DEPARTMENTS OF THE ARMY
MASSACHUSETTS ARMY NATIONAL GUARD
TRAINING SITE CAMP EDWARDS
CAMP EDWARDS, MA 02542-5003

15 December 2011

Ms. Lynne Jennings
United States Environmental Protection Agency, Region I
5 Post Office Square Suite 100
Boston, Massachusetts 02109-3912

Re: Response to EPA letter Dated 7 November 2011

Dear Ms. Jennings,

The Massachusetts Army National Guard (MAARNG) is in receipt of the Environmental Protection Agency's (EPA) letter dated 7 November 2011. The letter focused on issues related to the application of J, K & T Range best management practices within the Operations, Maintenance, and Monitoring Plans (OMMPs).

To address these issues and as part of EPA's consideration of whether to extend the Pilot Period authorizing the firing of lead bullets at J, K and T Range, the EPA requested the MAARNG submit the following in writing no later than December 15th:

1.) A statement identifying the funding committed by the MAARNG to conduct the monitoring and maintenance activities for the 2012 calendar year. The statement should provide information to demonstrate that the funding is sufficient to cover the routine maintenance and monitoring activities specified in the OMMPs. The statement should also provide information on the procedures that will be followed in the event that additional funding is determined to be necessary to achieve compliance with any aspect of the plan.

2) A statement of the contracts secured to conduct the maintenance and monitoring activities required by the OMMPs including an identification of the contractors secured to conduct the work.

3.) A list of steps to be taken and proposed implementation schedule to assure management controls and systems are in place to give surety that:

a. There is better internal coordination on potential compliance and environmental aspects of CampEdwards operations;

b. There is clarity both internally and externally, on MAARNG staff roles and responsibilities;

c. There is greater communication on, and response to, current and emerging potential environmental or compliance problems; and,

d. Standard Operating Procedures and Camp Edwards Range Regulations are reviewed and updated to improve compliance and better address potential problems caused by MAARNG staff turnover.

4) A list of steps and an organizational chart to demonstrate the roles and responsibilities for providing the required notifications under the AOs and OMMPs.

Enclosed with this letter is a packet with detailed documentation addressing the requirements outlined in the 7 November 2011 letter from the USEPA.

Please do not hesitate to contact me at 508-968-5883 or at richard.bertone@us.army.mil if you have any questions.

Copies of this letter and associated documentation will be sent to Thomas Sellars (Brigadier General Retired), MAARNG, Mr. Mark Begley, Executive Director, Environmental Management Commission, and Mr. Leonard Pinaud, Massachusetts Department of Environmental Protection.

Sincerely,

Richard M. Bertone
Lieutenant Colonel, MAARNG
Deputy Commander, Camp Edwards

Enclosures

Massachusetts Army National Guard Response Documents

7 November 2011 Letter
from the United States Environmental Protection Agency, Region 1

RE: Compliance Issues with the J, K and T Range Best Management Practices: Operations, Maintenance, and Monitoring Plans

15 December 2011

Prepared by the Massachusetts Army National Guard

MAARNG Response Packet: EPA 7 November Letter

Section 1: Funding and Contracting

Funding and Contracts for FY12 Range & Training Land Program (RTLP)

The following is a breakdown of the funding available and committed for monitoring activities associated with the requirements of the Operation Maintenance and Monitoring Plans for Juliet, Kilo, and Tango Ranges.

Currently, funding is dependent upon the limitations of the Continued Resolution Authority (CRA); these funds are usually dispersed throughout a 12 month period and are itemized within our obligation plan. Camp Edwards' official budget request has to be submitted to National Guard Bureau no later than June for the next fiscal year (FY). Similarly, all yearly funding forecast and obligations have to be programmed and reserved no later than July of the FY and obligated by 30 September.

Funding

The RTLP account is made up of 3 sub activity groups. The sub activity group related to OMMP requirements is CR0-Training Range Operations which is the primary funding source for OMMP related requirements

To date $244,350.00 has been received under the FY12 CRA which equates to the CR0 Training Range Operations account. This funding is dispersed through a 12 month period in an obligation plan and is used for high use Annual Training periods, labor, or products needed to mitigate the effects of use on training areas and ranges.

The following costs come from the RTLP CR0 account:

OMMP Monitoring Requirements Juliet, Kilo, and Tango Range Testing (Includes soils, porewater, and groundwater monitoring)	$67,500.00 estimated cost FY 12
STAPP Water Service Contract (For STAPP system and barrel pumping)	$10,400.00 estimated cost FY12
Salaries (Range Control Civilian)	$93,500.00
Range Control Credit Card (Used for Range Control's training area maintenance needs to include but not limited to adhesives, paint, and lime for the STAPP small arms ranges and other training area maintenance needs.)	$20,000.00 (10k/year for STAPP)
Total estimates FY 12 costs CRO account	$ 190,900 FY 12
Total available FY 12 CRO account	$244,350.00 FY 12
Balance available for maintenance and operations:	$ 52,950.00

In the event that further funding is needed there are two primary processes that can be used, an Unfunded Requirements (UFR) request and or an emergency funding request:

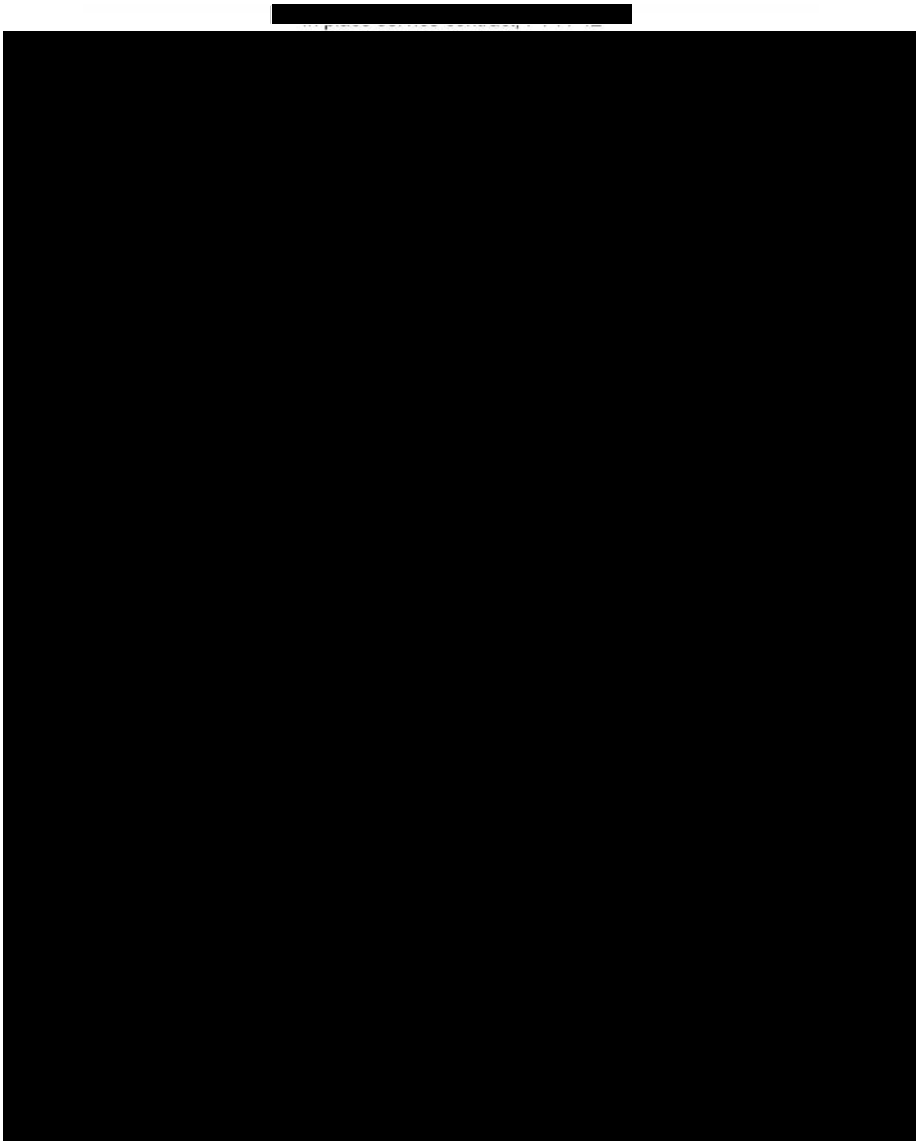
For UFR: Funding needed in addition to funding received becomes a UFR. This UFR is submitted as a valid requirement or project that has not been funded. Upon need, monies can be requested under this UFR as longs as the need has been determined to be valid and funds are available from another account.

For emergency funding: An "Emergency Work Order can be requested and funded through the Construction Facilities Management Office up to $1,500.00 immediately and $5,000.00 after consultation with the Construction Facilities Management Officer.

Contracts

Contracts are in place for all STAPP Range monitoring and water management. All other work, e.g. top cover repair, is conducted in house by Camp Edwards Range Control Staff.

[redacted]



[redacted]

REPLY TO
ATTENTION OF:

[redacted]

1. [redacted]

9. Interested Sources: Clean Harbors Environmental Services, GSA Vendor

10. Technical Certification: As per the specifications.

SUBJECT: Justification and Approval for other than full and open competition Justification.

11. Requirements Certification: I certify that the supporting data under my cognizance which are included in the justification are accurate and complete to the best of my knowledge and belief. Clearn Harbors Enviornmental Services, Inc.(ARD069748192) is an approved DRMS Transporter and Disposal Facility.

Printed Name: CPT Ryan Walsh Date:
Title: Camp Edwards Range Operations Signature: _____

12. Fair and Reasonable Cost Determination: I herby determine that the anticipated cost of $10,400.00 to the Government for this contract action will be fair and reasonable.

Procuring Contracting Officer Certification: I certify that this justification is accurate and complete to the best of my knowledge and belief.

Printed Name: LTC Richard Bertone Date:
Title: Activity Manager, CE Signature: _____

Printed Name: MAJ Arvid Hill Date:
Title: Contracting Officer USP&FO MA Signature: _____

Ryan P. Walsh
CPT, MP
Range Control Manager

MAARNG Response Packet: EPA 7 November Letter

Section 2: Management Controls

Management Controls

The MANG has developed management controls to support compliance with the Small Arms Range OMMPs. Incorporating these management controls into the Revised Combined OMMP currently being developed by the Small Arms Range Working Group would allow the Revised Combined OMMP to act as an overall operating guide and provide built-in redundancy and ensure safeguards are in place.

Schedule & Steps

December 2011: (Please click on bolded words to link to associated document)

- ✓ **OMMP Notification Protocols** developed and adopted
  - ✓ **Camp Edwards OMMP Plan Reporting Chain** established
- ✓ **The Camp Edwards Sustainable Range Program Working Group** established
- ✓ **STAPP Maintenance & Inspection Procedures** (Chapter 10) added to the Camp Edwards Range Control Internal Standard Operating Procedures
  - ✓ **"STAPP System Range Maintenance Procedures and Inspections"** Training Presentation added to Camp Edwards Range Control Training
  - ✓ **Training Documentation** implemented for STAPP System Range Maintenance Procedures and Inspections (Chapter 10 SOP)

January 2012:

- 7 January 2012: Sustainable Range Program (SRP) Working Group to convene first meeting
- February 2012: Finalize Revised Combined OMMP
  - Develop an org chart noting roles, responsibilities, authorities and resources for inclusion in the OMMP Plan.
    - Roles and responsibilities will be identified by primary positions and identify secondary positions to act in the absence of the primary.
  - Incorporate notification protocols and reporting chain chart into Revised OMMP.
  - Incorporate OMMP training procedures and certification into Revised OMMP.
  - Incorporate information regarding the Camp Edwards Sustainable Range Program Working Group into the Revised OMMP.
    - The Group's purview/goals
    - Reporting chain
    - Method of identifying, elevating and resolving issues
- Monthly
  - The SRP Working Group will evaluate compliance with requirements of the OMMP, nonconformity, correction action and prevention action; identify issues to elevate to the Chief of Staff (CoS) for resolution.

Camp Edwards
OMMP Notification Protocol
28 November 2011

In the event the MAARNG is unable to comply with a requirement of the SARS OMMP for J, K & T Ranges notification must be made to the US Environmental Protection Agency and the Environmental Management Commission in writing within 24 hours. Within 48 hours a plan to address the non-compliance must be submitted to both agencies.

- **Protocol A: 24 hour notification of non-compliance of OMMP plan**
  - Range Control Officer in Charge (OIC) notifies Camp Edwards Deputy Commander (see backup contacts below) of potential non-compliance with OMMP plan as soon as the issue is identified.
  - Camp Edwards Deputy Commander contacts the Environmental & Readiness Center (E&RC) Deputy Director
  - E&RC Deputy Director contacts USEPA and EMC via email and/or written letter within 24 hours.
  - ERC Deputy Director notifies CE HQ, RC OIC, and JFHQ COS notification has occurred

- **Protocol B: 48 hour submittal of plan to address non-compliance**
  - STAPP Management Working Group will coordinate response to non-compliance within 36 hours of the non-compliance issue being identified.
  - Camp Edwards Deputy Director will submit plan to address non-compliance to USEPA and EMC.

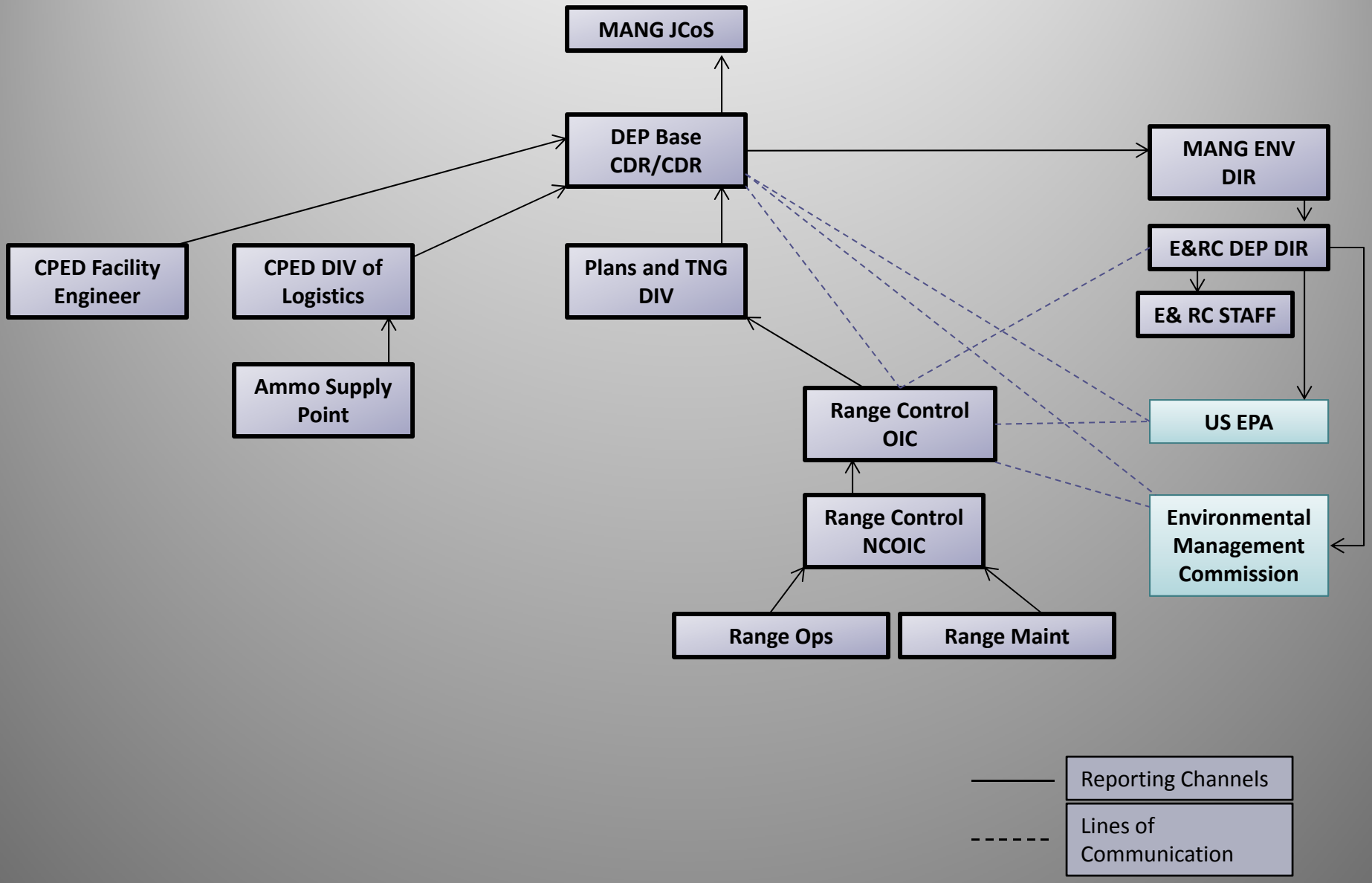
- **Contacts: Camp Edwards**
  - Range Control OIC: 508-968-5925 or 5926
  - Camp Edwards Deputy Commander 508-968-5885 or 5883
    - Camp Edwards alternate contact: Plans & Training officer 508-969-5888
  - E & RC Deputy Director 508-968-5154 or 5143
    - E & RC alternate contact: Outreach Manager 508-968-5152 or 5143

- **Contacts: Regulators**

Ms. Lynne Jennings
United States Environmental Protection Agency, Region 1
5 Post Office Square Suite 100
Boston, Massachusetts 02109-3912
Jennings.lynne@epa.gov
617-918-1218

Mr. Mark Begley
Executive Office of Energy & Environmental Affairs
Environmental & Management Commission
Building 1204, Camp Edwards, MA 02542-5003
Mark.begley@state.ma.us
508-968-5127

Camp Edwards SARS OMMP Plan Reporting Chain



The Camp Edwards Sustainable Range Program Working Group

Camp Edwards is forming the Camp Edwards Sustainable Range Program Working Group. This group will be formed and convened no later than 7 January 2012.

The Sustainable Range Program Working Group will include:

- Camp Edwards Plans and Training Officer
- Range Control OIC
- Facility Engineering OIC
- Environmental & Readiness Center Representative
- Integrated Training Area Management Program Manager
- Additional staff as needed

The purpose of the group is to ensure internal coordination and communication on all proposed training venues and to ensure compliance with the Camp Edwards small arms range Operation Maintenance and Monitoring plans.

The Sustainable Range Program Working Group will meet monthly, during the week prior to the Army National Guard training weekends.

Standing agenda items of the meeting will include:

- Review of upcoming reporting requirements.
- Assessment of STAPP water management.
- Review and update of OMMP Plan and Standard Operating Procedures.
- Analyze upcoming and proposed training events.

The Sustainable Range Program Working Group Coordinator, Director of Plans and Training, will brief the Camp Edwards Commander, who in turn will present issues to the Chief of Staff, Joint Force Headquarters, Massachusetts National Guard, monthly. The CoS will then elevate any issue to The Adjutant Generals Office as needed.

Management Control: Internal STAPP SOP and Training Documentation

Applicability of the Standard Operating Procedure (SOP) for STAPP System Range Maintenance Procedures and Inspections

The following SOP (attached) is Chapter 10 of the Camp Edwards Internal Range Control SOP. The purpose of this SOP is to provide policies, procedures and guidelines to all Camp Edwards Range Control Soldiers on how to properly inspect, manage and repair the STAPP systems on Juliet, Kilo and Tango Ranges.

This is the first publication of this SOP and applies to all Camp Edwards Range Control Soldiers. This SOP supersedes any previous guidelines or directives instituted on how the STAPP systems are managed. The Range Control Officer in Charge (OIC) is the proponent of this SOP and has the authority to approve exceptions to this SOP that are consistent with environmental regulations.

The Range Control OIC is responsible for the distribution and implementation of this SOP. The Range Control Non Commissioned Officer in Charge (NCOIC) will review and train the Drill Team NCOIC on the implementation and use of this SOP. Drill Team NCOIC's will then train and certify their assigned personnel on this SOP NLT 30 days after their training. Newly assigned personnel will be trained and certify on this SOP NLT 30 days after assignment. All Range Control Soldiers will review this SOP on an annual basis. All review and sign off sheets will be kept on file at Range Control.

In the event that it is determined that any users of this SOP are unable to comply with any part of this SOP then the Range Control OIC must be notified within 24 hours upon determination.

Camp Edwards Range Control Training

STAPP System
Range Maintenance Procedures and Inspections

This Training details the procedures that Range Control will use for the everyday maintenance and inspections on our Ranges and STAPP Systems on Juliet, Kilo and Tango Ranges.

The current OMMP (reference section 4.2.1.5 Bullet Containment System) for our STAPP Systems and range maintenance require the following maintenance as a minimum to keep the ranges operational:

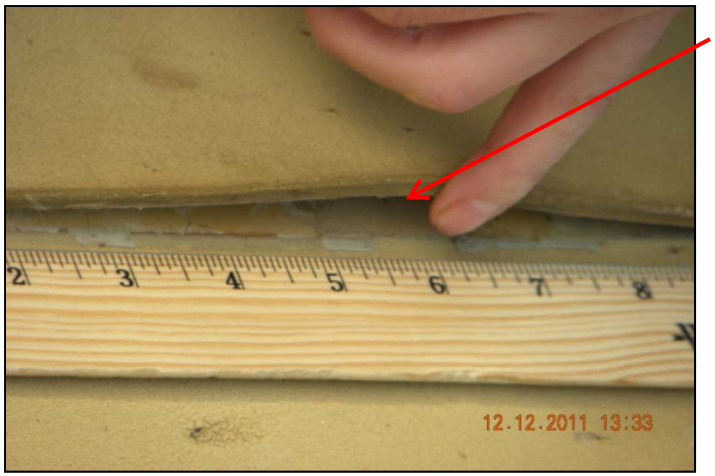
Penetration Holes and Rips

- All holes or penetration rips greater than 1.5 inches in length or when the underlying media is visible will be repaired within 72 hours.

Rubber media

- All repairs will use a chalking gun with a tube of "LOCTITE 5570/Elastic Adhesive". The repair will be made by placing a bead of this material in the hole and smoothing out excess.

Seams

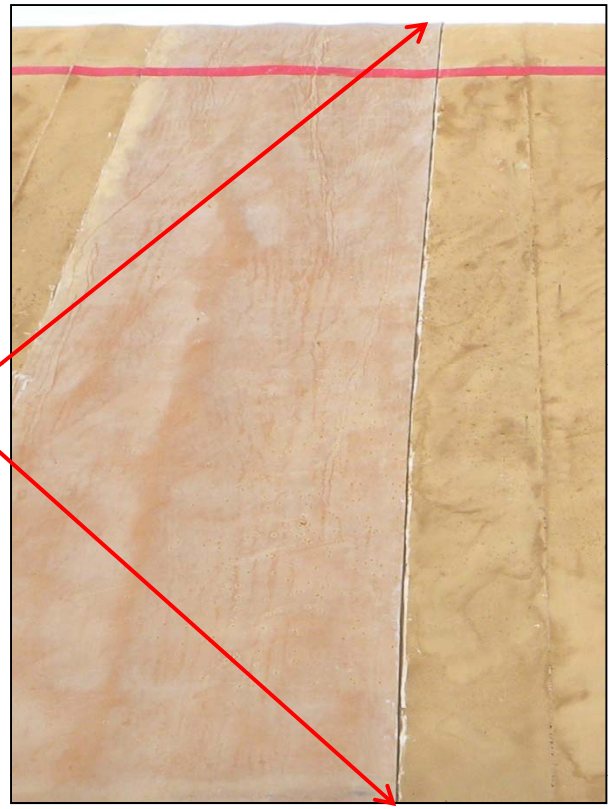


- Failed seams occurring above the bottom one foot of the cover require repair if the seam failure exceeds 5 inches.

- Failed seams occurring at/near the bottom one foot of the cover require repair if the seam failure is greater than one inch.

Seams, cont.

- All repairs will use a chalking gun with a tube of "LOCTITE 5570/Elastic Adhesive". The repair will be made by placing a bead of this material in the hole and smoothing out excess.



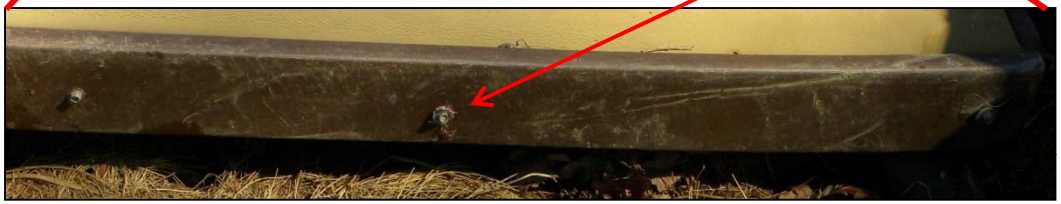
- Ensure that when inspecting the seams you inspect the entire length of the STAPP system.

Bulges or Depressions

- If a bulge or depression exist that exceeds 4 inches in height/ depth over a length of 4 feet will be considered significant and will be repaired.

- Possible repairs include, first remove the entire bottom section of the lumber support frame IOT let the STAPP cover sag and the rubber media material settle out. Second, if $_t$ he above mentioned doesn't work then remove a piece of the cover and expose the rubber media material, rake the area of concern out and reapply STAPP cover.

- Unbolt all screws and remove lumber support frame.



Lumber Support Structure (Frame)

- Example of a frame in good condition. No repairs needed.

- If frame conditions compromises the integrity of the STAPP system cover or liner then the frame will be replaced.

Photo not taken at Camp Edwards

- Example of a frame in bad condition. Repairs needed.

Toe Boxes

- All Toe Boxes will be inspected for holes, rips and blown out bottoms. All deficiencies will be repaired.

- Example of deficiency that needs repair.

- The hole and rips will be first sanded down and filled in using the LOCTITE 5570 adhesive, smooth out all excess adhesive.

Water Reservoir

- Water Port

- Corrugated Pipe

Water Reservoir, cont.

- Water measurements will be taken at a minimum of once a week and after any weather event that has precipitation.
- Measurements will be taken with a wooden yard stick by sliding the yard stick down the inside bottom edge of the water port. Slide the yard stick down slowly until it hits the bottom of the corrugated pipe. Remove yard stick and view water mark for measurement.
- Water will be pumped once the level reaches 5 inches.

Tarp

- All three ranges have a tarp covering the STAPP system to prevent rain water from building up in the STAPP reservoir.

- The tarps will be removed for firing events and during the peak training season, unless inclement weather is forecasted. Outside of the peak training season the tarp will remain on unless there is a firing event, in which case the trap will be removed until the firing event is over. The tarp will then be placed back over the STAPP cover, unless maintenance is needed. After maintenance is conducted the tarp will then be secured

Important Notes

- All repairs will be identified and completed NLT 72 hrs after inspection.

- If at anytime you are unsure on how to conduct the repair then notify your chain of command immediately.

- All inspections and repairs need to be logged using the appropriate forms and filed in the appropriate binders.

- If it is determined that the repairs cannot be completed within 72 hrs then Range Controls NCOIC and or OIC need to be notified immediately.

- Per the May 3, 2011 letter from EPA “In the event that it is determined or anticipated that repairs cannot be completed within 72 hours, Camp Edwards has 24 hours to notify EPA in writing and within an additional 48 hours submit a plan for EPA approval for addressing the potential deviation.”

Camp Edwards Training Site
Range Control

STAPP System Range Maintenance Procedures and Inspections
Training Documentation

I have read and been trained on the STAPP Range Maintenance Procedures and Inspections SOP in its entirety. I understand the importance of this SOP and will comply will all sections of this SOP. If at anytime I am unsure of any of the sections in this SOP I will immediately contact my chain of command for clarification. In the event that I determined that I am unable to comply with any part of this SOP then I will notify my chain of command immediately.

Range Control Trainee	Range Control Trainer
Print:	
Sign:	

DEPARTMENT OF THE ARMY
MASSACHUSETTS ARMY NATIONAL GUARD TRAINING SITE
CAMP EDWARDS, MASSACHUSETTS 02542-5003

REPLY TO
ATTENTION OF

21 NOV 2011

NGMA-CPE-RC

MEMORANDUM FOR All Assigned Camp Edwards Range Control Soldiers.

SUBJECT: Applicability of the Standard Operating Procedure (SOP) for STAPP System Range Maintenance Procedures and Inspections

1. The purpose of this SOP is to provide policies, procedures and guidelines to all Camp Edwards Range Control Soldiers on how to properly inspect, manage and repair the STAPP systems on Juliet, Kilo and Tango Ranges.

2. This is the first publication of this SOP and applies to all Camp Edwards Range Control Soldiers. This SOP supersedes any previous guidelines or directives instituted on how the STAPP systems are managed. Range Control Officer in Charge (OIC) is the proponent of this SOP, and has the authority to approve exceptions to this SOP that are consistent with environmental regulations.

3. Range Control OIC is responsible for the distribution and implementation of this SOP. The Range Control NCOIC will review and train the Drill Team Section Sergeants on the implementation and use of this SOP. The Drill Team Section Sergeants are responsible for the training of their assigned personnel on this SOP NLT 30 days after their training. Newly assigned personnel will be trained on this SOP NLT 30 days after assignment. All training and documentation (sign off sheet) of training, will be kept on file at Range Control. All Range Control Soldiers will review this SOP on an annual basis.

4. In the event that it is determined that users of this SOP are unable to comply with any part of this SOP then the Range Control OIC needs to be notified NLT 24 hours upon determination.

5. Any question or concerns addressing this memo can be directed to the Range Control OIC.

Ryan P. Walsh
CPT, MP
Range Control Manager

CHAPTER 10
CAMP EDWARDS INTERNAL STANDARD OPERATING PROCEDURE
STAPP SYSTEM RANGE MAINTENANCE & INSPECTIONS

10-1 GENERAL: This chapter details the procedures that Range Control will use for the everyday maintenance and inspections of our Ranges and STAPP Systems on Juliet, Kilo and Tango Ranges. The procedures outlined in this chapter are for both full-time and M-day soldiers to follow when applicable to their duties. It is imperative that we meet the requirements set forth by the United States Environmental Protection Agency (U.S. EPA) and Environmental Management Commission (EMC) through the operations, maintenance and monitoring plan dated 22 October 2008 Rev. 4: September 2011 (OMMP) for our STAPP Systems in order to allow live fire here on Camp Edwards. Any issue or concern that would not allow us to comply with any requirements (including sampling, reporting, range management, and all other requirements) of the OMMP must be addressed to the Range Control OIC/NCOIC immediately in accordance with EPA reporting requirements. Per the May 3, 2011 letter from EPA "In the event that it is determined or anticipated that repairs cannot be completed within 72 hours, Camp Edwards has 24 hours to notify EPA in writing and within an additional 48 hours submit a plan for EPA approval for addressing the potential deviation."

10-2 REQUIRED MAINTENANCE: The current OMMP (reference section 4.2.1.5 Bullet Containment System) for our STAPP Systems and range maintenance require the following maintenance as a minimum to keep the ranges operational:

1. Holes, seams, bulges or depressions and lumber support structure repairs.

a. Holes in the cover: All holes or penetration rips greater than 1.5 inches in length or when the underlying rubber media is visible will be repaired within 72 hours by a fulltime maintenance personnel.

b. Failed seams: Failed seams occurring above the bottom one foot of the cover require repair if the seam failure exceeds 5 inches. Failed seams occurring at/near the bottom one foot of the cover require repair if greater than one inch in size. All failures will be repaired within 72 hours by fulltime maintenance personnel.

c. Bulges or depressions: If a bulge or depression exist that exceeds 4 inches in height/depth over a length of 4 feet will be considered "significant" and will be repaired. Repairs include a re-grading or raking of the rubber filled material to an even level distribution across the STAPP system. NCOIC and or OIC will be notified within 24 hours if repairs are needed. The determination will be made if removing STAPP top cover is necessary for repair. When or if determination is giving, all repairs will be completed within 72 hours by fulltime maintenance personnel.

d. Lumber support structure (frame): If frame conditions compromises the integrity of the STAPP system cover or liner then repairs will be initiated within 72 hours if permissible. Prior to

the repairs the damage will be photographed for the Range Controls maintenance log. Necessary repairs will be reviewed by NCOIC and or OIC prior repairs being initiated.

2. Measuring water levels in STAPP reservoir and pumping water prior to the level reaching 5 inches.

a. Water measurements will be taken at a minimum of once a week and after any weather event that has precipitation. Measurements will be taken with a wooden yard stick by sliding the yard stick down the inside bottom edge of the white PVC pipe. Slide the yard stick down slowly until it hits the bottom of the water holding pipe. Remove yard stick and view water mark for measurement.

b. Once a measurement shows a water level of 5 inches Range Control will contact environmental compliance section at the Environmental and Readiness Center (E&RC/ ext. 5143) to coordinate the pumping and disposal of STAPP water.

c. Range Control personnel along with the environmental compliance section will collect STAPP water in 55 gallon drums and store in the Environmental Readiness Center 90 day holding area in the 3500 block.

d. Range Control Impact Card holder will work with the environmental compliance section at the E&RC to contract a vendor and to schedule the disposal of this water. The RTLP fund is responsible for the payment of this contract.

3. PH testing will be conducted on annual basis, in March or April per the OMMP, but Range Control will conduct this testing monthly to determine requirements for spreading lime.

a. PH Testing is conducted using the handheld PH/mV/Temperature Meter. Range Control soldiers will follow the operating procedures as outlined in the instruction manual. A Range maintenance form will be filled out after maintenance is conducted and filed in the appropriate range binder.

b. When soil pH levels are neutral, lead remains relatively unavailable for migration in soils. Range control will amend soils with material to increase alkalinity, typically lime, with a goal of maintaining neutral soil pH.

4. Erosion repairs will be made as needed by spreading soil over erosion area and then seeding that area, using a MassHighway Seed mix. Range Control will monitor all ranges for erosion and place remarks as needed in both the monthly environmental report and quarterly Range Condition Report.

5. Tarp: Currently all ranges have a tarp covering the STAPP system IOT prevent rain water from filling the STAPP reservoir. The trap will be removed for firing events and during the peak training season unless inclement weather is forecasted. Outside of the peak training season the tarp will remain on unless there is a firing event, in which case the tarp will be removed until the firing event is over and then recovered after event unless maintenance needs to be conducted. If

maintenance needs to be conducted then the tarp will remain off until maintenance is completed and then recovered.

10-3 REQUIRE REPORTS: The current OMMP requires many reports but most of these will be completed by Range Control OIC and/or Range Control NCOIC. Range Control personnel both full-time and M-day must be familiar and able to correctly fill out the following report forms.

1. Camp Edwards Range Control Range Inspections / Clearance Checklist (appendix A). This form is to be filled out by range control personnel with a unit observer before and after range use. This form inspects the overall condition of the range and checks the STAPP system to ensure that firing can be conducted.

A. Administrative Data: Information on the individual filling the form out.

B. Pre Firing Inspection: This inspection is a combined inspection with a Range Control soldier and the OIC or RSO from the using unit. These inspectors will use the checklist in section B (STAPP System Inspection) to conduct this inspection. A mark of either "SAT" or "UNSAT" will be checked and a "UNSAT" requires a comment in the remarks box. Any areas in the STAPP system needing repairs will be annotated in diagram to help maintenance identify the location. Any additional remarks can be placed on back of form. Once completed, this form will be held in the unit file for Range Control inspector's use during Post Firing Inspection.

Post Firing Inspection: The Range Control inspector will pull out this form from the units file, making sure that the form has the "Pre-Firing" inspection information completed. As stated above a mark of either "SAT" or "UNSAT" will be checked and a "UNSAT" requires a comment in the remarks box. Any areas needing repairs will be annotated in diagram to help maintenance people identify the location of this area. Once the "post-firing inspection" is completed the form will be copied with the original being placed in wooded file box on the fire desk and a copy will go into maintenance range file binder. When possible the same Range Control soldier will be used for both pre and post firing inspection. If this can't be done both inspectors names will be annotated in "Range Control Observer" block of form.

All deficiencies must be annotated and noted if the deficiency was found pre or post firing. Place a check mark in the box if corrective action is needed.

2. Camp Edwards Range Control Detailed Inspection Form (appendix B). This form is to be completed by Camp Edwards Range Control personnel bi-weekly during the peak training period, monthly outside of the peak training period, and after a storm event with 2 inches or more of rain.

A. Administrative Data: Information on the individual filling the form out.

B. STAPP System Inspection: All questions require a "yes" or "no" check mark to indicate deficiencies. All deficiencies must be annotated and noted if the deficiency was found pre or post firing. Place a check mark in the box if corrective action in needed.

1. Tarp Cover on and secured? Ensure that the cover is on and secured and if there are no issues with cover then questions 2, 9-11 only need to be filled out. If tarp is off or ripped open then the above questions need to be answered.

2. Does the tarp cover need to be repaired? Ensure that there are no holes, rips or seam failures that would enable the water to penetrate the tarp. Patches will be cut from the tarp stockpile at range control for repairs.

3. Are there penetration holes in need of repair? All holes or penetration rips greater than 1.5 inches in length or when the underlying rubber media is visible.

4. Are there failed seams on the STAPP cover greater than 5 inches and greater than one inch on the bottom one foot of the cover? If so, then seams need to be sealed using LOCTITE.

5. Any bulging or irregular settling of rubber granular material? If a bulge or depression exist that exceeds 4 inches in height/depth over a length of 4 feet will be considered "significant" and will be repaired. Repairs include a re-grading or raking of the rubber filled material to an even level distribution across the STAPP system.

6. Ponding of water on cover? If the cover develops a depression where ponding exist, then that section of the STAPP cover lumber frame will be removed, which will allow the STAPP cover to settle out, then screwed back in to secure cover

7. If water is found to be leaking from the STAPP system? Immediately attempt to capture all water and mitigate as much water as possible from pouring on the range floor, the NCOIC, OIC and the environmental compliance section will be notified immediately.

8. Is the lumber support frame in good condition? If frame conditions compromises the integrity of the STAPP system cover or liner then maintenance needs to be conducted.

9. Are all holes, tears, and damage to toe boxes repaired? Ensure that all previous damage is repaired by sanding down the damaged area and sealing the holes using Waterproof Silicone adhesive.

10. Do the toe boxes and bags fully cover/protect the base of the STAPP system? Ensure that all holes, rips and tears are repaired on the toe boxes. Replace any ripped sandbags. Note any deficiencies that would need to be rectified prior to range firing being conducted.

11. What is the depth of the water in the reservoir? Conduct and accurate measurement of the depth and log, if depth is 5 inches or greater then water must be pumped immediately, schedule pumping NLT 24 hours after inspection, if weather permits.

C / D. The sections on Erosion and Vegetation will be filled out based off a visual inspection of the berms and range floor. Annotate the severity of the erosion and percentage of

vegetation and use the range sketch (section E) to mark location. The following information will also be annotated and logged in the photo log monthly report.

3. Camp Edwards Range Control Range Maintenance/pH Testing/Lime Spread Form (appendix D): The form is a two (2) page form, page one (1) is used for annotating maintenance conducted on range and STAPP System. Page two (2) is used to annotate PH testing results and lime spreading. When conducting maintenance on the STAPP cover a ladder will be used to help distribute the weight and reduce depressions and bulges from forming. Range Control maintenance folks will place the foot of the ladder on the ground between the toe boxes and STAPP system and lean the ladder so it touches the top of the STAPP system at the 90 degree break. Ensure the ladder is secured prior to climbing. All maintenance will be logged using the Range Control Maintenance form and logged in the appropriate range binder. This form is used by all Range Control Personnel completing maintenance on ranges:

Page 1/Section A:

1. Administrative Data: Information on the individual filling the form out. Annotate which range and the start and end date of the maintenance conducted.

Page 1/Section B:

1. STAPP Repairs: All repairs will be completed the day after range firing if weather permits but NLT 72 hours after repairs were identified. If it is determined or anticipated that repairs cannot be completed within 72 hours then the NCOIC and or OIC need to be notified immediately IOT be incompliance with the EPA reporting requirements. This maintenance will be completed either by Range Control full-time personnel or under the direct supervision of a Range Control full-time soldier.

a. Soldiers making these repairs will use a chalking gun with a tube of "LOCTITE 5570/Elastic Adhesive". The repair will be made by placing a bead of this material in the hole, rip or seam and smoothing out excess. All repairs will be noted on this report form and logged in the appropriate range binder.

2. STAPP Water Removal: see paragraph 10-2 (2a-e) for details. As well as details above this water will be removed using water pump from Range Control. Barrels will be picked up by Range Control personnel at the 90 day holding area and moved to range(s) needing water pumped. Water will be pumped from STAPP System reservoir into the 55 gallon barrels and the full barrels will go back to the 90 day holding for storage until contractor empties. Water level measurements "before and after" will be taken and noted under "Maintenance Conducted" column as well as the amount of water "gallons" pumped out of STAPP system.

3. Toe Boxes: Toe Boxes will be inspected for holes, rips and blown out bottoms. The holes and rips will be sanded down and filled using the "LOCTITE 5570" material. If a toe box has major damage and/or a blown out bottom this will require replacement of that piece of plywood. Any repairs requiring a new piece of plywood or a new box will require weather sealant being sprayed/spread on this new box and/or wood. If a major repair is needed the sand

inside the toe box will be placed on a tarp when removed from toe box. This sand will then be place back in the toe box when repairs and/or replacement are completed.

4. Firing Line: During this inspection Range Control personnel will look for damaged sand bags, damage to firing line pedestals and damage to walking lane. If on the spot repairs can be made they will be, i.e. replacing bad sand bags. If repairs are conducted and completed they will still be annotated on form, but with a note saying repairs were completed. If the repair cannot be completed annotate the problem on this form.

5.Range Floor: Inspector will look for any damage to the ground and grass that could result in erosion if not fixed. Also you will verify that no damage was done to lysimeters placed in the ground at our ranges. Along with these areas of concern the inspectors will make sure all brass, live rounds and/or trash is picked up and removed from the entire range complex.

6. Berm: Inspectors will check berm for any major damage and/or areas showing signs of erosion. All areas of concern will be annotated on this form for future repairs.

7. Issues or concerns not addressed above: The Range Control inspector will annotate any other issue found on the range while conducting their inspection, i.e. target shed needs repair.

Page 1/Section C:

1. Signature: The Range Control Soldier conducting the inspection will place his signature once the inspection is completed. Understand that by placing your signature on this form you are verifying that you conducted and completed a comprehensive inspection of that range.

Page 2/Section A:

1. Administrative Data: Information on the individual filling the form out.

Page 2/Section B:

1. Sample Number/Firing Line/Berm and STAPP System Blocks: Sample number is just that. The other blocks are used to annotate the results of the 6-12 PH Testing samples taken within that area.

Page 2/Section C:

1. Lime Spread/Type of Lime: This area is used to annotate when lime is spread, the type of lime used and the rate it is spread. This must be consistent with the requirements of the OMMP of: pulverized/ground calcitic limestone (calcium carbonate), 5 to 8 pounds per 100 square feet of soil.

Page 2/Section D:

1. Signature: The Range Control Soldier conducting the pH testing or spreading the lime will place their signature once the Testing or spreading is completed. Understand that by placing your signature on this form you are verifying that you conducted the testing and or lime spreading as per the OMMP.

4. Camp Edwards Range Control STAPP system Internal Inspection Form (appendix C). This form is to be completed by Range Control personnel when the bullet sifting of the STAPP system is conducted after 500,000 rounds have been fired.

a. The top cover's of the STAPP system is removed to allow for sifting of the granular rubber material. Once rubber is removed, the internal integrity of the system is inspected. When the STAPP systems reach 500,000 rounds the work will be contracted out.

5. Range Control Inspection/Photo Log Report: The Range Control Inspection/Photo Log Report will be completed by full-time personnel or under the direct supervision of a Range Control full-time soldier. This is a quarterly requirement: October, January, April and July.

1. Administrative Data: Consists of photo number (1-5), date of report, location of picture.

2. Photos: This reports requires five (5) digital pictures being taken at each range, they are:

   A. Picture of Range from "West facing East"

   B: Range Berm from either side

   C: Bullet Containment System "West facing East"

   D: Bullet Containment System "East facing West"

   E: Range Floor from either side

3. Description: States from what angle picture was taken and if there are any issues with the area covered by that picture.

Camp Edwards Range Control
Range Inspections/Clearance Checklist (Appendix A)

(This form is to be completed by Camp Edwards Range Control personnel with a unit observer before and after range use.)

A.	**Administrative Data**
Range (circle one) TANGO / JULIET / KILO	Pre Fire DATE:
	Post Fire DATE:
Range Control Inspector:	
Unit Observer:	UNIT:

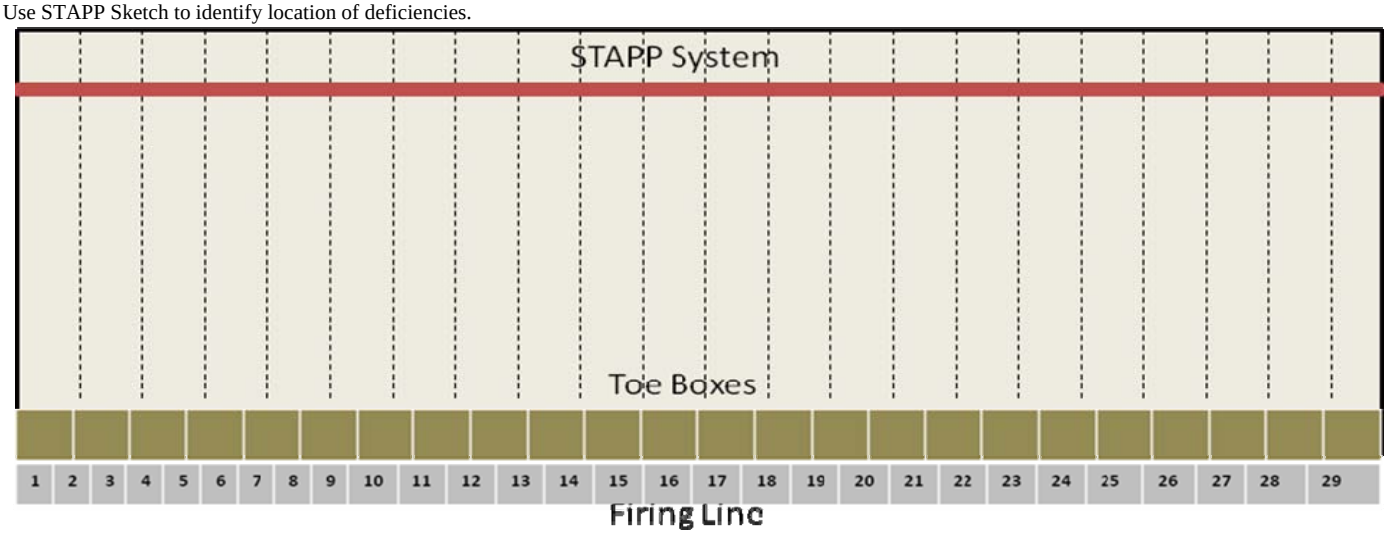
B.	**Range Inspection**				
	Pre-Fire Inspection		**Post Fire Inspection**		**DEFICIENCIES**
	SAT	UNSAT	SAT	UNSAT	Note if deficiency was found Pre or Post Firing and check box if corrective actions are needed
Parking Area/other POL use areas (POL leaks or stains)					☐
CLP use areas (spills and secondary containment.)					☐
Firing Line (Brass, ammo, trash, sandbags)					☐
Range floor (Brass, ammo, trash)					☐
Grass area's (Trash, cleanliness)					☐
Gravel Walkway (Trash, cleanliness)					☐
Wood Line (Trash, cleanliness)					☐
Range Tower (Trash, cleanliness, secured)					☐
Bleachers (Trash, cleanliness)					☐
*Target Frames (Good working condition, Approved?)					☐
*E-Type silhouette Targets (Approved? Returned to shed)					☐
Canvas Targets (Returned to shed/used to RC)					☐
Range Shed (clean, organized, swept)					☐

* Ensure that all targets and frames are RC approved and designed to mitigate overshot.
ANY UNSAT POST FIRE INSPECTIONS NEED TO BE RECTIFIED PRIOR TO CLEARING UNIT.

STAPP System Inspection

	Pre-Fire Inspection		Post Fire Inspection		DEFICIENCIES
	YES	NO	YES	NO	Note if deficiency was found Pre or Post Firing and corrective actions needed.
Tarp Cover must be removed prior to firing!					
Are there penetration holes where the rubber media is visible?					
Are there separations on cover seams greater than five inches or rubber media visible?					
Label or identify all fresh signs of over/ undershot?					(Ensure that all previous overshot's are identified prior to firing, and all new overshot is identified post firing)
Is the lumber support frame condition compromising the integrity of the STAPP Cover and liner?					(If Yes, then firing cannot be conducted)
Does the water inspection port have more than 5.9 "of water?					(If Yes, notify maintenance to drain. Firing cannot be conducted until water level is below 5.9")
Are there any issues with the STAPP system that would prevent firing from being conducted?					(If Yes, note the issues)
NOTE: All UNSAT conditions must have deficiencies comment. Use N/A if not applicable. If deficiencies require maintenance then ensure copy of this inspection is giving to fire desk IOT notify maintenance of requirements.					

Use STAPP Sketch to identify location of deficiencies.



C. Signatures

Range Control Inspector:	Unit Observer:

Camp Edwards Range Control
Detailed Inspection Form (Appendix B)

(This form is to be completed by Camp Edwards Range Control personnel bi-weekly during the peak training period and monthly outside the peak training period, or after a major storm event with more than 2" of rain within a 24 hrs period.)

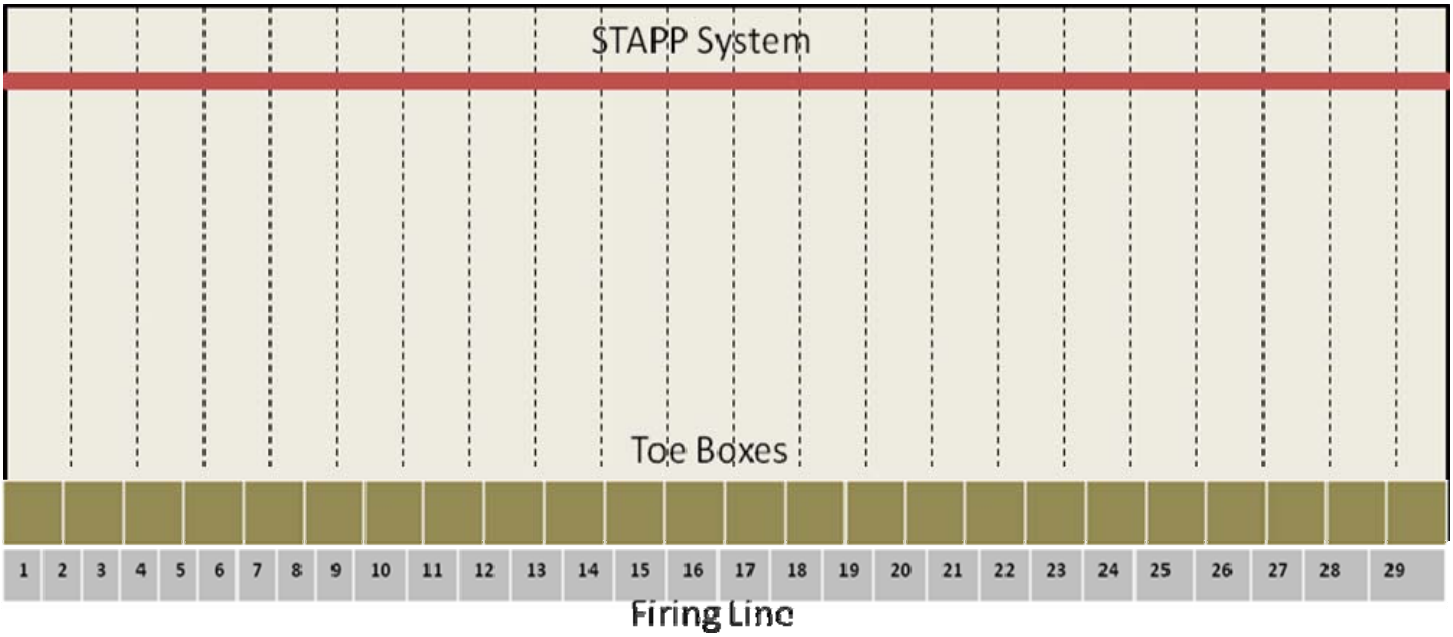
A.	**Administrative Data**
Range (circle one) TANGO / JULIET / KILO	Date:
Range Control Inspector:	Circle one: Bi- weekly / Monthly / Rain Event

B.	**STAPP System Inspection**		
	YES	NO	**DEFICIENCIES** (Note all deficiencies and check box if corrective actions are needed)
1. Tarp Cover on and secured? - If Tarp is on then questions 2, 9-11 only need to be filled out.			
2. Does the tarp cover need to be repaired?			(Ensure that there are no holes, rips or seam failures that would enable water to pass through the tarp)
3. Are there penetration holes/rips in the STAPP cover greater than 1.5 inches in length or is the rubber media visible?			
4. Are there failed seams on the STAPP cover greater than 5 inches and greater than one inch on the bottom one foot of the cover?			
5. Any bulging or irregular settling of rubber granular material that exceeds 4 inches in height/depth over a length of 4 feet?			
6. Is there ponding of water on cover?			
7. Is water leaking from the STAPP system?			
8. Is the lumber support frame in good condition?			(Ensure the integrity of the STAPP cover and liner are not compromised)
9. Are all holes, tears, and damage to toe boxes repaired?			
10. Do the Toe boxes and bags fully cover/protect the base of the STAPP system?			(Ensure that all holes/rips/tears are repaired on toe boxes, and replaced ripped sandbags)
11. What is the depth of water in the reservoir?			If 5" or higher, then maintenance needs to be conducted. _____Inches

NOTE: If deficiencies require range maintenance for corrective action then ensure copy of this inspection is giving to fire desk and maintenance is notified.

ALL MAINTENANCE NEEDS TO BE COMPLETED WITHIN 72 HOURS OF INSPECTION!

11. Use diagram to indicate location of deficiencies noted from lines 1-8.



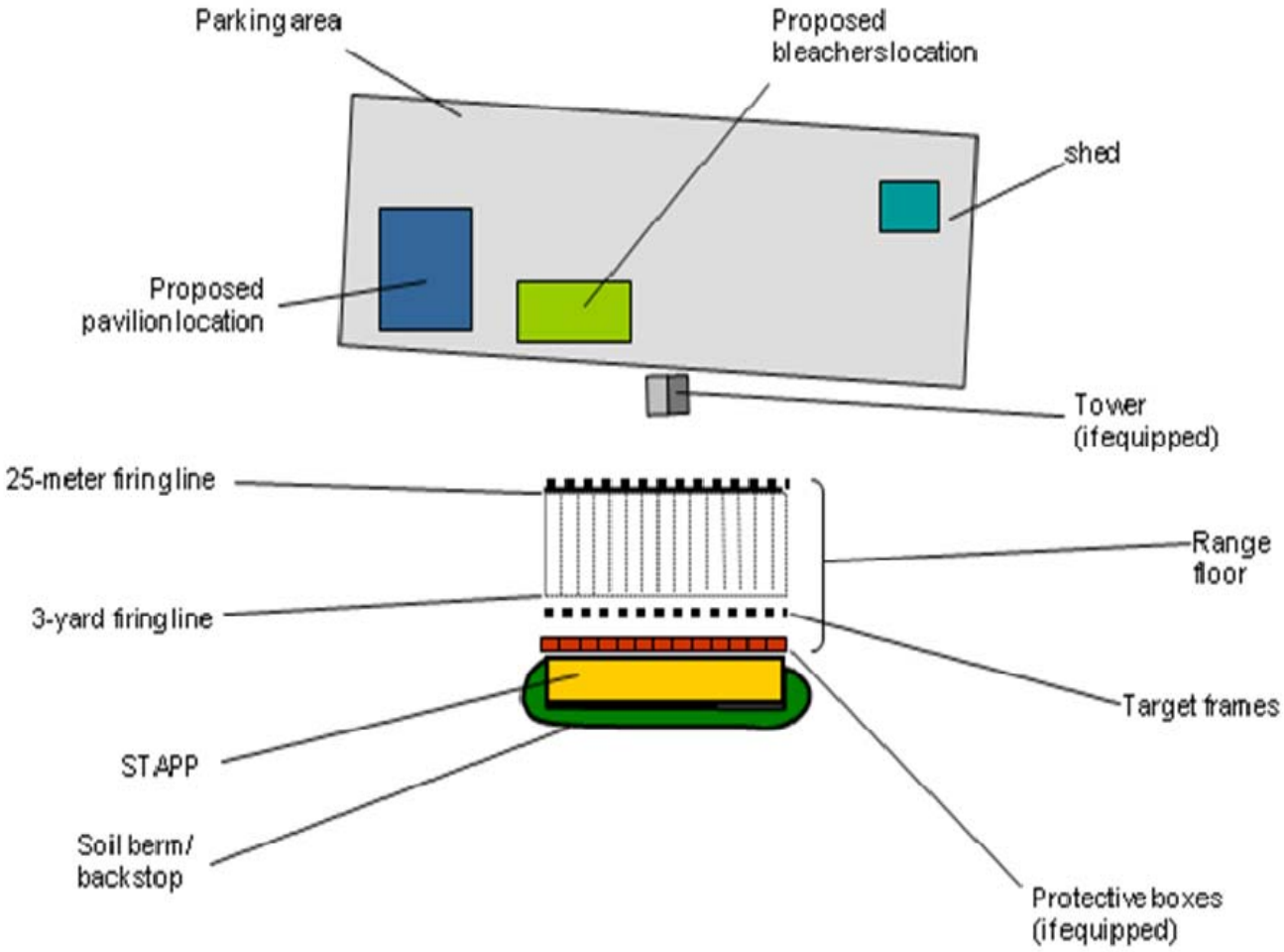
C. Erosion

Circle one and indicate location on range sketch below				If moderate or severe, please describe
1. Firing Positions	None	Moderate	Severe	
2. Berm / Backstop	None	Moderate	Severe	
3. Range Floor	None	Moderate	Severe	

D. Vegetation

	Percent Vegetative Coverage (circle one)		
1. Mounds behind firing line	0-25 %	26-50 %	51-100%
2. Soil berm/backstop	0-25 %	26-50%	51-100%
3. Range Floor	0-25 %	26-50%	51-100%

E. Range Sketch



Generic STAPP Site Plan Not to Scale – Oct 08

F. Signature

Range Control Inspector	NOTE: Ensure form is signed and placed in appropriate Range Binder.

Camp Edwards Range Control
STAPP System Internal Inspection Form – Appendix C

(This inspection is to be completed by Range Control personnel when the bullet sifting of the STAPP system is conducted after 500,000 rounds have been fired. At that time, all of the granular rubber material is removed.)

A.	**Administrative Information**
Name:	**Date:**
Range (circle one): Juliet / Kilo / Tango	

B.	**STAPP™ Internal Inspection**		
1. Is the water collection unit and surrounding support structure in good condition?	YES	NO	*Look for any conditions which would allow water to be released to ground surface. If no, please describe:*
2. Any perforations of the impermeable liner?	YES	NO	*Inspect the liner for any holes, rips, punctures, or seam failures. If yes, please describe*
3. Notes regarding need for repair and maintenance:	NOTES:		

C.	**Signature**
Range Control Inspector	NOTE: Ensure from is signed and placed in appropriate Range Binder.

D. Examples

Figure 4-3. Examples of Perforated (Right) and Intact (Left) Liners (photos not taken at Camp Edwards)

Camp Edwards Range Control
Range Maintenance/ pH Testing / Lime Spread Form (Appendix D)

(This form is to be completed by Camp Edwards Range Control personnel when range maintenance is conducted and on a monthly basis or as needed for PH testing. Once completed file in appropriate range binder for submission.)

A. Administrative Information	
Name:	**Date:**
Range (circle one): Juliet / Kilo / Tango	

B. Range Maintenance			
Location	Maintenance Conducted		Explain Maintenance conducted
1. STAPP (identify which; Cover, Seem, support frame.)	YES	NO	
2. Water Level	YES	NO	(How many gallons pumped / what is current depth)
2. Toe Boxes	YES	NO	
3. Target Line	YES	NO	
4. Firing Line	YES	NO	
5. Range Floor	YES	NO	
6. Berm	YES	NO	
7. Maintenance Conducted that was not addressed above:			

C. Signature	
Range Control Personnel:	NOTE: Ensure from is signed and placed in appropriate Range Binder.

A.	Administrative Information
Name:	**Date:**
Range (circle one): Juliet / Kilo / Tango	

B.	PH Testing Results											
Sample Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Firing Line												
Berm												
STAPP												

**Take a total of 6-12 samples along the entire firing line, 6-12 samples along the berm and 6-12 samples along front of STAPP System.

***Required PH Level by OMMP: 6.5 - 8.5

C	Lime Spread/Type of Lime	
**Lime will be applied before peak training season to increase its effectiveness/ applied as need after annual pH check.		
Date	Type of Lime	How Spread/ Rate

D.	Signature
Signature of Soldier Conducting PH Testing:	

Camp Edwards Range Control
Range Photo Log

(This form is to be completed by Range Control personnel quarterly to show the range general conditions, erosion, vegetation and STAPP system. Once completed file in appropriate range binder for submission.)

Photo No.	Date	
Location: Firing Line from firing position No 4 Range:		Place photo here
Description		

Photo No.	Date	
Location: Soil Berm from firing position No 4 Range:		Place photo here
Description		

Photo No.	Date	
Location: Bullet Containment System from firing position No 4 Range: J		Place photo here
Description		

Photo No.	Date	
Location: Range Floor from firing position No 4 Range:		Place photo here
Description		

Photo No.	Date	
Location: Firing Line from firing position No 13 Range:		Place photo here
Description		

Photo No.	Date	
Location: Soil Berm from firing position No 13 Range:		Place photo here
Description		

Photo No.	Date	
Location: Bullet Containment System from firing position No 13 Range:		
Description		Place photo here

Photo No.	Date	
Location: Range Floor from firing position No 13 Range:		
Description		Place photo here

MAARNG Response Packet: EPA 7 November Letter

Section 3: STAPP Range Tarp Cover Project

STAPP Range Tarp Cover Project

November 30, 2011

As a result of ever increasing efforts in managing STAPP system water on Juliet, Kilo, and Tango Ranges, three covers were developed to be placed on the STAPP systems. These tarps are being used to prevent water infiltration and to reduce or eliminate the need for STAPP water pumping and disposal. The following information is provided to show how these tarps are structured and used to aid in the management of STAPP system water on Juliet, Kilo, and Tango Ranges.

Tarps Placed:

- J Range: 5 Oct 11
- K Range: 4 Oct 11
- T Range: 15 Sep 11

Tarp Description:

- J Range: Fiber Imbedded Plastic 127' x 29'
- K Range: Fiber Imbedded Plastic 207' x 29'
- T Range: Fiber Imbedded Plastic 108' x 30'

Installation:

- Each tarp was cut with approximately 3 feet of overhang for sandbag placement.
- Due to size requirements, each tarp is made up of two pieces. The seam between the two pieces is overlapped by 2' and sealed using STAPP seam sealant.
- To help keep seam from separating sand bags were placed over the seam, however, the sandbags slid down the seam after a time. Range Control developed a plywood panel with wood "steps" to hold sandbags in place (see T-Range photograph).
- Each tarp is secured using military sandbags, which are placed approximately 1 foot apart around the entire STAPP System.

Maintenance:

- After placing the tarps, holes in tarp were identified and patched using pieces of tarp material and STAPP sealant.
- Check tarp for holes when conducting range inspections, before and after range usage. If any holes are found (none so far) they are repaired immediately.
- Removing/Replacing Tarp before and after range use. Man-power intensive due to size and weight of tarps. Takes a minimum of 6 soldiers and ranges from 1-2 hours per range.

Effectiveness:

- Prior to placing tarps on all ranges, one was placed on T-Range as a test.
- From September 15, 2011 through October 1, 2011 the water level stayed at 3 ½" (test period). Since this time tarps have been placed on each range, the water levels have either stayed the same or increased by no more than 1/8". *(Please refer to SARS Monthly Report Oct 2011included in this packet for STAPP inspection data.)*


10.26.2011 14:28


10.26.2011 14:56

J Range
10 26 2011 14 48

MONTHLY REPORT
J, K, T Ranges OMMP

For October 2011

Actions taken toward achieving compliance with AO2:

- pH readings taken on all three ranges, readings are mostly close to desired range but a little low (see table below)
- STAPP water removed on all three ranges to reduce the water levels before the winter
- Measured potential maximum height of standing water in each STAPP system before overflow might occur. See data in range summary tables below.

Summary of all sampling and testing data received:

- No new lab data received this month
- Sampling of soil, pore water, STAPP water, and groundwater was completed, results are pending
- Field pH monitoring results:

Location	Average	High	Low
J Range Firing Line	6.0	6.6	5.4
J Range Berm Toe	7.2	7.8	6.0
K Range Firing Line	5.5	6.8	4.9
K Range Berm Toe	6.2	6.6	5.7
T Range Firing Line	6.2	6.5	5.7
T Range Berm Toe	6.1	6.5	5.4

All work plans, reports, and other deliverables completed and submitted in past month:

- Revised combined OMMP discussed in roundtable meeting Oct 20 with EPA, EMC, DEP, Mass Guard
- EPA approval of RLSO Sept 27 drafts of J, K, and T Ranges OMMPs received. Plan is in full effect until the revised combined plan is complete

Actions scheduled for the next 6 weeks:

- Apply lime to all three ranges to raise pH (done)
- Install landscape edging around firing lines
- Repair toe boxes
- Painting pistol stands and lane numbers
- Receive and forward October lab results to agencies
- Periodic Review Report
- Meet to work on revised/simplified/combined OMMP
- Evaluating options for more permanent tarp/cover for STAPP systems
- Planning for copper rounds on T Range

J Range Summary

Number of days Range used for live firing	Range/STAPP System Inspection Dates	STAPP System Water Collection Dates	Quantity of STAPP System water removed (Gallons)	Maintenance Activities
Total=1				
1	1-Oct-11	N/A	N/A	Utilization Detailed Inspection for Range Firing
	4-Oct-11	N/A	N/A	Checked Water Level (3 1/4")
	5-Oct-11	N/A	N/A	Installed tarp over STAPP System 127'X29'
	5-Oct-11	N/A	N/A	Checked Water Level (3 1/4")
	6-Oct-11	N/A	N/A	Installed Sandbags and Wood over Tarp Seam
	6-Oct-11	N/A	N/A	Checked Water Level (3 1/4")
	12-Oct-11	N/A	N/A	Pulled open STAPP corner to measure water reservoir. Capacity is 18.375 in or 46.7 cm
	12-Oct-11	N/A	N/A	Checked Water Level (3 1/4")
	14-Oct-11	N/A	N/A	Checked Water Level (3 1/4")
	17-Oct-11	N/A	N/A	Checked Water Level (3 1/4")
	18-Oct-11	N/A	N/A	Put patches on tarp where needed
	20-Oct-11	N/A	N/A	Checked Water Level (3 1/4")
		24-Oct-11	55 Gallons	Checked Water Level After Pumping (1/4")
		25-Oct-11	5 Gallons	Checked Water Level After Pumping (0")
	31-Oct-11	N/A	N/A	Checked Water Level (3/8")
	31-Oct-11	N/A	N/A	PH Testing Completed

K Range Summary

Number of days Range used for live firing	Range/STAPP System Inspection Dates	STAPP System Water Collection Dates	Quantity of STAPP System water removed (Gallons)	Maintenance Activities
Total=1				
1	1-Oct-11	N/A	N/A	Utilization Detailed Inspection for Range Firing
	1-Oct-11	N/A	N/A	Checked Water Level (5")

		3-Oct-11	35 Gallons	Checked Water Level after Pumping (2")
	4-Oct-11	N/A	N/A	Checked Water Level (3")
	4-Oct-11	N/A	N/A	Installed tarp over STAPP System (207' x 29')
	6-Oct-11	N/A	N/A	Glued seam on tarp, laid plywood and sand bags
	6-Oct-11	N/A	N/A	Checked Water Level (4")
	12-Oct-11	N/A	N/A	Pulled open STAPP corner to measure water reservoir. Capacity is 16.875 in or 42.9 cm
	12-Oct-11	N/A	N/A	Checked Water Level (4")
	14-Oct-11	N/A	N/A	Checked Water Level (3 1/2")
	17-Oct-11	N/A	N/A	Checked Water Level (4")
	18-Oct-11	N/A	N/A	Put patches on tarp where needed
	20-Oct-11	N/A	N/A	Checked Water Level (4")
		24-Oct-11	65 Gallons	Checked Water Level After Pumping (3/8")
		25-Oct-11	5 Gallons	Checked Water Level After Pumping (0")
	31-Oct-11	N/A	N/A	Checked Water Level (1 3/4")
	31-Oct-11	N/A	N/A	PH Testing Completed

T Range Summary

Number of days Range used for live firing	Range/STAPP System Inspection Dates	STAPP System Water Collection Dates	Quantity of STAPP System water removed (Gallons)	Maintenance Activities
Total= 3				
1	1-Oct-11	N/A	N/A	Utilization Detailed Inspection for Range Firing
	1-Oct-11	N/A	N/A	Checked Water Level (3 1/2")
	3-Oct-11	N/A	N/A	Pulled open STAPP corner to measure water reservoir. Capacity is 14.75 in or 37.5 cm
	3-Oct-11	N/A	N/A	Checked Water Level (3 1/2")
	12-Oct-11	N/A	N/A	Checked Water Level (3 1/2")
	12-Oct-11	N/A	N/A	Tarp seam blew open, pulled back, placed sand bags on seam on top of wood holding frame
1	14-Oct-11	N/A	N/A	Utilization Detailed Inspection for Range Firing
	14-Oct-11	N/A	N/A	Checked Water Level (3 1/2")
1	15-Oct-11	N/A	N/A	Utilization Detailed Inspection for Range Firing
	15-Oct-11	N/A	N/A	Checked Water Level (3 1/2")

	17-Oct-11	N/A	N/A	Checked Water Level (3 1/2")
	19-Oct-11	N/A	N/A	Smoothed out wrinkles on tarp and placed sandbags
	19-Oct-11	N/A	N/A	Checked Water Level (3 1/2")
	20-Oct-11	N/A	N/A	Checked Water Level (3 1/2")
		24-Oct-11	50 Gallons	Checked Water Level After Pumping (3/8")
		25-Oct-11	5 Gallons	Checked Water Level After Pumping (1/2")
	31-Oct-11	N/A	N/A	Checked Water Level (3/4")
	31-Oct-11	N/A	N/A	PH testing Completed

Other:

- Placed tarps over J and K range STAPPs (in addition to tarp already on T Range). They all seem to be stopping or at least greatly limiting further infiltration of rain water. Water held at steady levels once tarps were installed.

Submitted by: Paul Nixon Date: Nov 8, 2011