AASHTO/NTPEP GEOSYNTHETICS PANEL MINUTES
2012 NTPEP ANNUAL MEETING
Indianapolis, IN, Tues., May 1, 2012, 3:15 to 5:15 p.m.

The following Geosynthetics TC members were present:

Tony Allen, WSDOT (Chair)
John Schuler, VADOT (Vice-Chair)
Ed Hughes, ILDOT
Peter Kemp, WIDOT
Steven Thomas, ARDOT
Davis Taylor, Thracelinq (industry representative)
Brian Whitaker, Fiberweb (industry representative)

AASHTO Staff present: Katheryn Malusky, Brian Johnson

In addition, 15 state DOT representatives (most were NTPEP members) and 25 industry representatives were present.

**REGEO Geosynthetic Reinforcement Testing Program**

Tony Allen presented the REGEO test program status. See the PowerPoint presentation (attached with these minutes) for details. Changes to the REGEO work plan proposed last year did not get sent to AASHTO staff in time to be considered for balloting last year, so those changes will be balloted this year instead. The key changes are summarized on the attached Power Point presentation. Also presented was a summary of what is included in the REGEO “mini-audit” for evaluation of product line consistency. Proposed additions to DataMine to provide the results of REGEO testing were also presented and briefly discussed.

Tony Allen also mentioned that the TC has received several requests to consider adding a testing program to REGEO to evaluate geosynthetics for pavement base reinforcement applications. There is currently no agreement on what properties to test, nor are there agreed upon design procedures form this application. It was agreed that a survey will be sent out to the states to determine the interest level in such a testing program, and what properties to test. If the response is positive, a work plan revision to accommodate this application could be developed and submitted for balloting in November 2012.

**Action Items for the REGEO Program:**

1. The REGEO work plan revisions presented at the meeting will be submitted for balloting in November 2012 – T. Allen will do.
2. Develop pavement base reinforcement survey – T. Allen will do.

**GTX Geotextile Testing Program**

Tony Allen provided a PowerPoint presentation that summarized the following:
1. Implementation of audit work plan  
   i. Test lab changes  
   ii. Transition from old testing program to audit program  
   iii. What to expect when getting audited  
       1. For prime manufacturers  
       2. For private label companies  
   iv. Product marking  
   v. Foreign geotextile manufacturers – participation considerations  
   vi. Key questions about program that have been raised  
2. Benefits of the GTX audit and product marking program to the states  

A copy of the presentation is attached with these minutes (see for details of what was presented).  

The presentation was followed by open discussion. Most of the discussion was centered around how this audit program would be applied to various situations those who private label geotextiles may face, though some generally applicable issues were also discussed. Issues and discussion points raised are as follows:  

- How will products that come from multiple manufacturers or are manufactured at multiple plants be handled in this program? The audit application will allow up to 3 manufacturers (different sources) for same product, though this could be revised if necessary. For manufacturers, if the same product made in 3 different plants, it is not intended to sample and test that same product from each of the 3 different plants, although each of the 3 plants will be audited. If private label companies use several source manufacturers for the same product, it is also expected that all source manufacturers will have first been audited.  
- What if a manufacturer both manufacturers products and private labels products – how will that be handled? If a manufacturer both produces geotextile products and also private labels some products, the private label side will be treated accordingly (e.g., primarily focusing on traceability to the source product).  
- How will non-compliance issues, i.e., ones that it is understood it will take time for the manufacturers to implement under this new audit program, be handled? At this point, the auditor will only require the manufacturer to provide a plan and time table for achieving compliance. NTPEPO recognizes it will take time to resolve some of these issues, such as getting the infrastructure in place to do the product marking, and to get unmarked produce moved out of their inventory. Manufacturers will propose own compliance schedule, but it must be reasonable.  
- Will states wait up to 3 years for private-label products to be marked? While this is up to each individual state, in general the answer is yes, though we anticipate that most should be through the process and product marking fully implemented within 2 years.  
- Questions were raised regarding how the work plan will address geosynthetic suppliers who convert geotextile rolls produced by others into other related produced that are covered by this work plan, such as silt fences. For example, if a finished 15-ft wide geotextile roll is cut into three 5 ft wide sections for silt fences, how is center roll marked? Will the product marking requirement apply to that center section? The states will still need proof of the center section’s source. Could put a label on the center
section, but who would be authorized to do that, the manufacturer, or the converter, if they are not one in the same? One manufacturer said they print what they need to as required.

- Would private labeler be out of compliance if its sources change from those in audit report? This will be up to states to decide. NTPEP, however, must be notified if sources change. Additional action by NTPEP may be required in that case.

- Why are audits of private labelers required, since the geotextile must be permanently marked by source manufacturer? This issue was thoroughly discussed during the development of the last revisions to the GTX work plan (see follow-up e-mail attached to these minutes sent after the TC meeting that summarizes the history and final TC position regarding this issue; the attachments to that e-mail are not included with these minutes, but can be provided upon request).

- Another discussion was on product marking. Manufacturer and plant code is minimum requirement, but can put more on the product mark. If the mark includes all label info required in the work plan, then labeling not required. Manufacturers may need to purchase and install high speed rollers with printers to print mark on rolls.

- A question was raised as to whether or not UV testing conducted by an agency other than NTPEP could be used for the NTPEP GTX program. The answer was no, as that UV test would not be representative of the sample(s) taken for the rest of the NTPEP testing, and may not even be run in the same way.

- Should temporary and permanent geotextiles have the same requirements for testing and auditing under the NTPEP program? For example, geotextiles used in silt fence applications are really only needed temporarily. So why go to the same extent regarding testing an auditing? Even though silt fence materials are for temporary use, if they fail, environmental permits could be violated, and the states could get fined. The states want silt fence products they can depend on, so the fact that they are temporary does not necessarily make them less critical. Of course, this issue may vary state to state depending on their specific environmental regulations they must meet.

- A question was raised regarding the role NTPEP could play to clean up some of the variances allowed by current test standards (e.g., ASTM) that can affect results and the potential for noncompliance. NTPEP has no direct influence on ASTM and its standards development. However, if a specific problem becomes an important issue that is affecting the GTX program, NTPEP could bring the issue to the attention of someone who could do something about it.

**Action Items for the GTX Program:**

1. AASHTO Geosynthetics TC Industry Representatives to work with the GMA and their members on how Private Labelers can prove traceability if the rolls are split, since manufacturer printed mark will only be along one edge. They will report back to the TC regarding their findings, and follow up conference calls will be conducted as needed to discuss any next steps.

2. Regarding the question raised as to why private labelers must be audited since the rolls they sell will be marked by the manufacturer, the TC will summarize the documentation of the previous discussions that have occurred regarding this issue and provide that to the GMA (note: see attached e-mail that follows).
As you are aware, questions were raised by a few private label company representatives at the NTPEP Geosynthetics TC Meeting regarding why private labelers needed to be audited if the product is marked by the manufacturer and labels are affixed by the manufacturer that provide enough product identification that it can be traced confidently to the source manufacturer. I also received a letter from a company that private label’s products just after the TC meeting that expresses their concerns regarding the currently approved work plan regarding testing private label products in addition to the traceability audit (see attached e-mail message).

The issues raised have been raised and responded to before during the review process for the work plan that was balloted and approved last January. This e-mail provides the responses we have provided previously (see attached e-mail sent last October and PDF of TC Conference call minutes). With regard to these previous discussions on the issue of private label auditing and testing, the states present on the call documented in the attached minutes (not all TC members were present though) with regard to this issue felt that the private labeler audit would, in their minds, provide limited value added with regard to traceability. The TC then asked the GMA to discuss the issue and get back to the TC. The GMA responded back to us wanting private labelers to also go through the audit process, which is why we left the private label companies in the audit work plan. Part of the logic here was also that if we didn’t somehow evaluate the private label companies through this audit program, that we would not be able to continue to list the private label products in the NTPEP reports and in DataMine, leaving it up to the states to deal with how they will incorporate private label products in their QPL’s or APL’s. While the states could check the product markings in the field when the private labeled products arrive on the jobsite, they would have no basis for including the private labeled products up front in their QPL’s or APL’s, nor would NTPEP have a basis to include private labeled products in DataMine. Note that the attached e-mail string meeting minutes were also forwarded to the rest of the TC and the GMA, so all of you have seen this before. This is just a reminder of the discussion we had last fall that directly addresses the point brought up in the TC meeting in Indianapolis.

Regarding the letter received after the TC meeting, the general reason for the testing is adequately covered in these past meeting minutes and e-mails. However, the person sending the e-mail appears to be misunderstanding how much testing of private label products will be conducted. The program does not require testing of every product, but only representative products and only a few tests to verify consistency with the source manufacturer’s products. At the TC meeting, I presented a typical cost for the testing of private label products for the entire private label product line. For a typical situation, an approximate testing cost per product line (not per product) would be about $1,700, not the $70,000 to $85,000 indicated by the originator of the e-mail. Had the individual been at the meeting, he would have heard this.

Considering that these comments were addressed previously, that industry has had plenty of opportunity for input, that the work plan was modified in response to the industry comments, and that all this was well documented, I see no reason to discuss this further. The attached documentation adequately answers the issues raised, and we will move forward with the work plan as approved. I, as the geosynthetic TC chair, will also not be providing a personal e-mail response to the message received after the TC meeting that is attached to this e-mail, nor will the TC continue to respond to any additional e-mails that raise these same issues. This e-mail constitutes the geosynthetics TC response, and I will assume that the GMA will make sure that any private label companies who have similar questions will receive this e-mail response. Thank you for your help in this matter.
REGEO Program
Status/Changes/Proposals
2012 NTPEP Conference

By Tony Allen
WSDOT
REGEO Program Status

• Currently have REGEO test reports published for 8 product lines
• A new round of qualification testing for two product lines (Miragrid and ACE) has been completed – Miragrid report has been published
• A new round of qualification testing for Tensar has just been started
• Submittals for new testing or new product lines are being made electronically through DataMine 2.0
• There have been some changes in the testing/evaluation required for this new round of testing
  – Mini-audit to verify consistency/traceability of the product line
  – Additional installation damage testing of product line members
  – Heavier/bigger equipment used to expose geosynthetics to installation damage
  – Elimination of the requirement for real time creep tests for comparison to SIM, if SIM shown in previous NTPEP testing to be consistent with the real time creep data for the product line being tested
• This additional testing/evaluation will add approximately $10,000 to the cost of product line qualification testing (now approximately $50,000 to $60,000/product line)
• Private label products will also have greater evaluation costs (total of approx. $16,000)
REGEO Work Plan Changes to Be Balloted

- Updated to reflect that AASHTO PP66-10 is now available
- Better definition of time distribution of creep rupture points
- Option to use SIM without real time creep rupture data if the previous NTPEP creep testing has shown that SIM is adequately consistent to the real time creep data
- Modification of the statistical test to compare SIM with real time creep data to spread out the times at which the SIM and real time creep data are compared
- Clearer definition of what is required for evaluation of private label reinforcement products
- Will be submitted for committee ballot in Nov. 2012
Additional Features in Proposed Work Plan

Revisions

• Proposed pullout testing program
  – Several states, and a few manufacturers have asked about this
  – Will likely use a couple of the soils used for installation damage testing, and one intermediate material (3 materials)
  – Will probably not be able to use product line basis for using the test results, meaning that may need to test each product pullout data desired
  – Will make this testing optional at this point
  – Approximate estimated cost $1,800/product (total for 3 soils)

• Proposed additional optional ISO testing for international use of the REGEO data
  – Would be in accordance with ISO TR20432 (very similar to WSDOT T925)
  – Would primarily consist of additional creep strain testing for isochronous creep curves development, ISO wide width, ISO immersion hydrolysis testing, UV testing, etc.
  – Since this testing is outside the normal scope of NTPEP, it would not be required, but only optional, if requested by the manufacturer to allow correlation between the NTPEP test results and international standards needed to use the data in other countries
  – Would be conducted on the same sample of material as the required NTPEP testing, and included as a separate appendix to the NTPEP report
  – The NTPEP REGEO program is the only robust independent geosynthetic reinforcement testing program in the world, hence the possible interest in the availability of such optional testing
REGEO Mini-Audits

• First audits completed in June 2011 (Miragrid and ACE)
• Focus is on verification of continuity/consistency of product line to justify testing of only representative products in the line
• The following were evaluated:
  – Consistency of manufacturing production lines that produce product for the line, including control of additives, consistency of fiber/yarn forming process and process to form final product
  – Traceability/consistency of raw materials, additives used, etc. throughout product line
  – Manufacturer QC for raw materials used in product line
  – Manufacturer QC used to control quality/consistency of all products in line (including consistency of coating used for coated PET geogrids)
  – Adequacy of records retention and traceability
• Not a full evaluation of the manufacturer QMS (only will evaluate those aspects of QMS germane to the product line issues)
• No split sample testing/evaluation
• No evaluation of manufacturer QC testing quality and consistency
• Product marking not required
Including REGEO in DataMine

- In addition to full report, will also provide:
  - Searchable test results
  - Interpreted long-term strength properties for “standard” conditions that states can use
- Mini-audit reports (restricted access through password protection)
- Anticipated new DataMine Module for REGEO availability date not available, but it is in process
### Summary of Product Line Qualification Test Results for Individual Products

#### Index Properties

<table>
<thead>
<tr>
<th>Product Name (they are products within a product line)</th>
<th>Typical Unit Weight (provided by Manufacturer) (oz/yd²)</th>
<th>Measured Unit Weight (oz/yd²)</th>
<th>MARV for Tilt Provided by Manufacturer (ASTM D6637 or D4595) (lbs/ft)</th>
<th>Measured Tilt (ASTM D6637 or D4595) (lbs/ft)</th>
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<tbody>
<tr>
<td>Miregrid 3XT. MD - TenCate</td>
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</table>

#### Installation Damage

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Strength Retained (%)</th>
<th>COV (%)</th>
<th>Full Scale Field Exposure, Coarsest Soil (Gradation No. 1)</th>
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<tbody>
<tr>
<td>Miregrid 3XT. MD - TenCate</td>
<td>78</td>
<td>7.5</td>
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<tr>
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<tr>
<td>Miregrid 7XT. MD - TenCate</td>
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<td>1.6</td>
<td>84</td>
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<td>Miregrid 24XT. MD - TenCate</td>
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</table>

#### Durability Index Test Results

<table>
<thead>
<tr>
<th>Product Name</th>
<th>UV Resistance (ASTM D4365 - % Strength Retained)</th>
<th>Number Average Molecular Weight (ASTM D4693 and GRI GSB - for PET)</th>
<th>Carboxyl End Group Content (GRI GG7 - for PET)</th>
<th>Thermo-Oxidation Resistance (ENV ISO 13430:1999 - for HDPE and PP), Strength Retained (%)</th>
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</thead>
<tbody>
<tr>
<td>Miregrid 3XT. MD - TenCate</td>
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<td>31.395</td>
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<td>31.395</td>
<td>24.6</td>
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</tbody>
</table>
## Creep Stiffness Test Results

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Measured 1,000 hr Creep Stiffness at 2% Strain, J&lt;sub&gt;1000&lt;/sub&gt; (lb/ft)</th>
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<tbody>
<tr>
<td>Miragrid 3XT-MD - TenCate</td>
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</tr>
<tr>
<td>Miragrid 5XT-MD - TenCate</td>
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<td>Miragrid 10XT-MD - TenCate</td>
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</tr>
<tr>
<td>Miragrid 14XT-MD - TenCate</td>
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</tr>
<tr>
<td>Miragrid 22XT-MD - TenCate</td>
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</tr>
<tr>
<td>Miragrid 24XT-MD - TenCate</td>
<td>12.782</td>
</tr>
</tbody>
</table>

## Interpreted Values for Design Purposes

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Long-Term Strength Reduction Factors</th>
<th>Long-Term Tensile Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>^1RF&lt;sub&gt;Ds&lt;/sub&gt;</td>
<td>^2RF&lt;sub&gt;tp&lt;/sub&gt;</td>
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<tr>
<td>Miragrid 3XT-MD - TenCate</td>
<td>1.12</td>
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</table>

## Data Plots of Product Line Qualification Test Results for Individual Products

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Installation Damage (Full Scale Field Exposures), Strength Retained vs. Soil d50</th>
<th>Laboratory Creep Test Data, Rupture Strength (% UT5% vs. Log Time (hr))</th>
<th>Measured Creep Stiffness vs. Thot, (lbs/ft or lbs/1000 lbs)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Strong</td>
</tr>
<tr>
<td>Miragrid 5XT-MD - TenCate</td>
<td>Strong</td>
<td>Long</td>
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</tr>
<tr>
<td>Miragrid 7XT-MD - TenCate</td>
<td>Strong</td>
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<tr>
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<td>Miragrid 24XT-MD - TenCate</td>
<td>Strong</td>
<td>Long</td>
<td>Strong</td>
</tr>
</tbody>
</table>

**Notes:**

See full report for statistical validation of product line, applicability of SIM testing for creep, and comparison between Product QA and Product Qualification test results.

Regarding interpreted values for design purposes, these are applicable to a specific set of conditions. For products in the line not specifically tested, these have been interpolated from the test results using the MARV of the tensile strength.

For RF<sub>Ds</sub>, the values provided are applicable to a backfill soil d<sub>50</sub> of 4.73 mm, using the recommended approach in the full report to apply the strength retained results to the products in the line not specifically tested.

For RF<sub>tp</sub>, the recommended value is based on the rupture limit estimated at 20 °C and 75 years.

For RF<sub>p</sub>, the reduction factor is a default value that is generally applicable to product lines meeting the index test criteria recommended in the AASHTO LRFD Bridge Design Specifications (AASHTO P96-10) and which are repeated in the:

The use of a default value for RF<sub>p</sub> is only applicable to a nonaggressive environment as defined in the AASHTO LRFD Bridge Design Specifications. AASHTO P96-10, and WSDOT T925.

Note that the default value for RF<sub>p</sub> may be reduced for less aggressive conditions than specified at the limits of what is defined as nonaggressive, e.g., to consider documented long-term performance of a given product, or some other feature of the product.

For T<sub>ds</sub>, it is determined in accordance with WSDOT T925 and AASHTO P96-10, using the MARV for T<sub>ds</sub>.

The design value for the low strain creep stiffness has been interpolated using the best fit regression to the measured creep stiffness values at 1,000 hour and 2% strain for the product line, and reduced by the ratio of T<sub>ds</sub> / T<sub>ds</sub>.
GTX Testing/Audit Program

Presented
at the 2012 Annual NTPEP Geosynthetics Technical Committee meeting

By Tony Allen
WSDOT
GTX Audit Program Development

• Numerous conference calls between the technical committee and GMA representatives

• Trial audits conducted
  – Manufacturers (TenCate - GA, Fiberweb - TN)
  – Private label companies (ACF West – OR)

• Draft modifications to GTX audit work plan reviewed by industry and the states

• Balloted in Nov. 2011 and approved in Jan. 2012

• Pre-audit application forms and report templates developed and sent out to the GMA members Feb. 29th

• Manufacturer auditing began March 1st, 2012

• Now not accepting new testing applications for manufacturers under the old work plan

• Will accept private label submissions under old work plan through the end of 2012 to provide enough time for manufacturers to get initial audits conducted
Continuation of Current GTX Testing Program

• For manufacturers, GTX testing under previous work plan was stopped at beginning of 2012 for products coming due on 3 yr cycle

• For private label products, evaluation (and limited testing) will continue as products come due on 3 yr cycle through 2012 while waiting for source manufacturers to get audited (testing limited to AOS, grab, mass/area, and UV test for lightest product in line)
NTPEP Testing Lab Changes

• NYDOT will continue testing under the old program through the transition period to the new audit program
• TRI will do the geotextile testing for the audit program
• TRI will also be under contract to assist NTPEP with the audits
• Depending on the volume of testing, other labs may be added to do the testing or assist with auditing
Transitioning from the old NTPEP Work Plan to the New Audit Work Plan - Manufacturers

• New audit work plan has been implemented (as of March 1\textsuperscript{st}), and NTPEP is no longer accepting submissions under the old work plan
• Submission cycle is now continuously open
• Goal is to have most manufacturers through the initial audit phase by early next year (2013)
• Product testing will continue from current 3 yr cycle
• Grace period for longer term changes needed to be in compliance with audit
  – Product marking equipment
  – Handling/clearing out existing geotextile stock
  – For foreign manufacturers, gearing up to provide properties/test results using ASTM standards and documents to be reviewed translated to English, if not in English already
  – Other issues?
  – Audit to include manufacturer’s plan and schedule to become compliant
Transitioning from the old NTPEP Work Plan to the New Audit Work Plan – Private Label Companies

• Private label companies cannot submit products under the new work plan until their source manufacturers have been audited
• Will continue to accept product submissions under the old work plan as they come due until early 2013
• Product verification testing to be done on a product line basis to evaluate the line – i.e., consistency with source manufacturer product test data – every 3 yrs
What to Expect when Getting Audited: Manufacturers

• The on-site audit will focus on what must be observed on site, such as observing testers perform tests, checking traceability of raw materials documentation and QC test results to specific lots, product marking, etc.

• Split sampling of products coming due on their 3 yr testing cycle
Audit Report Contents - Manufacturers

• Desktop Review
  – Section 1: Geotextile Product Line Summary and Production Line Overview
  – Section 2: Product Raw Materials Information
  – Section 3: QMS QC/QA Requirements
  – Section 4: QMS Requirements for Resolution of Non-Conforming Product or Test Results
  – Section 5: QMS Requirements for Manufacturer Testing Facilities and Associated Personnel
  – Section 6: QMS Requirements for Records Retention and Traceability
  – Section 7: QMS Requirements for Internal Audits
  – Section 8: QMS Requirements for Marking, Storage, Shipping, and Handling of Finished Geotextile
Audit Report Contents - Manufacturers

• **On-Site Audit**
  – Section 1: Training and Competency Evaluation of Testing Personnel – Audit of Records
  – Section 2: Sample/Yard Inspection and Traceability of Product and Testing Records
  – Section 3: Sample Reports for Raw Materials and Geotextile Testing
  – Section 4: Manufacturing Process Walk-Through
  – Section 5: Geotextile Identification Markings
  – Section 6: Report Signature

• **Appendixes**
  – Appendix A: Audit of QC Testing Procedures and Technician Competency
  – Appendix B: Equipment Calibration
  – Appendix C: Geotextile Sampling Report
  – Appendix D: Sample Manufacturer QC/QA Test Reports
What to Expect when Getting Audited: Private Label Companies

• The on-site audit will focus on what must be observed on site, such as checking traceability of private labeled products to source manufacturer test results, observation of product markings for rolls in warehouse, etc.

• Sampling of product lines partially or fully coming due on their 3 yr testing cycle will be sampled – not all products in line will be sampled, but only enough to represent the line – testing only for verification of consistency of private labeled products to source manufacturer’s products
Audit Report Contents – Private Label Companies

- Section 1: Geosynthetic Product Line Summary
- Section 2: Manufacturing Plants Used by Private Label Product Line
- Section 3: Company Organizational Geosynthetic Quality Policies
- Section 4: On-Site Audit
- Section 5: Geosynthetic Identification Markings
- Section 6: Sample Geosynthetic Test Reports and Certifications
- Section 7: Report Signature
- Appendix A: Sample Private Labeled Source Manufacturer Test Reports and Certifications
What to Expect when Getting Audited: Schedule

- After submission and payment of fees, completion of desktop review generally takes about 2 to 3 weeks
- Once the desktop review is completed, an on-site audit is scheduled, hopefully within a month from this point, but this will depend on work load
- Once audit is completed, final draft audit report should be available for review in 10 days
- The manufacturer or private label company will have a maximum of 15 days to review the report and provide AASHTO their corrective action reports
- Concurrently, once the on-site audit has been conducted and the samples received at the NTPEP Test lab, results of sample testing will be made available to the company within 4 weeks; the company will then have 7 days to review the split sample test results before they are posted to DataMine
- As long as there are no problems with the results or disputes, the final audit report will be posted to the NTPEP password protected site, and the test results posted to DataMine within 2 weeks of the company’s completion of review of the test data or audit report, whichever takes the longest
- Therefore, total estimated minimum time to complete audit and testing process (assumes company provides AASHTO requested information and responses in a timely manner) is approximately 4 months
Product Marking and Labeling

• What the work plan says:
  – Each unique geotextile manufactured for AASHTO M288 qualification and NTPEP program participation shall be marked with a clearly legible print showing, as a minimum, the manufacturing plant (or manufacturing plant ID code numbers).
  – This marking shall be located on the roll edge of the product in the selvedge at a frequency of once per 5 meters (16.4 ft). The marking shall be unique for each manufacturer and manufacturing plant facility. The mark will be established by NTPEP during the application process for the initial audit. Once the unique manufacturer mark has been established, it shall not be changed.
  – In addition, labels shall be affixed by the product manufacturer to both ends the outside of the geotextile roll and both ends of the inside of the geotextile roll core where they are easily visible for inspection, and shall be attached in a manner that would make the label difficult to remove or replace. This is in addition to any labeling affixed to the outer wrapping for the roll. As a minimum, the label shall contain the following additional information about the product and its production: the roll number, its production date, AASHTO M288 class(es) the product meets, and the product name (if the manufacturer is supplying the product to a private label company, the product name is the one that will be used by the private label company).
Product Marking and Labeling, Cont.

• It is recognized that it will take time to get the product marking program up and running
  – Setting up infrastructure to do marking
  – Using up rolls in inventory produced before product marking in place at manufacturer location, and in distribution centers

• Therefore, initial audits will indicate compliance in this regard is in process
  – Manufacturer should be prepared to provide marking implementation plan to auditor
  – Audit report will summarize this plan for compliance
Foreign Geotextile Manufacturers – Considerations for Participation in NTPEP

• Products must meet ASTM test requirements
  – Manufacturer must do enough QC/QA testing using ASTM to be confident of the properties of their products using ASTM tests
  – This does not necessarily mean that they must use only ASTM tests for their QC program, nor does this mean they have to use in-house testing staff to do the ASTM tests
  – NTPEP will use ASTM tests in their split sample testing for reporting in DataMine

• Documents such as the manufacturer’s QMS manual must be available in English for auditor review – translation cost is not included in the proposed fees
Key Questions about GTX Audit Program that Have Been Raised

• If a company's products come “due” while waiting on the audit, are the products maintained on list until it is completed?
  — Answer: Yes.

• What is the plan for private label companies who’s application comes due this year while the manufacturers are being audited?
  — Answer: Private label companies will be able to submit products the “old way” until they are able to be audited. They will have to wait, however, until their source manufacturers have been through their initial audit.

• What is the plan for manufacturers who’s application comes due after this year?
  — Answer: They may wait to be audited until they have products needing to be reevaluated unless a state DOT requires them to participate in the program sooner. But in general our goal is to get all of the manufacturers through their initial audit by early next year.

• When auditing private label companies, how will branch offices/facilities be handled?
  — Answer: At the very least, the “headquarters” of a private label company would be audited. Beyond this, if there are branch offices that have their own independent quality control procedure, they will need to be audited. The locations where Product A is being turned into Product B, they this facility would need to be audited. The distribution centers where the Product B’s are stored, would not need to be audited.

• Do distribution centers for manufacturers or private label companies need to be audited?
  — Answer: It is a consideration but there aren’t any specific plans as of right now.

• How are manufacturer/plant code numbers assigned, and what flexibility does a manufacturer have in what numbers (and how many) are used?
  — Answer: NTPEP needs to keep record of all numbers a manufacturer may be using. The Auditor will make sure the numbers match the products they are linked to. The manufacturer can’t use a number that has not been given to them by AASHTO.

• Please clarify the fees required of each company to participate in this audit/testing program.
Typical Fees for GTX Auditing and Testing

• **For manufacturers:**
  - For desk top and on-site audit (includes sampling), total fee every 3 yrs (within US) is $6,250
  - Additional on-site audit fee on yrs full audit not conducted is $4,375 + $1,375 = $5,750
  - For testing per product = $650
  - For testing, additional cost per product line (UV test only) = $1,050
  - For paving fabrics, additional cost/product = $700
  - Estimated total testing cost for a product line (assume 7 products, 1 product line, no paving fabric) = $5,600
  - Example approximate total audit and testing cost every 3 yr cycle (1 product line) = $23,400

• **For private label companies:**
  - For desk top and on-site audit (includes sampling), total fee (within US) is $5,375
  - Additional on-site audit fee on yrs full audit not conducted is $3,500 + $1,375 = $4,875
  - For testing, per product line (3 products, AOS, Grab, Unit Wt.; 1 product UV test) = 210x3 + 1,050 = $1,680
  - Example approximate total audit and testing cost every 3 yr cycle (1 product line) = $16,800
Benefits of Audit Program for NTPEP (State DOT) Members

• Verified consistency of manufacturer’s QC program with State DOT expectations
  – Manufacturer certifications states can rely upon
  – NTPEP test results that are more than just a periodic “snapshot” in time

• Better identification of products sent to the jobsite

• Traceability of products to manufacturer QC data – provides greater flexibility to state DOT’s to minimize their own QA testing

• Reduction in material problems observed by DOT’s – for example:
  – Unreliable certifications
  – The wrong material being used/installed (e.g., incorrect certification provided with geotextile)
  – Product that fails to meet specification requirements
  – Note that this audit work plan development effort was begun in 2008 due to concerns expressed by several state DOT’s who were having problems with mis-identified products and products not meeting specs, and their desire to see products better identified, with that identification tied to consistent QC/QA. What would have resulted is each state having their own product marking/auditing programs – better to have one product marking/auditing program nationwide

• Will encourage states to upgrade their geotextile specifications to be more consistent with M288 and improve nationwide uniformity for use of geotextiles and products available
Discussion of Audit Work Plan Implementation and Next Steps
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National Transportation Product Evaluation Program 2012
Sheraton Indianapolis City Center
Indianapolis, Indiana
Joel Sprague  TRI/Environmental  jsprague@tri-ewc.com  864-422-2220
## AASHTO/NTPEP 2012 Annual Meeting

Geotextile (GTX) & Geosynthetic Soil Reinforcement (REGEO)

**Technical Committee**

Tuesday, May 1, 2012 (3:15pm-5:15pm)

**Working Session #3**

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