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April 22, 1994

Mr. Stephen Chao and Ms. Camille Garibaldi
Department of the Navy
Western Division
Naval Facilities Engineering Command
900 Commodore Way, Building 101
San Bruno, California 94066-0720

Subject: Methane Gas Measurements at Sites 1 and 2
Naval Air Station Moffett Field Operable Unit 1 (OU1)
CLEAN Contract Number N62474-88-D-5086, Contract Task Order 0236

Dear Stephen and Camille:

This letter documents the results of OU1 methane gas measurements taken by PRC Environmental Management, Inc. (PRC) on April 6, 1994. The results are submitted for your information and are summarized on the attached table. Methane gas measurements will continue to be taken each quarter, as part of quarterly groundwater sampling. Results will be incorporated into the feasibility study for OU1. The levels of methane gas detected at Sites 1 and 2 are consistent with those measured during the air solid waste assessment test (SWAT) conducted by International Technology Corporation (IT) in August 1992.

At Site 1, methane was detected in methane collection wells located inside the Site 1 boundary, similar to the air SWAT. However, methane gas was not detected above the lower explosive limit (LEL) in perimeter monitoring wells. Therefore, no methane migration above regulatory limits was measured at the Site 1 boundary. These results are consistent with air SWAT results, except that current methane levels were lower in well LGMW1-3. Methane was detected in this perimeter well above the LEL during the air SWAT; however, it was detected below the LEL in April 1994. Significant horizontal, subsurface migration is not expected because no barriers are present that would prevent gas from escaping vertically. Subsurface gas migration typically occurs when vertical gas flow is restricted and pressure builds up in the landfill. This increased pressure can cause gas to migrate horizontally through the subsurface past landfill boundaries.

During the April 1994 monitoring at Site 2, methane was not detected inside the boundary or at the landfill perimeter. These results also are consistent with air SWAT results at Site 2. These results are expected because this landfill has not accepted waste for more than 40 years and waste decomposition has likely ceased. In addition, Site 2 was NAS Moffett Field's first landfill and, consequently, large amounts of inert construction debris were likely disposed of in the landfill. Construction activity is typically high during early periods of base operations.

If you have any questions, please call us at 303/295-1101.

Sincerely,

Thomas J. Peters
Project Engineer

Michael N. Young
Project Manager

TP/tjp

Attachment

cc: Michael Gill, EPA
Elizabeth Adams, RWQCB
Joseph Chou, DTSC
Peter Strauss, MHB
Ted Smith, SVTC
Lt. Susanne Openshaw, NAS Moffett Field
Don Chuck, NAS Moffett Field
Sandy Olliges, NASA
Joe LeClaire, Montgomery Watson

ATTACHMENT
NAS MOFFETT FIELD OU1
METHANE GAS MEASUREMENTS - APRIL 6, 1994

Gas Well Number	Oxygen Concentration[a] (Percent)	Methane Concentration (Percent of LEL[b])	Organic Vapor Concentration[c]
Site 1 Landfill Gas Collection Wells (Landfill Wells)			
LGCW1-1	2.6%	> 100%	> 1000 ppm[d]
LGCW1-2	1.9%	7%	> 1000 ppm
LGCW1-4	14%	4%	background[e]
LGCW1-5	8.1%	10%	> 1000 ppm
Site 1 Landfill Gas Monitoring Wells (Perimeter Wells)			
LGMW1-1	19.5%	0%	background
LGMW1-2	20.8%	0%	background
LGMW1-3	10.6%	5%	200 ppm
Site 2 Landfill Gas Collection Wells (Landfill Wells)			
LGCW2-1	18.3%	0%	background[f]
LGCW2-2	11.8%	0%	background
LGCW2-3	18.9%	0%	background
LGCW2-4	14.2%	0%	background
Site 2 Landfill Gas Monitoring Wells (Perimeter Wells)			
LGMW2-1	14.1%	0%	background
LGMW2-2	17.9%	0%	background
LGMW2-3	20.8%	0%	background
LGMW2-4	20.6%	0%	background

Notes:
[a]Percent oxygen measured with MSA Explosimeter
[b]LEL - Lower explosive limit: 100 percent LEL indicates a methane concentration of 5 percent
Percent LEL measured with MSA Explosimeter
[c]Organic vapor concentration measured with Foxboro Organic Vapor Analyzer (OVA)
[d]ppm - parts per million
[e]Site 1 OVA background = 3 ppm
[f]Site 2 OVA background = 0.8 ppm