

APPENDIX B

DESIGN CHANGES/CLARIFICATIONS – FEB 6, 2014 LETTER TO TCEQ

February 6, 2014

Ms. Eleanor Wehner, P.G.  
Texas Commission on Environmental Quality  
Remediation Division  
VCP-CA Section, Mail Code MC-127  
Post Office Box 13087  
Austin, Texas 78753

**Re: Texas Custodial Trust  
Former ASARCO Smelter Site, El Paso, Texas**

**Subject: Construction Status and Design Changes for Cell 3 Cover System**

Dear Ms. Wehner:

This letter provides a status of the completed activities and submits three design changes and one design clarification for the Cell 3 Cover System. The approved design was submitted to the Texas Commission on Environmental Quality (TCEQ) on October 10, 2013 and approved for construction on October 28, 2013. We request your approval of these design changes.

To date the following activities have been completed:

1. The existing temporary cover of Cell 3 has been removed.
2. The Category I materials identified for removal have been relocated to Cell 4.
3. One foot of foundation layer material has been placed as an interim cover over the Category I material.

The remaining activity for Cell 3 is installing the additional components of the cover system. The following changes are made to the design:

1. The geosynthetic clay liner (GCL) material, Bentomat CLT, specified in Attachment A of the October 10, 2013 letter will be replaced with Bentomat DN. Bentomat DN is the same material as was originally used for the bottom liner of Cell 3. Attachment A includes the specifications for the Bentomat DN.
2. The cover system will extend beyond and below the 3,788 elevation and terminate in a new anchor trench located approximately 3 feet outboard of the existing top liner anchor trench. Details are shown in Sheet 1 in Attachment A. This is needed to extend the new geomembrane beyond the limits of Cell 3 since the condition of the existing geomembrane does not comply with our specifications.
3. The double-sided geocomposite will be replaced with a 12 oz. nonwoven cushion geotextile (see Attachment A for specifications). The reason for replacement of the





geocomposite is because it originally was designed to temporarily convey any infiltrating precipitation to a perimeter drain at the toe of Cell 3. The perimeter drain is no longer needed as part of the overall site drainage system due to future plans for a final soil cover system. Cell 3 will be covered with additional soil preventing infiltration and have other surface drainage components managing runoff in this area. The nonwoven geotextile will cushion and protect the geomembrane liner from potential damage during installation of the clean soil cover.

In addition, the following clarification is provided:

1. The 18-inch foundation layer will be comprised of select unscreened material from the East Borrow Source and due diligence will be taken during excavation and placement to minimize the amount of rock that exceeds 1-inch in size. After the first 12-inch lift is placed and compacted with a smooth drum compacter, the surface will be inspected to determine if this methodology is acceptable to continue for the final 6-inch lift. If the material is deemed acceptable and the methodology to place additional material (of similar composition) remains the same for the subsequent 6-inch lift, the lift will be placed and compacted with the final surface inspected by the field engineer to identify any rocks that exceed 1-inch in size to be removed and replaced with compacted 1-inch minus sand/gravel. The repaired final surface will be inspected by the field engineer and approved prior to commencing GCL installation.

The Cell 3 cover system will be monitored for erosion and maintained until the final plant site cover system is installed.

If you have any questions regarding this submittal please contact me at 602-797-4536 or by email at [scott.brown@arcadis-us.com](mailto:scott.brown@arcadis-us.com).

Sincerely,

Scott M. Brown, P.E.  
Project Manager

John Sparks, P.E.  
Engineer of Record

cc: Roberto Puga, Mike Berry, Bill Sabatka, Steve Richey, Ej Suardini

Attachment A:  
GCL specifications  
Sheet 1(revised)  
Nonwoven geotextile specifications



**ATTACHMENT A**

- **GCL Specifications**
  - **Sheet 1(revised)**
- **Nonwoven Geotextile Specifications**



## BENTOMAT® DN CERTIFIED PROPERTIES

MATERIAL PROPERTY	TEST METHOD	TEST FREQUENCY ft <sup>2</sup> (m <sup>2</sup> )	REQUIRED VALUES
Bentonite Swell Index <sup>1</sup>	ASTM D 5890	1 per 50 tonnes	24 mL/2g min.
Bentonite Fluid Loss <sup>1</sup>	ASTM D 5891	1 per 50 tonnes	18 mL max.
Bentonite Mass/Area <sup>2</sup>	ASTM D 5993	40,000 ft <sup>2</sup> (4,000 m <sup>2</sup> )	0.75 lb/ft <sup>2</sup> (3.6 kg/m <sup>2</sup> ) min
GCL Grab Strength <sup>3</sup>	ASTM D 4632 ASTM D 6768	200,000 ft <sup>2</sup> (20,000 m <sup>2</sup> )	150 lbs (660 N) MARV 37.5 lbs/in (66 N/cm) MARV
GCL Peel Strength <sup>3</sup>	ASTM D 4632 ASTM D 6496	40,000 ft <sup>2</sup> (4,000 m <sup>2</sup> )	15 lbs (65 N) min 2.5 lbs/in (4.4 N/cm) min
GCL Index Flux <sup>4</sup>	ASTM D 5887	Weekly	1 x 10 <sup>-8</sup> m <sup>3</sup> /m <sup>2</sup> /sec max
GCL Hydraulic Conductivity <sup>4</sup>	ASTM D 5887	Weekly	5 x 10 <sup>-9</sup> cm/sec max
GCL Hydrated Internal Shear Strength <sup>5</sup>	ASTM D 5321 ASTM D 6243	Periodic	500 psf (24 kPa) typical @ 200 psf 6,500 psf (311 kPa) typical @ 10,800 psf

**Bentomat DN is a reinforced GCL consisting of a layer of sodium bentonite between two nonwoven geotextiles, which are needlepunched together.**

### Notes

<sup>1</sup> Bentonite property tests performed at a bentonite processing facility before shipment to CETCO's GCL production facilities.

<sup>2</sup> Bentonite mass/area reported at 0 percent moisture content.

<sup>3</sup> All tensile strength and peel strength testing is performed in the machine direction using 4 inch grips per modified ASTM D 4632. Results are reported as minimum average roll values unless otherwise indicated. Upon request, tensile strength can be reported per ASTM D 6768 and peel strength can be reported per ASTM D 6496.

<sup>4</sup> Index flux and permeability testing with deaired distilled/deionized water at 80 psi (551kPa) cell pressure, 77 psi (531 kPa) headwater pressure and 75 psi (517 kPa) tailwater pressure. Reported value is equivalent to 925 gal/acre/day. This flux value is equivalent to a permeability of 5x10<sup>-9</sup> cm/sec for typical GCL thickness.

Actual flux values vary with field condition pressures. The last 20 weekly values prior the end of the production date of the supplied GCL may be provided.

<sup>5</sup> Peak values measured at 200 psf (10 kPa) and 10,800 psf (517 kPa) normal stress for a specimen hydrated for 48 hours. Site-specific materials, GCL products, and test conditions must be used to verify internal and interface strength of the proposed design.

*CETCO has developed an edge enhancement system that eliminates the need to use additional granular sodium bentonite within the overlap area of the seams. We call this edge enhancement, SuperGroove™, and it comes standard on both longitudinal edges of Bentomat® DN. It should be noted that SuperGroove™ does not appear on the end-of-roll overlaps and recommend the continued use of supplemental bentonite for all end-of-roll seams.*



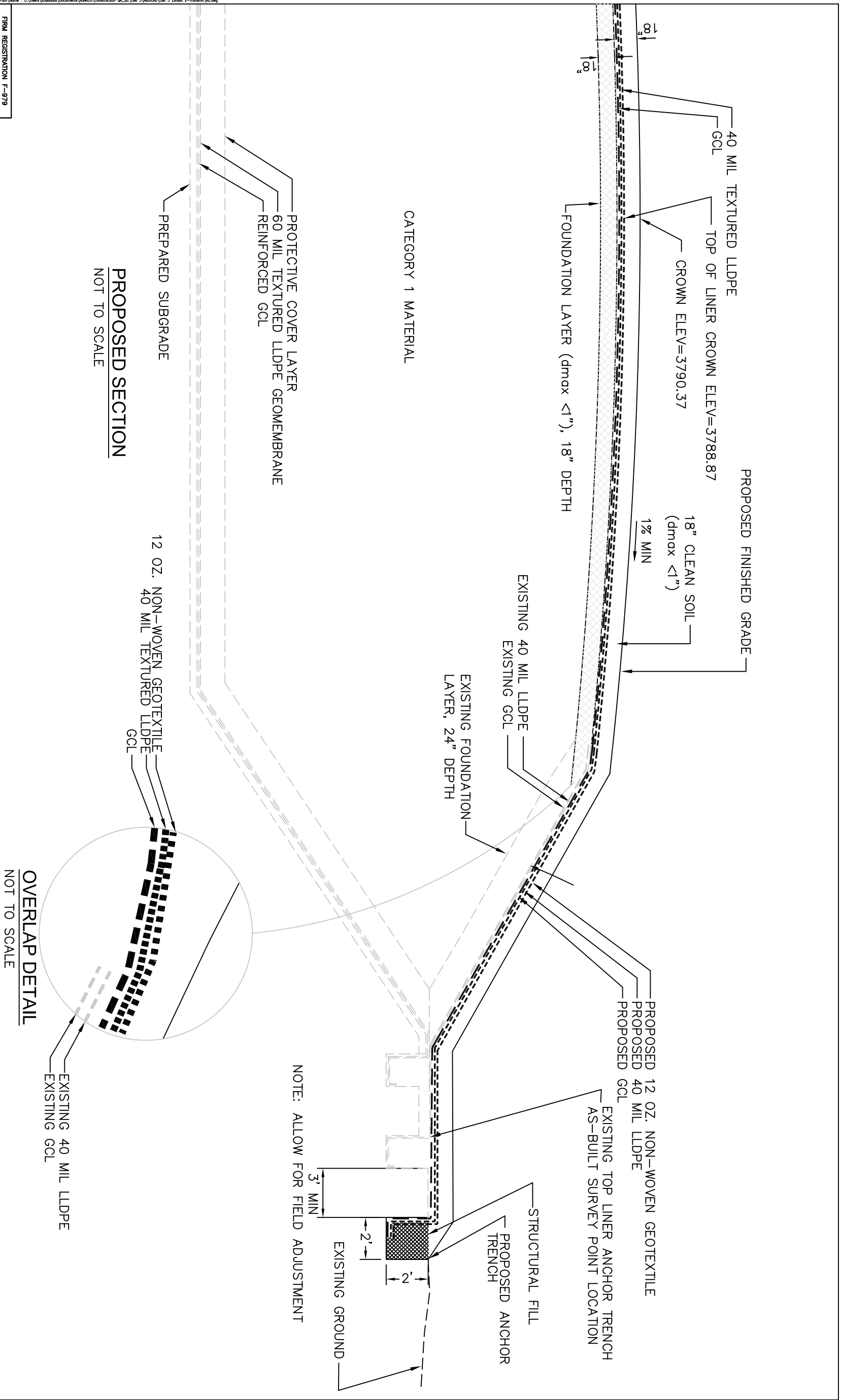
1500 W. Shure Drive Arlington Heights, IL 60004 USA 800.527.9948 Fax 847.577.5571

For the most up-to-date information please visit our website, [www.cetco.com](http://www.cetco.com)

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The information and date contained herein are believed to be accurate and reliable. CETCO makes no warranty of any kind and accepts no responsibility for the results obtained through application of this information.

Revised 09/04  
TR 401-BMDN



NOTE: ALLOW FOR FIELD ADJUSTMENT



FIRM REGISTRATION F-979

REVISIONS	
NO.	DATE

FORMER SMELTER SITE  
 EL PASO, TEXAS

CELL 3 COVER SYSTEM DETAILS  
 TYPICAL SECTION  
 SCALE: AS NOTED

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 MALCOLM PIRNIE, INC.  
 DATE JANUARY 2014  
 AC SHEET 1 OF 1  
 CAD REF. NO. AC.dwg

# GSE Nonwoven Geotextiles

GSE Nonwoven Geotextiles are a family of staple fiber needlepunched geotextiles. The geotextiles are manufactured using an advanced manufacturing and quality system to produce the most uniform and consistent nonwoven needlepunched geotextile currently available in the industry. GSE combines a fiber selection and approval system with an in-line quality control and a state-of-the-art laboratory to ensure that every roll shipped meets customer specifications.



**AT THE CORE:**  
A family of geotextiles used for separation, filtration, protection and drainage applications.

## Product Specifications

These product specifications meet GRI GT12, GRI GT13 and AASHTO M288

Tested Property <sup>(1)</sup>	Test Method	Frequency	Minimum Average Roll Value					
			NW4	NW6	NW8	NW10	NW12	NW16
AASHTO M288 Class			3	2	1	>1	>>1	>>>1
Mass per Unit Area, oz/yd <sup>2</sup>	ASTM D 5261	90,000 ft <sup>2</sup>	4	6	8	10	12	16
Grab Tensile Strength, lb	ASTM D 4632	90,000 ft <sup>2</sup>	120	160	220	260	320	390
Grab Elongation, %	ASTM D 4632	90,000 ft <sup>2</sup>	50	50	50	50	50	50
Puncture Strength, lb	ASTM D 4833	90,000 ft <sup>2</sup>	60	90	120	165	190	240
Trapezoidal Tear Strength, lb	ASTM D 4533	90,000 ft <sup>2</sup>	50	65	90	100	125	150
Apparent Opening Size, Sieve No. (mm)	ASTM D 4751	540,000 ft <sup>2</sup>	70 (0.212)	70 (0.212)	80 (0.180)	100 (0.150)	100 (0.150)	100 (0.150)
Permittivity, sec <sup>-1</sup>	ASTM D 4491	540,000 ft <sup>2</sup>	1.80	1.50	1.30	1.00	0.80	0.60
Water Flow Rate, gpm/ft <sup>2</sup>	ASTM D 4491	540,000 ft <sup>2</sup>	135	110	95	75	60	45
UV Resistance % retained after 500 hours	ASTM D 4355	per formulation		70	70	70	70	70
TYPICAL ROLL DIMENSIONS								
Roll Length <sup>(2)</sup> , ft			850	850	600	500	400	300
Roll Width <sup>(2)</sup> , ft			15	15	15	15	15	15
Roll Area, ft <sup>2</sup>			12,750	12,750	9,000	7,500	6,000	4,500

NOTES:

- <sup>(1)</sup>The property values listed are in weaker principal direction. All values listed are Minimum Average Roll Values except apparent opening size in mm and UV resistance. Apparent opening size (mm) is a Maximum Average Roll Value. UV is a typical value.
- <sup>(2)</sup>Roll lengths and widths have a tolerance of ±1%.

GSE is a leading manufacturer and marketer of geosynthetic lining products and services. We've built a reputation of reliability through our dedication to providing consistency of product, price and protection to our global customers.

Our commitment to innovation, our focus on quality and our industry expertise allow us the flexibility to collaborate with our clients to develop a custom, purpose-fit solution.



**[ DURABILITY RUNS DEEP ]** For more information on this product and others, please visit us at [GSEworld.com](http://GSEworld.com), call 800.435.2008 or contact your local sales office.

Bryan W. Shaw, Ph.D., P.E., *Chairman*  
Toby Baker, *Commissioner*  
Zak Covar, *Commissioner*  
Richard A. Hyde, P.E., *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

February 19, 2014

Mr. Roberto Puga, P.G.  
Trustee, Texas Custodial Trust  
Project Navigator, Ltd.  
One Pointe Drive, Suite 320  
Brea, CA 92821

RE: TCEQ Approval of *Construction Status and Design Changes for Cell 3 Cover System*, dated February 6, 2014  
Former ASARCO Smelter site, El Paso, Texas  
TCEQ SWR No. 31235; EPA ID No. TXD990757668; Customer No. CN603597782;  
Regulated Entity No. RN100219021

Dear Mr. Puga:

The Texas Commission on Environmental Quality (TCEQ) and the US Environmental Protection Agency (USEPA) has reviewed the above referenced submittal dated February 6, 2014, providing a status update of completed activities and proposed changes and/or clarifications to the existing design for the Cell 3 cover system. The Cell 3 cover system design was submitted to the TCEQ on October 10, 2013 and approved for construction by the TCEQ on October 28, 2013. The February 6, 2014 submittal proposes the following design changes to the approved cover system:

- use of Bentomat DN as opposed to Bentomat CLT as the geosynthetic clay liner (GCL) material as originally specified in the October 10, 2013 Cell 3 cover system design submittal;
- extension of the cover system beyond and below the 3,788 elevation and to terminate in a new anchor trench located approximately 3 feet outboard of the existing top liner anchor trench; and,
- replacement of the geocomposite with a 12 oz. nonwoven cushion geotextile.

The February 6, 2014 submittal also provided additional clarification of the source and due diligence/inspection protocols supporting the construction of the 18-inch foundation layer. The TCEQ understands that Cell 3 will be deed restricted such that buildings cannot be constructed over Cell 3 and the existing cover system will be monitored for erosion and maintained until the final plant site soil cover system is installed. Based on our review, the TCEQ, with concurrence from the USEPA, hereby approves the implementation of the design changes proposed in the February 6, 2014 submittal.

As previously stated in the TCEQ's October 28, 2013 letter the TCEQ and EPA requires the submittal of a final report within sixty (60) days of completion of the cover system installation activities for Cell 3. In addition, please be aware that submittal of proof of recordation in the

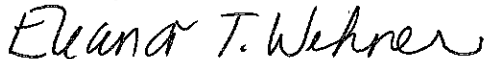


Mr. Roberto Puga, P.G.  
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TCEQ SWR No. 31235

county deed records of all industrial solid waste or municipal hazardous waste disposed on the above referenced site in a landfill(s) must be submitted to the TCEQ in accordance with 30 Texas Administrative Code (TAC) §335.5(b).

Questions concerning this letter should be directed to me at (512) 239-6542. Please use Mail Code MC-127 when responding by mail.

Sincerely,



Eleanor T. Wehner, P.G.  
Project Manager  
VCP-CA Section  
Remediation Division

ETW/mdh

cc: Mr. Scott M. Brown, P.E., Project Manager, Malcolm Pirnie, Inc., 410 N. 44<sup>th</sup> Street, Suite 1000, Phoenix, AZ 85008  
Mr. Charles Fisher, Superfund Division, U.S. EPA Region 6 (Mail Code 6SF-RA), 1445 Ross Ave, Dallas, TX 75202  
Ms. Lorinda Gardner, Regional Director, TCEQ Region 6 Office, El Paso