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June 29, 2016

Ms. Linda Range
New Jersey Department of Environmental Protection
Bureau of Case Management
401 East State Street
PO Box 420/Mail Code 401-05F
Trenton, NJ 08625-0028

Subject: Response to NJDEP's April 21, 2016 Comments on the January 2016 *Final Landfill Boundary Refinement and Methane Gas Survey Report for Nine Landfills for Fort Monmouth, New Jersey*
PI # G000000032

Dear Ms. Range:

Fort Monmouth (FTMM) and Parsons have reviewed the New Jersey Department of Environmental Protection (NJDEP) comments on the Methane Gas Survey portion of the Final Landfill Boundary Refinement and Methane Gas Survey Report for Nine Landfills as documented in your letter dated April 21, 2016. Responses to your comments are provided below in the order in which they were presented in the comment letter.

A. General

A1. COMMENT:

A methane gas survey was conducted at each of the Fort's nine landfills in July and August of 2015 to evaluate the potential presence of methane gas. Methane gas sampling was performed at 95 locations at the landfills, with the majority of readings revealing no methane present. Two of the landfills, FTMM-05 and FTMM-18, had no detectable levels of gas measured from the locations sampled. Although no exceedances were detected along the perimeters of any landfill, levels greater than twenty-five percent of the lower explosive limit (LEL) for methane were detected in seven of the nine landfills at interior locations nearer to the center portion of the landfills.

Based on the levels of gas found, it is agreed these results do not indicate the need for either passive or active gas evacuation systems at this time, provided the landfills will be covered with a relatively permeable soil cap (as per the intended/proposed remedy) as opposed to an impermeable cap. If the capping system for a landfill changes, the need for a landfill gas venting system is to be reevaluated.

The generation and subsurface flow of landfill gas is impacted by many variables and is difficult to predict. Although a venting system is not required at this time, based upon results indicating methane is present within most of the landfills, and to be consistent with Solid Waste Rules, additional monitoring is required.

An additional methane survey is to be conducted at all landfills. These surveys should be conducted at points throughout the landfill as well as along the perimeter under the conditions described below in order to confirm the previous results. If the results are significantly different than those reported in the January 2016 report, these recommendations should be reevaluated.

A1. RESPONSE:

FTMM will conduct a confirmation round of methane gas survey at the seven landfills where methane gas was detected during the summer 2015 survey. Confirmation sampling is not necessary at FTMM-05 or FTMM-18 since methane was not detected at those two landfills. To confirm the summer 2015 results, Parsons will duplicate the soil gas locations of the methane gas survey conducted in the summer 2015 at seven landfills shown in the Landfill Boundary Refinement and Methane Gas Survey Report for Nine Landfills (Parsons, 2016) with additional soil gas locations provided as follows:

a) At select strategic perimeter locations where adjacent interior sample results indicated the presence of methane; and
b) To maintain a maximum interval of 300 feet between sampling points along the perimeter.

The original and confirmation methane gas survey results will provide more robust information along the perimeter and will be used to provide direction for the need of subsequent surveys, as necessary. The confirmation round will not include additional soil gas locations throughout the landfill interior, outside the FTMM property boundaries, and by any structures located proximal to each landfill. (As a practical matter, the latter locations that are not included are not needed to confirm the previous methane results.) However, if perimeter sample results indicate the presence of methane, then step outs will be conducted outwardly from the landfill perimeter until methane is not detected. The landfill gas confirmation sampling will be conducted in July 2016 and the barometric pressure status will be noted during sampling.

The methane gas survey confirmation round results will be used to further validate, along with the summer 2015 results that methane gas concentrations do not exceed twenty-five percent of the LEL along the perimeters and the need for passive venting is not required. In the event that the confirmation round results indicate that methane gas is not detected along the perimeter of the landfill, then FTMM assumes that follow on surveys, if required, would be limited to only the perimeter soil gas locations to maintain that no migration of methane gas exists beyond the landfill limits.

A report summarizing the confirmation round of methane gas survey will be submitted to the NJDEP. After submission of this report to NJDEP, we request that a meeting be held between, FTMM and NJDEP to discuss the results, comments, and scope of subsequent methane gas surveys.

A2. COMMENT:

The responsible entity is to begin conducting quarterly methane surveys immediately under the conditions described below at the perimeter of landfills FTMM-02, FTMM-12 and FTMM-14. Quarterly methane surveys should be performed at landfills FTMM-03, FTMM-04 and FTMM-8 upon completion of installation of the final cover system.

The quarterly methane gas surveys should be performed around the perimeter of the landfills to determine whether gas is migrating off-site or into on-site structures, if present, in accordance with N.J.A.C. 7:26-2A.8(h)9. The survey should be performed with a hand held portable explosimeter, or equivalent, and the minimum sampling depth shall be three feet below the ground or above the water table, whichever is higher. The sampling locations should be strategically placed to account for nearby receptors; however, the maximum interval between sampling points for ground samples shall be 300 feet. The maximum interval between sampling points for any structures located proximal to each landfill shall be 50 feet; however, there shall be at least one sampling point along each side of the structure (if present). Areas with natural

barriers to gas migration, e.g. water bodies, may be eliminated from the surveys. When methane is detected at a monitoring location, additional monitoring shall be conducted at 25-foot intervals both away from and along the landfill perimeter (in both directions). Monitoring shall continue at these 25-foot intervals until values are 0% of the LEL.

To obtain worst case results, surveys should occur when barometric pressure is falling.

It is recommended that quarterly gas monitoring continue for at least 8 sampling events. Future decisions regarding the need for installation of a venting system or the reduction or discontinuance of further monitoring may be made based on the results of the quarterly surveys.

A2. RESPONSE:

As discussed Response A1, FTMM recommends that a meeting be held after the submission of the report presenting the confirmation round of data to discuss the collective results from the original and confirmation rounds. Based on the collective results, we would like the opportunity to reevaluate NJDEP comments regarding the scope, timeline, frequency, and necessity of future methane gas surveys at the seven landfills during this group meeting. In particular, where the intent of the confirmation sampling is to validate no migration beyond the landfill perimeters, FTMM would like to further discuss and obtain clarification on N.J.A.C. 7:262A.8(h)9 and the requirements outlined in Comment A2 in regards to the need for sampling points required along structures, and additional monitoring at 25-foot intervals away from and along landfill perimeters. As part of this discussion, it should also be noted that some of the structures proximal to the landfills will likely be demolished in the near future.

A3. COMMENT:

Any buildings to be built on or near the landfills should be constructed with a system to prevent gas migration into the building. The system should be designed and constructed in accordance with the requirements of N.J.A.C. 7:26-2A.7(f)14 or an equivalent design.

A3. RESPONSE:

The redevelopment plans for the landfills indicate passive open spaces or potentially paved surfaces at select locations, and not buildings. FTMM in concept agrees that if a landfill gas collection and venting system is required at a landfill then newly constructed buildings on or near the landfill should be designed with measures to prevent gas migration into the building in accordance with *N.J.A.C. 7:26-2A.7(f)14* and it will be up to the owner implement this recommendation. Per NJDEP Comment A1, at this time, it is not anticipated that a venting system is required, but is contingent on the additional methane gas monitoring results and that the landfills are covered with a relatively permeable soil cap as compared to an impermeable cap. The cap type as agreed by the NJDEP for the FTMM landfills will consist of a vegetated soil cover (e.g., 18-inches of soil and 6-inches of vegetative cover) or equivalent placed over the landfills to provide safety protection for future non-residential use since the anticipated future use is passive open space. We request the opportunity to discuss this citation further in the meeting with the NJDEP requested in Responses A1 and A2 as this reference is applicable to "on-site buildings" within the landfill property; specifically, if it is determined that a landfill gas collection and venting system is required at a landfill, what is the minimum distance between the landfill and a nearby constructed building that would trigger building design measures to prevent gas migration into the structure.

B. FTMM-02

B. COMMENT:

Three out of 13 locations exhibited readings of methane. Two sample locations near the middle of the landfill had methane readings of 14.5% and 8.8% methane at 290% and 176% of the LEL, respectively. Residential homes are located approximately 100 feet south of the landfill. Due to the methane levels and close proximity to residential properties methane monitoring should begin immediately.

B. RESPONSE:

As required in NJDEP's comment letter, the confirmation round of the landfill methane gas survey will be conducted at FTMM-02 in July 2016 as described in Response A1. Note that the two locations identified with the methane detections (M2SG2 and M2SG3) are located on the interior of the landfill. Existing landfill perimeter soil gas locations did not have methane detections and indicate that off-site migration of methane is not occurring at these locations. The residential homes located approximately 100 feet south of the landfill are not within the installation boundaries. The recommendation for immediate monitoring of methane seems premature and not consistent with the report findings. It is recommended that the scope of any additional methane gas monitoring at FTMM-02 is based on the initial and confirmation methane gas surveys, as discussed and agreed to in the proposed meeting between FTMM and NJDEP.

C. FTMM-03

C. COMMENT:

Two of 12 sample locations exhibited readings of methane. One sample location near the middle of the west end of the landfill had a reading of 2.7% methane, which is 54% of the LEL. There is an unidentified building (secured by a fence) located approximately 50 feet south of the western portion of the landfill perimeter, and another building located approximately 230 feet west of the west end of the landfill. Due to the presence of methane and the proximity of the building, quarterly perimeter methane monitoring should be performed upon installation of final cover on the landfill.

C. RESPONSE:

Most of the buildings at FTMM are unoccupied and planned to be demolished. As mentioned earlier, FTMM will conduct the confirmation round of the landfill methane gas survey at FTMM-03 in July 2016 as described in Response A1. Note that the two locations identified with the methane detections (M3SG1 and M3SG2) are located on the interior of the landfill. Existing landfill perimeter soil gas locations did not have methane detections indicating that off-site migration of methane is not occurring at the tested locations. The unidentified building (secured by a fence) located approximately 50 feet south of the western portion of the landfill perimeter is a pump storage building and is not occupied. It is recommended that the scope of any additional methane gas monitoring at FTMM-03 is based on the initial and confirmation methane gas surveys, as discussed and agreed to in the proposed meeting between FTMM and NJDEP.

D. FTMM-04

D. COMMENT:

Methane was detected at two out of ten locations. One sample location near the interior of the landfill east of Mill Creek had a methane reading of 5.5% methane, which is 110% of the LEL. A small building is

located southwest of the landfill and adjacent to the Avenue of Memories. Building 689 is located approximately 80 feet east of the landfill perimeter. Due to the presence of methane and proximity to buildings and utility lines, quarterly perimeter methane monitoring should be performed upon installation of final cover on the landfill.

D. RESPONSE:

Most of the buildings at FTMM are unoccupied and planned to be demolished. As mentioned earlier, FTMM will conduct the confirmation round of the landfill methane gas survey at FTMM-04 in July 2016 as described in Response A1. Note that the two locations identified with the methane detections (M4SG1 and M4SG4) are located on the interior of the landfill. Existing landfill perimeter soil gas locations did not have methane detections and indicate that off-site migration of methane is not occurring at the tested locations. It is recommended that the scope of any additional methane gas monitoring at FTMM-04 is based on the initial and confirmation methane gas surveys, as discussed and agreed to in the proposed meeting between FTMM and NJDEP.

E. <u>FTMM-05</u>

E. COMMENT:

There were no methane gas readings detected in six sample locations at this landfill. If another round of sampling confirms that no methane is present, no further monitoring will be required.

E. RESPONSE:

As stated in A1 "*Two of the landfills, FTMM-05 and FTMM-18, had no detectable levels of gas measured from the locations sampled.*" We believe that additional methane sampling at FTMM-05 is not necessary given the evidence provided. Additional sampling at the landfills where methane was detected is proposed to provide a more comprehensive understanding of methane at the seven FTMM landfills.

F. <u>FTMM-08</u>

F. COMMENT:

Methane was detected at two of 13 sampling locations. One sample location in the northern portion of the landfill near Parkers Creek had a reading of 16.9% methane, which is 338% of the LEL. There are buildings located approximately 100 feet east of the landfill and buildings located south of the landfill, across Sherrill Avenue. Due the presence of methane and the proximity to buildings, quarterly methane monitoring should begin upon installation of the final cover.

F. RESPONSE:

Most of the buildings at FTMM are unoccupied and planned to be demolished. As mentioned earlier, FTMM will conduct the confirmation round of the landfill methane gas survey at FTMM-08 in July 2016 as described in Response A1. Note that the two locations identified with the methane detections (M8SG4 and M8SG6) are located on the interior of the landfill. It should be noted at M8SG4 methane was detected at 0.2% which is within the error range of the GEM2000 meter. Existing landfill perimeter soil gas locations did not have methane detections indicating that off-site migration of methane is not occurring at the tested locations. It is recommended that the scope of any additional methane gas monitoring at FTMM-08 is based

on the initial and confirmation methane gas surveys, as discussed and agreed to in the proposed meeting between FTMM and NJDEP.

G. FTMM-12

G. COMMENT:

Methane was detected at four of 15 sampling locations. Three sample locations had methane readings of 31.2%, 25.7%, and 3.4% methane, which are 624%, 514%, and 68% of the LEL. The two higher readings were recorded in the middle portion at the western end of the landfill; the third lower reading was recorded in the middle portion at the eastern end of the landfill. There are many base buildings located in proximity to the landfill along its southern border. Due to the levels of methane detected and the building locations, quarterly perimeter methane surveys should begin immediately.

G. RESPONSE:

As required in NJDEP's comment letter, the confirmation round of the landfill methane gas survey at FTMM-12 will be conducted in July 2016 as described in Response A1. The four locations identified with the methane detections (M12SG1, M12SG2, M12SG9, and M12SG13) are located on the interior of the landfill. It should be noted at M12SG9 methane was detected at 0.3% which is within the error range of the GEM2000 meter. Existing landfill perimeter soil gas locations did not have methane detections indicating that off-site migration of methane is not occurring at the tested locations. It is recommended that the scope of any additional methane gas monitoring at FTMM-12 is based on the initial and confirmation methane gas surveys, as discussed and agreed to in the proposed meeting between FTMM and NJDEP.

H. FTMM-14

H. COMMENT:

Methane was detected at four of 15 sampling locations. Two sample locations in the central portion of the landfill had methane readings of 21.4% and 7.8% methane, which are 428% and 156% of the LEL, respectively. There are many buildings located along Gosselin Avenue immediately north of the landfill's border (approximately 50 feet). Due to the high levels of methane detected and the proximity to buildings, quarterly methane surveys should begin immediately.

H. RESPONSE:

As required in NJDEP's comment letter, the confirmation round of the landfill methane gas survey at FTMM-14 will be conducted in July 2016 as described in Response A1. Note that the four locations identified with the methane detections (M14SG4, M14SG7, M14SG8, and M14SG9) are located on the interior of the landfill. It should be noted at M12SG9 methane was detected at 0.3% which is within the error range of the GEM2000 meter. Existing landfill perimeter soil gas locations did not have methane detections and indicate that off-site migration of methane is not occurring at the tested locations. It is recommended that the scope of additional methane gas monitoring at FTMM-14 is based on the initial and confirmation round of methane gas surveys, as discussed and agreed to in the proposed meeting between FTMM and NJDEP.

I. FTMM-18

I. COMMENT:

There was no methane gas detected at the five sample locations for this landfill. There are buildings located immediately south of the landfill. If an additional round of sampling confirms no methane present, no further monitoring would be required

I. RESPONSE:

As stated in A1 "*Two of the landfills, FTMM-05 and FTMM-18, had no detectable levels of gas measured from the locations sampled.*" We believe that additional methane sampling at FTMM-18 is not necessary given the evidence provided. Additional sampling at the landfills where methane was detected is proposed to provide a more comprehensive understanding of methane at the seven FTMM landfills

J. <u>FTMM-25</u>

J. COMMENT:

Methane was detected at one out of seven sampling locations. One sample location in the central portion of the landfill had a reading of 5.8% methane, which is 116% of the LEL. There are several buildings located east and south of the landfill. If an additional round of sampling confirms the results of the January 2016 report, then no further monitoring should be necessary.

J. RESPONSE:

FTMM will conduct the confirmation round of the landfill methane gas survey at FTMM-25 in July 2016 as described in Response A1. Note that the one location identified with the methane detections (M25SG4) is located on the interior of the landfill. Existing landfill perimeter soil gas locations did not have methane detections indicating that off-site migration of methane is not occurring at the tested locations. It is recommended that the scope of any additional methane gas monitoring at FTMM-25 is based on the initial and confirmation methane gas survey, as discussed and agreed to in the proposed meeting between FTMM and NJDEP.

Should you have any questions or require additional information, please contact me at (732) 380-7064 or by email at william.r.colvin18.civ@mail.mil.

Sincerely,

William R. Colvin, PMP, CHMM, PG
Fort Monmouth Environmental Coordinator

cc: James Moore, USACE (e-mail)
Cris Grill, Parsons (e-mail)

New Jersey Department of Environmental Protection
Site Remediation Program

Report Certifications for RCRA GPRA 2020, CERCLA, and Federal Facility Sites

These certifications are to be used for reports submitted for RCRA GPRA 2020, CERCLA, and Federal Facility Sites. The Department has developed guidance for report certifications for RCRA GPRA 2020, CERCLA, and Federal Facility Sites under traditional oversight. The "Person Responsible for Conducting the Remediation Information and Certification" is required to be submitted with each report. For those sites that are required or opt to use a Licensed Site Remediation Professional (LSRP) the report must also be certified by the LSRP using the "Licensed Site Remediation Professional Information and Statement". For additional guidance regarding the requirement for LSRPs at RCRA GPRA 2020, CERCLA and Federal Facility Sites see http://www.nj.gov/dep/srp/srra/training/matrix/quick_ref/rcra_cercla_fed_facility_sites.pdf.

Document: "Response to NJDEP's April 21, 2016 Comments on January 2016 Final Landfill Boundary Refinement and Methane Gas Survey for Nine Landfills"

PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: William R. Colvin
Representative First Name: William Representative Last Name: Colvin
Title: BRAC Environmental Coordinator
Phone Number: (732) 380-7064 Ext: Fax:
Mailing Address: P.O. Box 148
City/Town: Oceanport State: NJ Zip Code: 07757
Email Address: william.r.colvin18.civ@mail.mil

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: William R Colvin Date: 29 June 2016

Name/Title: William R. Colvin / BRAC Environmental Coordinator