**DEPARTMENT OF THE ARMY**
**CAMP STANLEY STORAGE ACTIVITY, RRAD**
**25800 RALPH FAIR ROAD, BOERNE, TX 78015-4800**

19 September 2005

U-319-05

Mr. Henry Karnei, Jr.
Texas Commission on Environmental Quality
San Antonio Regional Office, Region 13
Waste Section Manager
14250 Judson Road
San Antonio, TX 78233-4480

Subject: Response to Compliance Evaluation Inspection (CEI) on July 5 - 6, 2005, Camp Stanley Storage Activity, Boerne, Texas
TCEQ Industrial Solid Waste Registration #69026
EPA Identification Number TX2210020739

Dear Mr. Karnei:

Camp Stanley Storage Activity (CSSA) would like to thank you for your August 12 and 19, 2005 correspondences which substantially narrowed the unresolved issues of concern.

It appears the key to resolving the on-going issue of the spent bullet sand is for us to provide sufficient and detailed responses to the seven questions on page 1 in your August 12, 2005 Compliance Evaluation Inspection (CEI) letter. These responses can be found in Attachment 1. Responses regarding additional issues on Page 7, issues 1 (ref a plan to prevent creosote discharge) and 2 (ref a standard operating procedure to prevent recurrence), can be found in Attachment 2. Attachment 3 details PIMS technology and use at CSSA, as well as other areas of Texas.

CSSA believes that our clearance of spent lead from Building 90 falls within the 1997 USEPA munitions rule, which Texas specifically adopted by reference in 2001 with 30 TAC 335.272. The commentary in the final rule promulgation at 62 CFR 6622 (Volume 62, Number 29, February 12, 1997) states:

> *c. Section 266.202(a)(1)(iii)-Range clearance operations. EPA considers range management to be a necessary part of the safe use of munitions for their intended purpose; thus, the range clearance activity is an intrinsic part of training or testing. Therefore, this final rule excludes range clearance exercises (i.e., the recovery, collection, and on-range treatment or destruction of unexploded ordnance) at active or inactive ranges from RCRA Subtitle C regulation. In particular, the collection of fired bullets, including those that contain lead, at indoor firing ranges, is considered by EPA to be range maintenance and not hazardous waste management activities within the scope of today's rule.*

Camp Stanley has a new Environmental Program Manager on the installation and is eager to continue to develop closer and more productive working relationships with your staff. If you have any questions, please feel free to contact Ms. Glare'Sanchez at (210) 698-5208.

Sincerely,

Jason D. Shirley
Installation Manager

Attachments
as

cc: Mr. Greg Lyssy
EPA Region 6

Mr. Sonny Rayos
TCEQ, Corrective Action

Mr. Stan Citron
U.S. Army, Army Materiel Command, Command Counsel, General Law Division (AMCCC-G)

Mr. James Cannizzo
U.S. Army, Army Medical Command, Fort Sam Houston, Staff Judge Advocate

Ms. Julie Burdey
Parsons

Ms. Kimberly Vaughn
Parsons

## CSSA Response to TCEQ Questions/ Issues Arising from the March 30, 2004 CEI

**1. How was the PIMS material applied to the Test Firing Room Sand?**

The PIMS material (50-lb bags) was hand-carried into the Building 90 Test Fire Room and spread manually over the surface of the sand. The material was thoroughly mixed into the sand with a garden tiller and a rake in approximately 6-inch to one-foot layers. After a layer was treated with the PIMS material, it was removed and the next layer was treated. Figure 1 shows an aerial view of Bldg. 90 with the location of Test Fire Room identified.

**2. How much PIMS Material was applied to the Test Firing Room Sand?**

Overall, the approximate amount of PIMS material added to the sand was 18,000 pounds or 10% by weight. Treatability studies performed prior to actual treatment and removal actions of the sand material indicated that a 5% by weight application rate was sufficient to render the material to meet class 1 Nonhazardous criteria. Therefore approximately 9,000 pounds (180 50-lb bags) of PIMS were added to the sand material within the Bldg. 90 Test Fire Room. The remaining balance of PIMS material (~4 super sacks weighing 2,250 lb/sack) was added during the sifting operations which removed projectiles larger than ¼" in size. The recovered projectiles were sent off post for recycling as scrap metal.

**3. How was this PIMS application rate determined?**

CSSA has been utilizing the PIMS material since April of 2001 for an Environmental Security Technology Certification Program (ESTCP) field demonstration effort on lead impacted soils from SWMU B-20. Through the demonstration efforts CSSA has gained experience in the performance of the PIMS stabilization technology and its potential uses for waste treatment. Results of the SWMU B-20 field demonstration efforts can be found on the ESTCP web site under Clean-up Technologies - Heavy metals Project CU-0020 (http://www.estcp.org/cu/#Heavy).

To verify its applicability to the Test Fire Room Sand and to determine an appropriate application rate, a site-specific treatability study was conducted on the sand. A total of approximately 20 gallons of sand from the test fire room was collected from five locations within the room and composited for the use in the treatability study. The study used a 5% and 10% addition of PIMS by weight to the sand for determining the effectiveness of the treatment method.

Results of the treatability study indicated that the sand material was effectively treated to non-hazardous waste criteria.

**4. How was the PIMS material mixed with the Test Fire Room Sand?**

The material was initially mixed within the Bldg. 90 Test Fire Room sand by a garden tiller. The sand material on the face of the impact area was hard with the consistency of sandstone. Use of the garden tiller ensured that the sand and PIMS material was sufficiently mixed. A rake was used to mix PIMS material into the remaining loose sand before vacuum removal.

**5. How long was the PIMS material/Test Fire Room Sand mixture left in the Test Fire room to render it non-hazardous?**

The material was thoroughly mixed and then removed later that day.

**6. Describe in detail, Camp Stanley's method for collecting a representative sample of treated Test Fire Room Sand for analysis?**

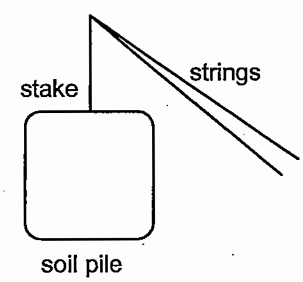
The sand material was relocated to AOC-55 which was undergoing sieving and removal actions under a separate work effort. The sand material was sifted and placed in a conical pile which was sampled in accordance with CSSA field sampling plan and accomplished in the following manner:

**SAMPLING OF A CONICAL-SHAPED PILE**

Conical-shaped piles of soil are practical at sites where there is too much soil to spread out in the space available. These piles have a circular base, and soil is pile uniformly to a peak that is centered above the center of the circular base.

As with the sampling of a single flat-pile, a total of eight samples may be collected. The eight sample locations are randomly selected based on the depth (**t**), distance from the top of the pile (**s**), and the radial distance (**r**) a reference point. If there are multiple piles, a total of eight samples from all the piles (not eight from each) may be collected.

1. The first step is to set up a system for measuring various locations within each pile. A rod or stake with two pieces of string fastened to the top is positioned at the top of the pile. Each string should be long enough to stretch from the top of the pile to the outer edge. The strings attached to the stake should move freely around the pile, but should be as close to the pile as possible.




2. Next the radial component (**r**) of the location of a sample is determined.
   a) One of the two strings is fastened at the bottom of the pile **b** as a reference point for finding **r**.
   b) Then, the circumference (**c**), the distance around the bottom of the pile, is measured.
   c) Using a random number generator, a number between 1 and **c** is randomly selected.
   d) The radial component r is then located in the pile by traveling clockwise from point "**b**" the distance that was randomly selected above.

3. Next, the distance (**s**) from the center of the pile is determined for a sample.

    a) The length **1** of the string at **r** from the top of the pile to the bottom of the pile is measured.

    b) Using a random number generator, a number between 1 and the total length **1** is generated.

    c) Measure this random location **s** from the bottom of the pile and mark its location on the string **r**.

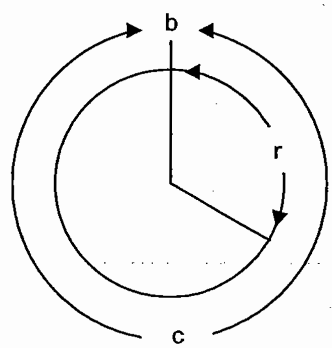
    d) Next, the distance (**s**) from the center of the pile is determined for a sample.

4. Finally, the depth **t** of a sample is determined.

    a) On another stake, mark and number 1 inch or 1 cm intervals. The stake must be long enough and strong enough to be forced down through the maximum depth of the pile.

    b) At position **s** along **r** determined as described above, push the stake into the soil until it reaches the ground. The total depth at **s** is **v**, the vertical distance.

    c) Using a random number generator, a number between 1 and the vertical distance **v** is generated.



Top View of Stockpile

5. Next, a hole is dug straight down into the pile a depth **t**, at the point **s** along **r**.

6. A depth **t**, on the top of the sample container is outlined in the soil. All soil under the outline should be shoveled into the sample container until the container is full.

7. Steps 2 through 6 are repeated until all samples have been collected.

**7. Additionally, provide the dimensions of the Test Firing Room that housed the Test Fire Room Sand?**

The Bldg. 90 Test Fire Room is approximately 12.5 feet by 25 feet.

Plan for disposition of railroad ties from AOC-54

Camp Stanley Storage Activity (CSSA) will remove approximately 250 railroad ties and all telephone poles from the area around the AOC-54 site and send off-post for recycle/reuse. The remaining railroad ties, approximately 50, will be placed away from AOC-54 on plastic. CSSA will cover the pile with plastic to prevent rainwater from leaching any chemicals from the railroad ties. CSSA will scrape approximately 3 inches of top soil off the area where the material was stored. The removed topsoil will be staged and tested for semi-volatiles. The area remaining where the railroad ties were stored will also be sampled and analyzed for semi-volatiles. Upon receipt of laboratory results, the soils will be disposed of properly. If needed, CSSA will further excavate until the area is determined to be clean.

Attachment 2

| Procedure: Labeling and Marking of Used Oil Containers | | |
|---|---|---|
| **Document Owner:**<br>Camp Stanley Storage Activity | **Original Date:**<br>09/07/05 | **Revision: 1**<br>**Revision Date: NA** |

## PURPOSE

To provide a standard procedure for labeling and marking used oil.

## APPLICABILITY

This SOP is applicable to the labeling and marking of used oil containers.

## PROCESS

1 - Each shop will place a label on each container used for used oil collection (see Attachment A for a sample of the label)

2 – The Environmental Office will conduct quarterly inspections to ensure that used oil containers are properly labeled.

## DOCUMENT REVISION HISTORY

| Original Document Issue Date: | | |
|---|---|---|
| **REVISION NUMBER** | **DATE OF REVISION** | **REVISION SUMMARY** |
| 1 | | |
| 2 | | |



Attachment 2

# USED
# OIL

SLUO LABELMASTER® (800) 621-5808 www.labelmaster.com

## Phosphate Induced Metals Stabilization

For perspective, because the spent bullet sand appears to be the most significant unresolved concern, we are providing some additional background information. The extent of the removal project at Building 90's ammunitions testing range (12.5 feet by 25 feet) was very small (less than 100 tons of sand removed), yet was an innovative project that produced a win-win result for the environment. The bullet sand from building 90 was treated with Phosphate-Induced Metal Stabilization (PIMS™) and tested by blending 8 aliquots from the sand pile. The sample yielded .133 parts per million (ppm) of Pb TCLP, which is about 40 times lower than the EPA RCRA hazardous waste threshold for Pb.

Camp Stanley has been on the cutting edge of lead soils issues and was, in fact, the first facility to use the innovative PIMS™ technology. In 2001, the Environmental Security Technology Certification Program (ESTCP) sponsored a full PIMS™ field demonstration effort at the CSSA SWMU B-20 site. The demonstration project final report may be found on the ESTCP's website at http://www.estcp.org/cu/#Heavy under project number CU-0020. CSSA has used the treatment technology on facility sites for nearly five years and expects to continue the use of approximately 25 tons of stored PIMS™ for future sites. The 2003 use at Building 90's indoor range was the first use of PIMS™ on a firing range that we are aware of. Since then, the PIMS™ method has been embraced by numerous facilities. We understand that PIMS™ has since been tested at nearly a dozen Air Force small arms ranges. PIMS™ achieves a much greater reduction of lead in soils than conventional solidification methods, provides significantly longer soil stability (estimated in the hundreds of years), and lowers the cost in comparison to other techniques.

PIMS™ (PIMS™ NW U.S. patent #6,217,775) using Apatite II, a form of the apatite mineral, works by continuously supplying a small, but sufficient, amount of phosphate for reaction of heavy metal(s) (e.g., lead) to its metal-phosphate phase (e.g., lead-pyromorphite). Lead-pyromorphite is known to be one of the most stable minerals with a solubility product of $10^{-80}$ and vastly more stable than quartz sand, which has a solubility of only $10^{-4}$. The reaction between the apatite and metals is very rapid and treatment is effectively immediately (Wright et.al. 1995). Apatite II has been used to remediate various types of firing range soils at several sites and is reportedly the most reactive, most cost-effective form of apatite and has the optimal structural and chemical characteristics for metal and radionuclide remediation. Additional information on how PIMS™ works and other demonstration projects can be found on the technology owner's website at http://www.pimsnw.com/. CSSA believes its use should be encouraged to the maximum extent possible because of its clear advantages to the environment.

We also understand that even non-DoD users are beginning to use phosphate treatments of lead in solids. For example, the Houston police department had a contractor treat 30,000 tons of soil from a small arms range with a similar process, see link and excerpt below:

http://www.metalstt.com/metal success.asp?mode=3

*$MT^2$ was selected by the City of Houston to cleanup the police department's outdoor firing range at George Bush Intercontinental Airport. Work included recovery and recycling of lead bullet fragments from the target area backstop and surrounding areas, chemical treatment and disposal of the remaining range and berm soil as non-hazardous and demolition and disposal of all range buildings, miscellaneous structures, sidewalks and pavements. $MT^2$ processed nearly 30,000 tons of soil producing a savings to the city of $500K as compared with all other options.*

***KEY DATA***

*Problem: Lead contaminated soil including bullet fragments at the site were above RCRA TCLP concentrations and would require expensive disposal in preparation for airport expansion.*

*Remedy and Results: $MT^2$ conducted excavation, physical screening of bullet fragments, ECOBOND® treatment, confirmation sampling and analysis, followed by off-site transportation and disposal as Class 2 industrial waste.*

***The ECOBOND® Process***

*The metals treatment technologies deployed by MT2 include phosphate-based, as well as, other chemical treatment processes.*