

Memorandum



CITY OF DALLAS

DATE September 7, 2012

TO Honorable Members of the Transportation and Environment Committee:
Linda L. Koop (Chair), Sheffie Kadane (Vice Chair), Sandy Greyson,
Delia Jasso, Vonciel Jones Hill, Pauline Medrano

SUBJECT **Overview of Environmental Testing at the McCommas Bluff Landfill**

On Tuesday, September 11, 2012 you will be briefed on the Overview of Environmental Testing at the McCommas Bluff Landfill at the Transportation and Environment Committee meeting. The briefing material is attached for your review.

Please let me know if you need additional information.

A handwritten signature in black ink, appearing to read 'Forest E. Turner'.

Forest E. Turner
Assistant City Manager

Attachment

- C: The Honorable Mayor and Members of the City Council
Mary K. Suhm, City Manager
Thomas P. Perkins, Jr. City Attorney
Rosa A. Rios, City Secretary
Craig D. Kinton, City Auditor
Judge C. Victor Lander, Administrative Judge
A.C. Gonzalez, First Assistant City Manager
Jill Jordan, P.E., Assistant City Manager
Ryan S. Evans, Assistant City Manager
Joey Zapata, Assistant City Manager
Jeanne Chipperfield, Chief Financial Officer
Edward Scott, Director, Controller's Office
Frank Libro, Public Information Office
Theresa O'Donnell, Director, Sustainable Development and Construction
Kelly High, Interim Director, Sanitation Services
Stephanie Cooper, Assistant to the City Manager – Council Office

Overview of Environmental Testing at McCommas Bluff Landfill

Transportation and Environment Committee

September 11, 2012



Purpose

- ▶ Discuss background and facts about McCommas Bluff Landfill
- ▶ Discuss environmental testing and reporting at McCommas Bluff Landfill
- ▶ Discuss ongoing coordination with Texas Commission on Environmental Quality (TCEQ) about environmental monitoring
- ▶ Convey findings of expert assessment related to environmental testing
- ▶ Discuss actions taken and next steps
- ▶ Summary

McCommas Bluff Landfill

- ▶ McCommas Bluff Landfill, opened in 1981, is a professionally designed and managed landfill with:
 - Engineered liners for groundwater protection
 - Production of green energy from landfill gas
 - Biotechnology accelerating landfill gas production
 - ISO-certification achieved for quality and environmental management programs (first and only landfill in the state)

McCommas Bluff Landfill

- ▶ A 2,000 acre facility, with approximately 996 acres permitted for landfill use and about 400 acres that have been utilized
- ▶ McCommas Bluff Landfill receives approximately 2 million tons of waste annually
- ▶ The landfill generates approximately \$17 Million dollars in general fund revenue annually
- ▶ 5 million cubic feet of landfill gas collected each day (\$1.6M in royalties collected annually)

McCommas Bluff Landfill

- ▶ McCommas Bluff landfill is a Type I municipal solid waste landfill permitted and regulated by TCEQ
 - Type I landfills generally accept standard municipal solid waste (e.g., household waste, construction waste, and brush), non-hazardous industrial solid waste and certain types of special waste
 - Hazardous waste such as waste oil, lead-acid batteries and regulated hazardous waste are not accepted at Type I landfills

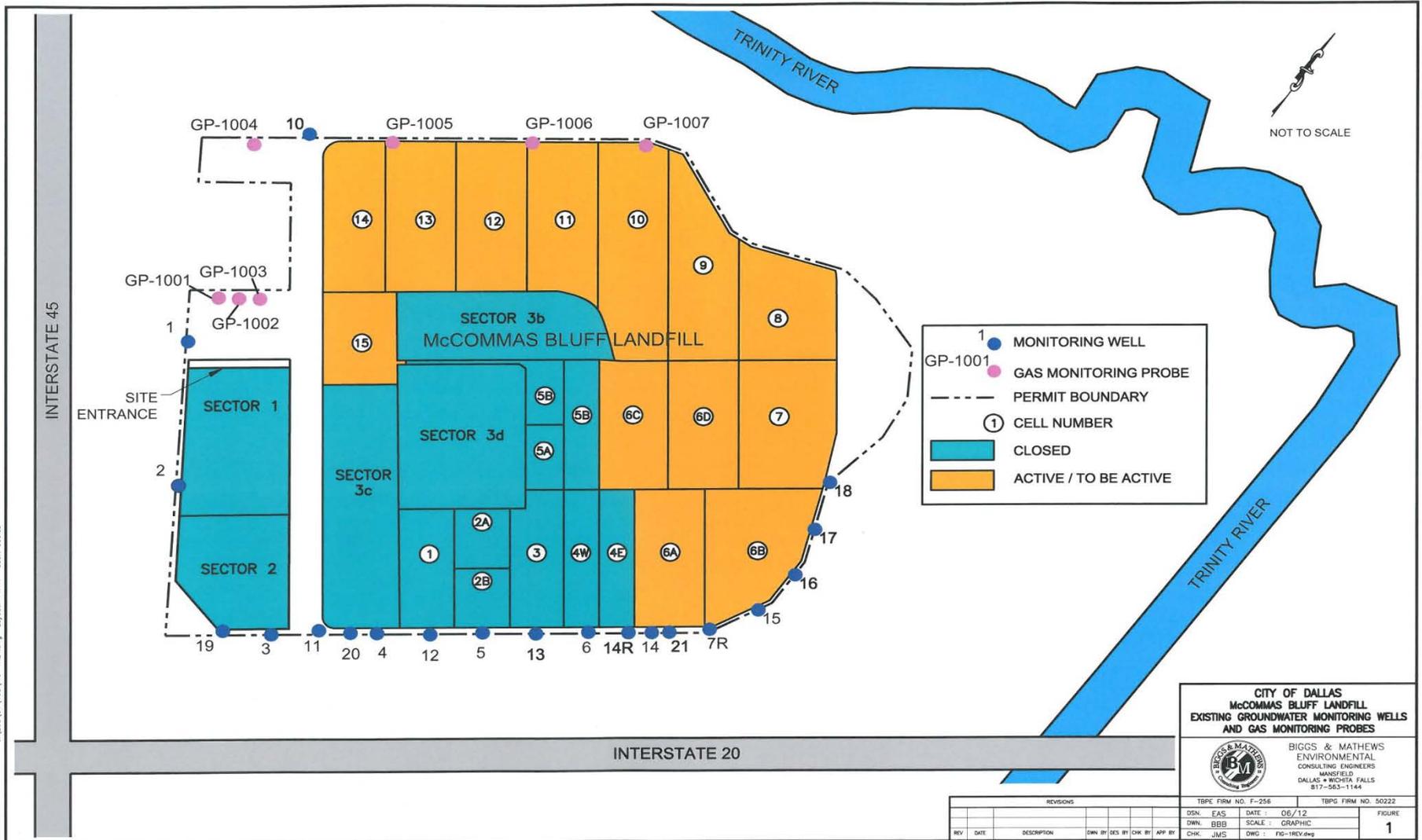
Environmental Testing

- ▶ McCommas Landfill is classified as a “High” performing landfill by TCEQ based on its complexity and historic compliance record (rankings are low, med, or high)
- ▶ TCEQ requires us to calculate air quality, as well as test landfill gas and groundwater on an ongoing basis

Environmental Testing

- ▶ Today's briefing will focus on landfill gas and groundwater monitoring
- ▶ 7 landfill gas probes are monitored quarterly to show any landfill gases migrating off the landfill site
- ▶ 19 groundwater wells are monitored semi-annually to show any groundwater impacts from the landfill
 - Testing looks for metals and other Volatile Organic Compounds
 - Each metal or compound has different regulatory requirements, but TCEQ regulations focus on consistent "statistically significant increases"

Gas Probes and Groundwater Monitoring Wells



Environmental Reporting

- ▶ The City has been continuously working with TCEQ to monitor environmental testing to ensure safety to the public and environment
- ▶ Landfill gas monitoring reports are only sent to TCEQ if a probe shows gas detection above the regulatory limit
 - There are no detections above regulatory limits in any of the 7 gas probes
- ▶ Groundwater testing results are reported to TCEQ on a semi-annual and annual basis
 - Groundwater reports are submitted regardless of results

Coordination with TCEQ

- ▶ The City and TCEQ conduct ongoing monitoring and look for test results that show consistent “statistically significant increases”
- ▶ Since the late 1990’s the City has reported low arsenic levels in specific monitoring wells on the southern side of the landfill.
 - Arsenic detection is common at landfills since arsenic is a naturally occurring metal that is present in soils
 - Over the years we have continued to meet TCEQ permit requirements and we have had increasing and decreasing levels in test results

TCEQ Regulatory Change

- ▶ In 2006 the EPA/TCEQ lowered the regulatory limits for arsenic from 50 parts per billion to 10 parts per billion

Coordination with TCEQ

- ▶ In 2009 testing indicated some of the wells had consistent “statistically significant increases” in arsenic levels
- ▶ This trend led to 4 of the 19 groundwater wells located at the landfill being identified for additional “assessment monitoring” for arsenic by TCEQ
 - “Assessment monitoring” occurs when testing shows a “statistically significant increase” over established historical levels
 - Wells in “assessment monitoring” are further monitored to evaluate the potential need for additional action

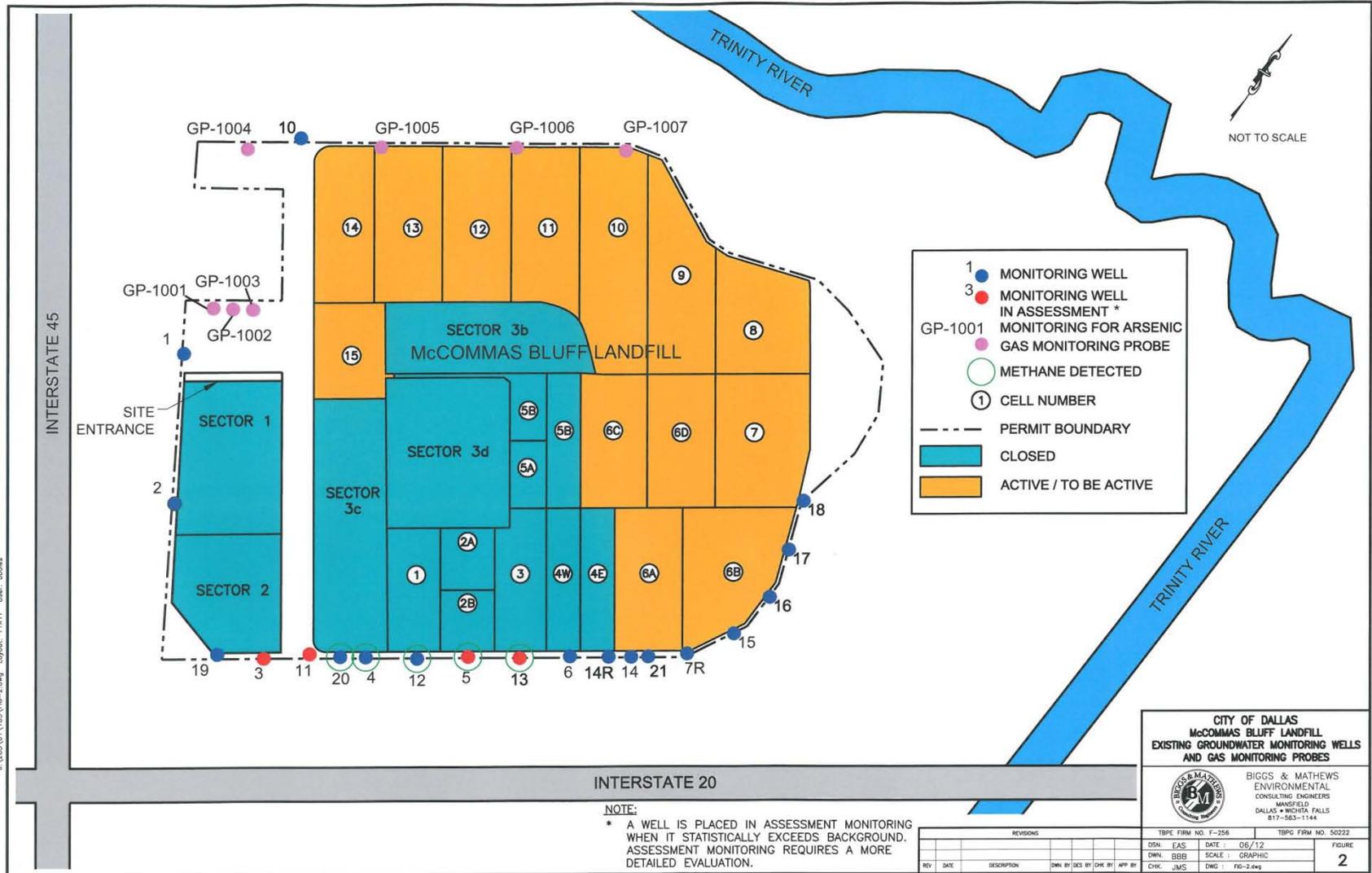
Coordination with TCEQ

- ▶ The City and TCEQ have had ongoing discussions about sources and reasons for testing results related to the wells in “assessment monitoring”
- ▶ In late 2009 the City started looking at two things:
 - ▶ “Alternative sources” for the arsenic detection
 - ▶ The “nature and extent” of the problem

Coordination with TCEQ

- ▶ In 2010, during ongoing discussions between the City and TCEQ, it was suggested by TCEQ that increased arsenic in groundwater is often a result of migrating landfill gas
 - At the request of TCEQ, the City began testing groundwater monitoring wells for methane gas
 - Test results showed the presence of methane gas in some of the groundwater monitoring wells on the southern part of the landfill

Groundwater wells in "Assessment Monitoring" for arsenic and with detections of methane



CITY OF DALLAS
 McCOMMAS BLUFF LANDFILL
 EXISTING GROUNDWATER MONITORING WELLS
 AND GAS MONITORING PROBES



BIGGS & MATHEWS
 ENVIRONMENTAL
 CONSULTING ENGINEERS
 MANSFIELD
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 817-563-1144

REVISIONS					TBPE FIRM NO. F-256	TSPG FIRM NO. 50222
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City Actions

- ▶ In 2011 the City developed and started implementing a landfill gas plan due to methane detection in our groundwater monitoring wells which included the following actions:
 - The replacement and repair of landfill gas extraction wells (complete)
 - Increased extraction of landfill gas for production of green energy (complete)
 - Evaluating impact on landfill gas migration (ongoing)
 - Potential expansion of landfill gas extraction along the southern portion of the landfill (under evaluation)
 - Reporting results to TCEQ by October 1, 2012

City Actions

- ▶ In 2011 the City continued a review of the nature and extent of the testing results
- ▶ In 2012, to be sure that all angles were being fully evaluated an additional expert assessment was obtained

Additional Expert Assessment

- ▶ In July of 2012 the City hired Dr. Kenneth Tramm of Modern Geosciences (Modern) to further investigate arsenic levels and landfill gas
- ▶ Based on a letter submitted by Modern preliminary findings “did not identify an imminent threat to human health and the environment.”
- ▶ Initial findings and conclusions indicate that levels of arsenic in groundwater monitoring wells are increased due to “sediment interference” from surrounding soils and not landfill gas migration
 - “Sediment Interference” can occur from the use of old wells or sampling techniques that create sediment disturbance. These issues are well known to cause inaccurate results, since arsenic is naturally present in soils

Additional Expert Assessment

- ▶ Based on Modern's investigation, previous sampling of groundwater wells were not representative of actual groundwater conditions
- ▶ Recent testing, using currently accepted methods, indicate arsenic levels that are more acceptable under applicable rules
- ▶ Testing also found that migrating landfill gases are not increasing arsenic levels
- ▶ Additional testing confirmed landfill gases are not migrating off the landfill property

Next Steps

- ▶ September 19, 2012 meet with TCEQ to discuss Modern's findings
 - ▶ TCEQ could require additional actions as a result of this meeting
- ▶ Continue development of landfill gas control, including additional gas extraction measures
- ▶ By October 2012 submit a report to TCEQ discussing the progress of landfill gas controls and additional information related to nature and extent review
- ▶ Update the TEC on the outcome TCEQ meeting and report submission

In Summary

- ▶ The City and TCEQ have been monitoring low levels of arsenic in monitoring wells at McCommas Bluff Landfill
- ▶ TCEQ has suggested that migrating landfill gas could be causing increased arsenic levels in groundwater monitoring wells
- ▶ In coordination with TCEQ, the City has started implementing an enhanced landfill gas control plan
- ▶ The City hired an outside expert to review arsenic detection and landfill gas
 - The preliminary results indicate: historic arsenic levels are due to sampling methods and outdated wells; and that landfill gas is not migrating off the landfill property
- ▶ The City is scheduled to meet with TCEQ to discuss the findings and will report to TEC the results



MODERN GEOSCIENCES
Trusted Environmental Advisors

September 5, 2012

City of Dallas

1500 Marilla Street, Room 7EN
Dallas, Texas 75201

Attention: James McGuire, Assistant City Attorney
Phone: 214.670.1331
Email: james.mcguire@dallascityhall.com

Subject: Landfill Evaluation Update
McCommas Bluff Landfill (MSW Permit No. 62; the Site)
5100 Youngblood Road
Dallas, Dallas County, Texas

Dear Mr. McGuire:

Historic monitoring at the Site identified inorganic compounds (e.g., arsenic) and landfill gas (e.g., methane) along the southern boundary of the landfill. Modern Geosciences, LLC (Modern) was asked to assist in determining if the landfill gas and arsenic observations are related and representative of Site conditions.

Our investigation began in August 2012 and included the resampling of existing monitor wells using methods that can reduce sediment interference and produce a more representative groundwater sample. Additionally, Modern performed sampling of newly installed soilgas monitor points and existing monitor wells at the southern boundary of waste to determine potential sources and extent of landfill gas.

Our findings include the following:

- Significant decreases in arsenic concentrations were noted when care was taken to obtain representative groundwater samples with less turbidity. Of the monitor wells previously exhibiting arsenic, only one (MW-3) continued to show arsenic significantly above the regulatory criteria. Monitor well MW-3 is an older well and was constructed differently than other wells at the southern boundary, and its construction could allow increased fine-grained sediment into groundwater samples.
- To further evaluate the potential arsenic concentrations noted at monitor well MW-3, Modern installed a well immediately downgradient to determine if arsenic was migrating in groundwater. Arsenic was not identified in this new well.

September 5, 2012
Project DFW12061



- Elevated landfill gas was noted in one of the new soilgas monitor points and two of the existing monitor wells at the southern edge of waste. However, additional soilgas monitor points confirmed that landfill gas does not extend off the Site.
- Modern's preliminary findings did not identify an imminent threat to human health and the environment. However, additional efforts to improve groundwater sampling methodology and address the source of landfill gas are recommended.

Sincerely,

MODERN GEOSCIENCES

Texas Registered Geoscience Firm No. 50411

A handwritten signature in blue ink, appearing to read "Ken S. Tramm", is written over a light blue circular stamp.

Kenneth S. Tramm, PhD, PG, CHMM
Senior Program Manager