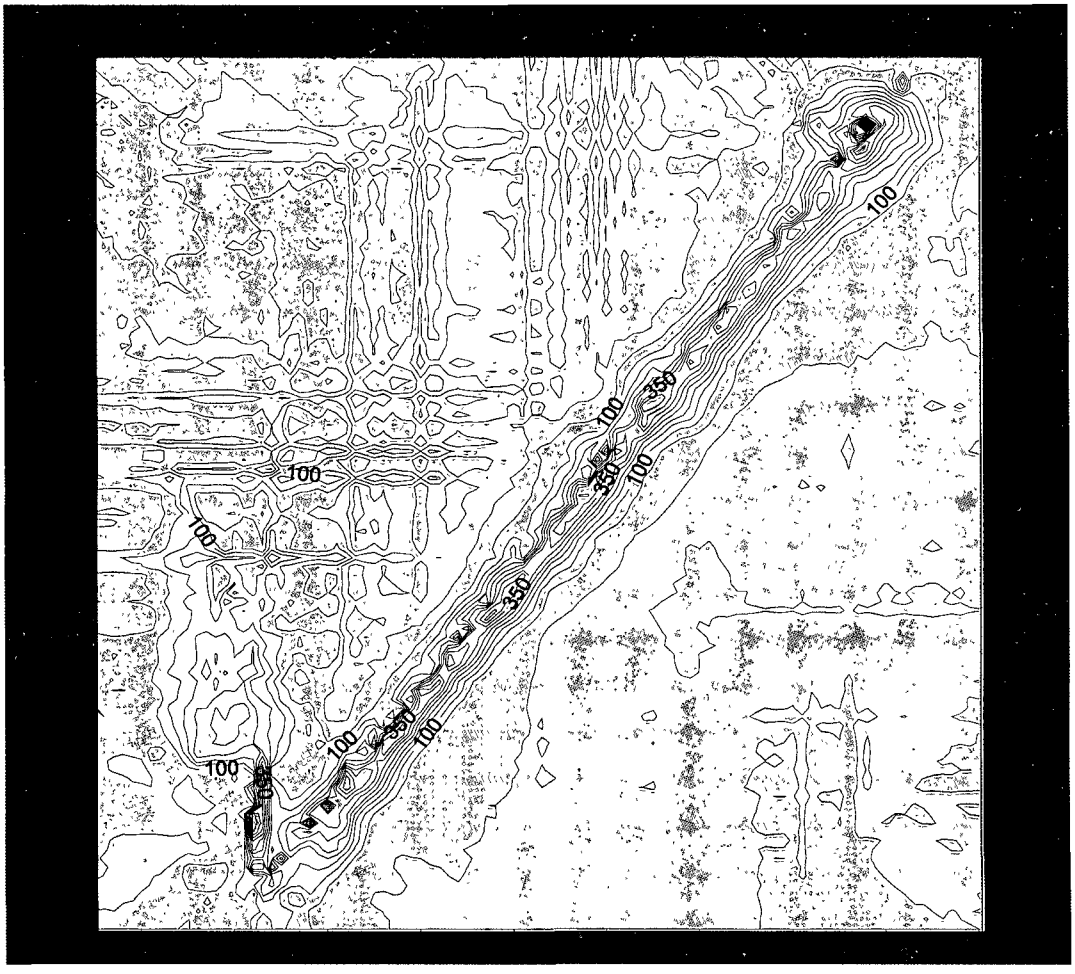

Fibre-reinforced Geosynthetic Clay Liner (GCL)

Bentofix® BFG 5000

NAUE GmbH & Co. KG
Gewerbestrasse 2
32339 Espelkamp – Fiestel
Germany

Phone: +49 57 43 – 41 - 0
Fax: +49 57 43 – 41 - 240

info@naue.com www.naue.com

The following table lists properties of **Bentofix® BFG 5000**, a shear strength transmitting geosynthetic clay liner, continuously needle-punched through all components. Additional bentonite powder is impregnated into the complete cover layer. The 30 cm longitudinal overlapping area is marked on the bottom side.

Property	Test method*	Unit	Values
Geotextile layers:			
Cover layer (polypropylene nonwoven filled with bentonite):			
Mass per unit area	EN ISO 9864	g/m²	300
Carrier layer (polypropylene woven):			
Mass per unit area	EN ISO 9864	g/m²	200
Bentonite layer (sodium bentonite powder):			
Mass per unit area	EN 14196 (ρ_{TON})	g/m²	4,200 + 800
Swell index	ASTM D 5890	ml/2g	24
Fluid Loss	ASTM D 5891	ml/2g	≤ 18
Water content	DIN 18121 / ISO 11465 (5hrs, 105 °C)	%	approx. 10
Geosynthetic Clay Liner:			
Mass per unit area	EN 14196 (ρ_{GBR-C})	g/m²	5,500
Thickness	EN ISO 9863-1	mm	7.0
Max. tensile strength, md/cmd**	EN ISO 10319 / ASTM D 4595	kN/m	20.0 / 11.0
Elongation at break, md/cmd**	EN ISO 10319 / ASTM D 4595	%	8.0 / 4.0
Peel strength	ASTM D 6496	N/10 cm***	≥ 60
		N/m	≥ 360
Puncture force	EN ISO 12236	N	2,500
Permeability / Hydraulic Conductivity	DIN 18130 / ASTM D 5887	m/s	2×10^{-11}
Index Flux	DIN 18130 / ASTM D 5887	(m³/m²)/s	5×10^{-9}
Roll dimensions:			
width x length, / diameter	-	m x m / m	4.85 x 40 / Ø 0.65

** = based on; **md = machine direction, cmd = cross machine direction; ***max. peak*

The listed technical values are guiding values, achieved in our laboratories and/or independent testing institutes. Our products are subject to changes without prior notice.

Bratcher, Mike, EMNRD

From: "Saved by Windows Internet Explorer 8"
Sent: Wednesday, June 02, 2010 2:17 PM
Subject: NAUE > Products > Bentofix
Attachments: ATT1217569.jpg

Bentofix®

Bentofix® Geosynthetic Clay Liners (GCLs) are self-sealing barriers with a composite structure that utilises the strength of millions of needle-punched fibres to secure a uniform layer of high swelling sodium bentonite. This balanced combination of polymer fibres and a naturally occurring clay mineral creates the ultimate sealing layer with high long-term shear strength. Bentofix® GCLs are the industry standard for mineral sealing layers worldwide. Bentofix® is an extremely versatile clay-based lining product. Once hydrated, Bentofix® is an effective barrier against liquids, vapours, and gases. With over a decade of successful installations, the range of Bentofix® applications is virtually limitless:

- waste and contaminated soil caps and closures
- landfill base liners
- geomembrane protection layers
- gas and vapour seals
- surface impoundment liners
- secondary containment
- dams, canals, and water courses
- tailings containment
- groundwater protection
- sorptive barriers
- vertical barriers

Bentofix® means safety. Strong and durable nonwoven geotextiles encapsulate and protect the layer of pure bentonite ensuring its long-term performance. And since Bentofix® contains the highest quality natural sodium bentonite, an immediate swelling following installation is guaranteed to safely self-seal any unexpected mechanical damages. Because of its immense elongation capacity, Bentofix® shows a long-term adjustment to earth deformations, such as differential settlements. Steep slope applications are easily accommodated by Bentofix®. A unique fibre-bonding process locks the needle-punched fibres into place creating high internal shear strength with unsurpassed creep resistance. Bentofix® also addresses the often critical issue of interface friction angles. The mechanically bonded nonwoven geotextiles provide the shear resistance necessary for even the most demanding

Search:

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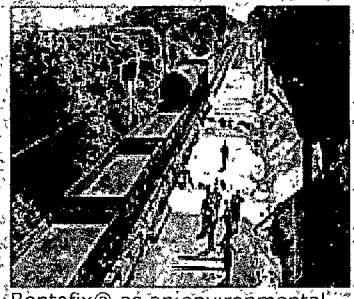
Technical Documents, Data sheets »

Bentofix® in use:

Bentofix® as a base seal in the Trollmyra Landfill, Norway



Bentofix® as an environmental protection layer on the railway between Leipzig and Dresden, Germany

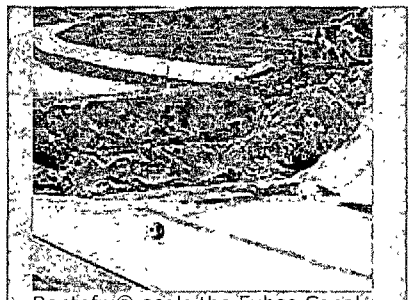
applications. This fibre reinforcement not only provides shear strength, but also prevents lateral migration of the bentonite. Installed in a double layer configuration, Bentofix® is safe from desiccation throughout the entire year and clearly superior to conventional compacted clay liners. Bentofix® GCLs are certified by government regulators. When considering all aspects of a project, it is easy to see how Bentofix® provides both economical and environmental advantages. Since Bentofix® is equivalent to multiple lifts of compacted clay, it thereby increases the potential containment volume in landfills, yielding additional revenues from tipping fees. Bentofix® installation is quick and easy; it is simply unrolled on site and overlapped at the joints. From a logistical standpoint, Bentofix® advantages are also easy to see: one truckload of Bentofix® covers 4,000 m2 compared with only 40 m2 (50 cm thick) for a load of clay.

Bentofix® can be stored on site with little effort. Field testing and sampling from completed clay-covered areas are a thing of the past with Bentofix®. The manufacture and quality control laboratory programme of Bentofix® means it arrives on site with the necessary test results, ready for installation. Compaction and moisture content testing are also eliminated with Bentofix®. »Unroll and cover« is the motto of Bentofix® installations. There is no easier way to do it.

Bentofix® is a robust, versatile product that provides the highest safety standards and cost efficiency available. Bentofix® is unrivalled when it comes to project logistics, too. Choosing Bentofix® will reduce construction costs and time, while also preserving our natural environment.

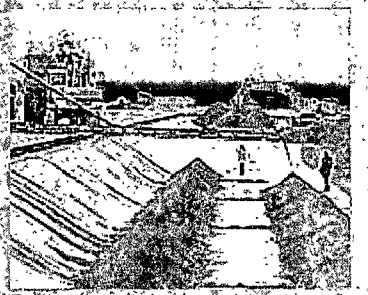
For further information: http://www.bentofix.com/

Data sheet ▸



Bentofix® seals the Fuhse Canal, Germany.

Environmetal protection with Bentofix® in a highway construction Finland.



Environmental protection airport Munich, Germany. 700,000.00 m2 Bentofix®