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KO OLINA COMMUNITY ASSOCIATION
and MAILE SHIMABUKURO

BEFORE THE PLANNING COMMISSION

OF THE CITY AND COUNTY OF HONOLULU

STATE OF HAWAI'I

In the Matter of the Application of

DEPARTMENT OF ENVIRONMENTAL SERVICES, CITY AND COUNTY OF HONOLULU

To delete Condition No. 14 of Special Use Permit No. 2008/SUP-2 (also referred to as Land Use Commission Docket No. SP09-403) which states as follows:

"14. Municipal solid waste shall be allowed at the WGSL up to July 31, 2012, provided that only ash and residue from H-POWER shall be allowed at the WGSL after July 31, 2012."

FILE NO. 2008/SUP-2

INTERVENORS KO OLINA COMMUNITY ASSOCIATION AND MAILE SHIMABUKURO'S THIRD AMENDED EXHIBIT LIST

EXHIBITS K159–K161

CERTIFICATE OF SERVICE

INTERVENORS KO OLINA COMMUNITY ASSOCIATION AND MAILE SHIMABUKURO'S THIRD AMENDED EXHIBIT LIST

Intervenors Ko Olina Community Association and Maile Shimabukuro (together "**Intervenors**") submit their third amended exhibit. Intervenors may introduce the

KOCA 22

following exhibits and reserve the right to amend or supplement this list as additional exhibits are identified:

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K1				March 13, 2003 Findings of Fact, Conclusions, and Decision by the Planning Commission	
K2				June 5, 2003 Decision and Order Approving Amendment to Special Use Permit by the Land Use Commission	
K3				January 16, 2008 Findings of Fact, Conclusions of law, and Decision and Order by the Planning Commission	
K4				March 13, 2008 Findings of Fact, Conclusions of Law, and Decision by the Planning Commission	
K5				October 2008 Final Environmental Impact Statement re Waimanalo Gulch Sanitary Landfill Lateral Expansion by R.M. Towill Corporation (excerpts)	
K6				April 3, 2009 Letter from Abbey Seth Mayer to David K. Tanoue	
K7				June 22, 2009 Transcript of the Contested Case Hearing Before the Planning Commission (excerpts)	
K8				June 24, 2009 Transcript of the Contested Case Hearing Before the Planning Commission (excerpts)	
K9				July 1, 2009 Transcript of the Contested Case Hearing Before the Planning Commission (excerpts)	

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K10				July 2, 2009 Transcript of the Contested Case Hearing Before the Planning Commission (excerpts)	
K11				July 8, 2009 Transcript of the Contested Case Hearing Before the Planning Commission (excerpts)	
K12				August 4, 2009 Findings of Fact, Conclusions of Law, and Decision and Order by the Planning Commission	
K13				September 22, 2009 Letter from Abbey Seth Mayer to Ransom Plitz	
K14				September 24, 2009 Transcript of Proceedings Before the Land Use Commission (excerpts)	
K15				October 22, 2009 Order Adopting the City and County of Planning Commission's Findings of Fact, Conclusions of Law and Decision and Order with Modifications by the Land Use Commission	
K16				January 22, 2010 Status Report on Reducing and/or Continuing the Use of Waimanalo Gulch Sanitary Landfill (WGSL)	
K17				April 12, 2010 Appellee Land Use Commission's Answering Brief in *Department of Environmental Services v. Land Use Commission*, Civ. No. 09-102719-11 (Haw. 1st Cir. Ct.) (excerpts)	
K18				April 21, 2010 Status Report on Reducing and/or Continuing the Use of Waimanalo Gulch Sanitary Landfill (WGSL)	

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K19				Dwight E. Miller, PE Resume and Project Litigation and Expert Witness Experience	
K20				September 21, 2010 Order Affirming Land Use Commission's Order Adopting the City and County of Planning Commission's Findings of Fact, Conclusions of Law, and Decision and Order dated October 22, 2009 with Modifications in *Department of Environmental Services v. Land Use Commission*, Civ. No. 09-1-2719-11 (Haw. 1st Cir. Ct.)	
K21				October 19, 2010 Status Report on Reducing and/or Continuing the Use of Waimanalo Gulch Sanitary Landfill (WGSL)	
K22				January 2011 Fiscal & Economic Benefits Analysis Prepared for Ko Olina Resort Operators Association Prepared by CBRE Strategic Consulting	
K23				January 13, 2011 News Release re Landfill Flooding Affects Waters Between Ko Olina and Kahe Power Plant by the Department of Health	
K24				Proposed Revised Ewa Development Plan	
K25				January 18, 2011 Status Report on Reducing and/or Continuing the Use of Waimanalo Gulch Sanitary Landfill (WGSL)	
K26				January 20, 2011 Meeting No. 1 Materials for the Mayor's Advisory Committee on Landfill Site Selection	

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K27				January 20, 2011 Meeting No. 1 Group Memory by the Mayor's Advisory Committee on Landfill Site Selection	
K28				January 26, 2011 Letter from Ronald E. Boyle of AECOM Technical Services, Inc. to Waste Management of Hawaii	
K29				March 10, 2011 Meeting No. 3 Group Memory by Mayor's Advisory Committee on Landfill Site Selection	
K30				March 31, 2011 Meeting No. 4 Agenda and Materials for the Mayor's Advisory Committee on Landfill Site Selection	
K31				March 31, 2011 Meeting No. 4 Group Memory by the Mayor's Advisory Committee on Landfill Site Selection	
K32				April 18, 2011 Status Report on Reducing and/or Continuing the Use of Waimanalo Gulch Sanitary Landfill (WGSL)	
K33				May 12, 2011 Meeting No. 5 Group Memory by the Mayor's Advisory Committee on Landfill Site Selection	
K34				June 1, 2011 Letter from Timothy E. Steinberger to Vladimir P. Devine	
K35				July 18, 2011 Status Report on Reducing and/or Continuing the Use of Waimanalo Gulch Sanitary Landfill (WGSL)	

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K36				July 25, 2011 Letter from S.B. Teramoto of the Association of Apartment Owners of the Coconut Plantation in the Ko Olina Resort and Marina the Coconut Plantation to David K. Tanoue	
K37				August 9, 2011 Letter from Mario Beekes to David K. Tanoue	
K38				August 8, 2011 Letter from Ken Williams of Ko Olina Community Association to David K. Tanoue	
K39				August 10, 2011 Letter from Duke Hospodar of Resort Operations-LLC to David Tanoue	
K40				August 10, 2011 Letter from Mona Abadir of Honu Group Communications, LLC to David K. Tanoue	
K41				August 10, 2011 Letter from Ralph F. Harris of Ko Olina Fairways – Association of Apartment Owners to David K. Tanoue	
K42				August 11, 2011 Letter from Alan Nakamura of Ko Olina Golf Course to David K. Tanoue	
K43				August 12, 2011 Letter from Jo Jordan of the Hawai'i House of Representatives to the Department of Planning and Permitting	
K44				August 12, 2011 Letter from Joseph Yamaoka of Resort Management Company LLC to David K. Tanoue	
K45				August 13, 2011 Letter from Masaki Nagamine of Watabe Wedding Corporation to David K. Tanoue	

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K46				August 13, 2011 Letter from Colleen Hanabusa to David K. Tanoue	
K47				August 17, 2011 Letter from Leland Ribac for George S. Yamamoto of the Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34 to David K. Tanoue	
K48				December 7, 2007 Settlement Agreement between the Department of Health, Waste Management of Hawaii, Inc., and the City	
K49				December 15, 2010 Letter from Justin Lottig to Lene Ichinotsubo with Attachment	
K50				December 19, 2010 Incident Alert Form	
K51				December 21, 2010 Email from Justin Lottig to Thomas Miyashiro	
K52				December 23, 2010 Investigation Report by the Department of Health, Clean Water Branch	
K53				December 30, 2010 Email from Justin Lottig to Lene Ichinotsubo with Attachments	
K54				January 12, 2011 Email from Joanna Seto to Timothy Steinberger	
K55				January 12, 2011 Email from Timothy Steinberger to Joanna Seto with Attachment	
K56				January 12 and 13, 2011 Station Summary Palehua Hawaii	
K57				2003 and 2004 Articles regarding R.M. Towill	

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K58				December 1, 2003 Report of Mayor's Advisory Committee (Blue Ribbon Committee) on Landfill Site Selection without Attachments	
K59				January 31, 2006 Letter from Laurence K. Lau to Paul Burns and Eric Takamura with Enclosures	
K60				April 5, 2006 Letter from Deborah Jordan to Paul Burns and Eric S. Takamura with Enclosure	
K61				December 18, 2006 Article, Firms land contracts despite donation fines, Honolulu Advertiser, by Rick Daysog	
K62				March 12, 2008 Engineering Report for Landfill Expansion: Waimanalo Gulch Landfill, Ewa Beach, Oahu, Hawaii prepared by Geosyntec Consultants without Appendices	
K63				March 2009 Second 6-Month Report Status of Operations Waimanalo Gulch Sanitary Landfill and Actions Taken to Further Reduce Waste Volumes Disposed of at the Landfill	
K64				September 2009 Third 6-Month Report Status of Operations Waimanalo Gulch Sanitary Landfill and Actions Taken to Further Reduce Waste Volumes Disposed of at the Landfill.	
K65				May 12, 2010 Letter from Wilfred K. Nagamine to Joe Whelan	

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K66				May 13, 2010 Letter from Laurence K. Lau to Joe Whelan and Timothy Steinberger with Enclosures	
K67				September 15, 2010 Article, The super $6K club part II: Engineers vs. Educators: Abercrombie racks up big bucks as election day draws near, by Alan D. McNarie	
K68				March 31, 2011 City & County of Honolulu Mayor's Advisory Committee on Landfill Site Selection Agenda with Attachments	
K69				April 20, 1987 Findings of Fact, Conclusions of Law and Decision and Order by the Land Use Commission	
K70				October 31, 1989 Findings of Fact, Conclusions of Law and Decision and Order by the Land Use Commission	
K71				July 6, 2007 Planning Division Master Application Form (excerpts)	
K72				July 31, 2009 Meeting of the Planning Commission Transcripts (excerpts)	
K73				January 27, 2011 Article, No Paperwork to Back Up Safety of Medical Waste, by Adrienne LaFrance	
K74				November 21, 2011 Article, City Pays Landfill Operator $2.6M for Spill Cleanup, by Michael Levine, with Attachment	

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K75				January 25, 2011 Administrative Order on Consent for Removal Action by the Environmental Protection Agency and Waste Management of Hawaii, Inc.	
K76				May 25, 2005 Letter from Eric S. Takamura to Anthony Ching	
K77				February 2, 2011 Transcript of Proceedings Before the Land Use Commission	
K78				January 28, 2011 Article, Stormwater Released Into Ocean to Avoid Larger Landfill Catastrophe, by Michael Levine	
K79				November 30, 2011 Article, EPA Orders Additional Safeguards at Waimanalo Gulch Landfill, by Adrienne LaFrance	
K80				January 17, 2011 More Medical Waste Wash On West Shores 5 Days After Landfill Spill, by KITV.com	
K81				April 21, 2006 Transcript of Proceedings Before the Land Use Commission (excerpts)	
K82				September 5, 2008 Letter from Thomas E. Arizumi to Joseph Whelan and Eric Takamura	
K83				March 6, 2008 Transcript of Proceedings Before the Land Use Commission (excerpts)	
K84				March 7, 2008 Transcript of Proceedings Before the Land Use Commission (excerpts)	
K85				March 27, 2003 Hearing Transcript Before the Land Use Commission (excerpts)	

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K86				May 12, 2011 Final Criteria List for the Mayor's Advisory Committee on Landfill Site Selection	
K87				June 22, 2004 Letter from Frank J. Doyle to Anthony J.H. Ching	
K88				July 30, 2004 Letter from Frank J. Doyle to Anthony J.H. Ching	
K89				November 30, 2004 Letter from Frank J. Doyle to Anthony J.H. Ching	
K90				March 1, 2006 Letter from Anthony J.H. Ching to Eric S. Takamura	
K91				July 2010 First Annual Report, Status of Actions Taken to Satisfy the State Land Use Commission's Order Dated October 22, 2009 and Status of Operations Waimanalo Gulch Sanitary Landfill	
K92				June 1, 2011 Second Annual Report, Status of Actions Taken to Satisfy the State Land Use Commission's Order Dated October 22, 2009 and Status of Operations Waimanalo Gulch Sanitary Landfill	
K93				September 2008 6-Month Report Status of Operations, Waimanalo Gulch Sanitary Landfill and Actions Taken to Further Reduce Waste Volumes Disposed of at the Landfill (excerpts)	

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K94				October 22, 2009 Order Adopting the City & County of Honolulu Planning Commission's Findings of Fact, Conclusions of Law, and Decision and Order with Modifications by the Land Use Commission	
K95				September 23, 2009 Letter from Maeda C. Timson to the Land Use Commission	
K96				August 16, 2011 Draft Regular Meeting Minutes by the Nanakuli-Maili Neighborhood Board No. 36	
K97				May 2, 2011 Letter from Steven Chang to Joseph Whelan and Timothy Steinberger	
K98				December 1, 2011 Article, City Ordered to Improve Monitoring at Landfill, by Gary T. Kubota	
K99				January 2011 Articles from KHON, Hawaii News Now, Star Advertiser re Landfill spill	
K100				July 6, 2009 Declaration of Gary Y. Takeuchi with attached Environmental Impact Statement	
K101				October 25, 2006 Warning letter from Thomas E. Arizumi to Paul Burns & the Honorable Eric Takamura	
K102				Photographs of Ko Olina Lagoons	
K103				Photographs of Ko Olina Clean-Up Efforts (some photographs stamped with dates photographs were taken)	
K104				Photographs of Ko Olina Clean-Up Efforts – Before and After	

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K105				Photographs of Debris (photographs stamped with dates photographs were taken)	
K106				Photographs of Empty Beaches (photographs stamped with dates photographs were taken)	
K107				Photographs of Landfill Drainage	
K108				Photographs of Medical Waste (some photographs stamped with dates photographs were taken)	
K109				Photographs of Muddy Waters (photographs stamped with dates photographs were taken)	
K110				Videos of Ko Olina Clean-Up Efforts: K110a: January 20, 2011 Video K110b: January 20, 2011 Video K110c: January 14, 2011 Video K110d: January 14, 2011 Video K110e: January 18, 2011 Video K110f: January 18, 2011 Video K110g: January 20, 2011 Video K110h: January 14, 2011 Video	
K111				Photographs of Trash from the Landfill at Ko Olina (photographs stamped with dates photographs were taken)	
K112				Photographs of Views of the Landfill from Ko Olina (some photographs stamped with dates photographs were taken)	
K113				Photograph of a Warning Sign (photograph stamped with date photograph was taken)	
K114				Photograph of a Wedding (photograph stamped with date photograph was taken)	

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K115				August 12, 2011 Letter from Alex Duarte to David K. Tanoue	
K116				August 12, 2011 Letter from Lance Jeffery to David Tanoue	
K117				July 20, 2011 Letter from William and Sara Barnes to David Tanoue	
K118				August 1, 2011 Letter from Harriet Bloom to David Tanoue	
K119				August 15, 2011 Letter from James Handsel to David Tanoue	
K120				August 12, 2011 Email from Greg Nichols to David Tanoue	
K121				August 12, 2011 Letter from Chuck Krause to David Tanoue	
K122				August 11, 2011 Letter from Pieter and Claire van Wingerden to David Tanoue	
K123				November 29, 2011 Letter from Alexis Strauss to Timothy Steinberger and Joseph Whelan	
K124				2011 Filings in *Confederated Tribes and Bands of the Yamaka Nation v. United States Dep't of Agriculture*, No. CV-10-3050-EFS (E.D. Wash.)	
K125				May 3, 2007 Letter from Thomas E. Arizumi to Paul Burns and the Honorable Eric Takamura	
K126				February 24, 2006, 2006 State of the City Address, by Mufi Hanneman	
K127				Photographs of Stones at Waimanalo Gulch Sanitary Landfill (photographs stamped with dates photographs were taken)	

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K128				November 30, 2011 Petition to Close Waimanalo Gulch Landfill and Locate Landfill Operations Outside District 1	
K129				Photographs of Stones at Waimanalo Gulch Sanitary Landfill (photographs stamped with dates photographs were taken)	
K130				October 9, 2007 Book excerpt by Shad Kane, Waimanalo: Navigational Stones	
K131				March 17, 2011 PBSHawaii.org video on Insights, Where Should Garbage Go	
K132				1981 and 1983 Ewa Development Plans (excerpts)	
K133				News Videos Regarding the January 2011 Spill: K133a: January 14, 2011 KHON 2 Video K133b: January 15, 2011 KHON 2 Video K133c: January 22, 2011 KITV 4 Video	
K134				Letters from Ken Williams to Joe Whelan	
K135				April 13, 2008 E-mail String re Report of Debris Flying from City/County Vehicle	
K136				March 20, 2007 Letter from Edward R. Appleby to Todd Apo	
K137				June 14, 2010 Letter from Ken Williams to Joe Whelan re Foul Odors, dust and Noise	
K138				January 24, 2011 Waimanalo Gulch Landfill Spill Investigation Follow-Up	

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K139				April 12, 2011 Invoice from Ko Olina Operations, LLC to Ko Olina Community Association	
K140				January 18, 2011 E-mail String re Landfill Runoff into the Ocean	
K141				January 19, 2011 E-mail String re Procedure for Disposal of Medical Waste and Landfill Concerns	
K142				January 20, 2011 Email string re Procedure for Disposal of Medical Waste and Landfill Concerns	
K143				February 2, 2011Email string re: Landfill issue	
K144				October 2008 Integrated Solid Waste Management Plan Update Prepared for City & County of Honolulu, Hawaii (excerpts)	
K145				April 2000 New Systems Research for Refuse Disposal, prepared by R.M. Towill Corporation (excerpt)	
K146				Waimanalo Gulch Sanitary Landfill Design and Operation Review Technical Memorandum prepared by Parametrix and approved by Dwight Miller	
K147				Site Selection Evaluation Technical Memorandum prepared by Parametrix and approved by Dwight Miller	
K148				Waimanalo Gulch Landfill Alternatives Analysis Technical Memorandum prepared by Parametrix and approved by Dwight Miller	
K149				July 21, 2010 Status Report on Reducing and/or Continuing the Use of Waimanalo Gulch Sanitary Landfill (WGSL)	

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K150				February 2, 2011 Land Use Commission Status Report on Waimanalo Gulch Sanitary Landfill	
K151				April 2010 AECOM Surface Water Management Plan Waimanalo Gulch Sanitary Landfill Kapolei, O'ahu, Hawaii	
K152				November 8, 2011 Landfill Meeting 7 Group Memory	
K153				November 8, 2011 Landfill Meeting Handout, Landfill Site Selection Study GIS Assessment, Mayor's Advisory Committee on Landfill Site Selection 2011	
K154				Photos from the Department of Health Clean Water Branch (photographs stamped with dates photographs were taken)	
K155				March 14, 2008 Findings of Fact, Conclusions of Law, and Decision and Order Adopting with Modifications, the City and County of Honolulu Planning Commission's Recommendation to Approve Amendment to Special Use Permit by the Land Use Commission	
K156				December 29, 2011 Letter from Ken Williams to Joe Whelan	
K157				August 30, 2011 Letter from Timothy E. Steinberger to Ronald Ho and John Brock with enclosure	
K158				August 18, 2011 Letter from Justin H. Lottig to John Brock and Ronald Ho	

Exhibit No.	Offered for Identification	Received in Evidence	Withdrawn	Description	Date R=Returned D=Destroyed Other Comments
K159				March 11, 2005 Letter from Thomas E. Arizumi to Eric S. Takamura with Enclosures	
K160				September 28, 2011 Landfill Gas Extraction Assessment by Environmental Information Logistics, LLC (excerpt)	
K161				Planning Division Master Application Form with Attachments (excerpt)	

DATED: Honolulu, Hawai'i, January 5, 2012.

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WAIMANALO GULCH SANITARY LANDFILL

LANDFILL GAS EXTRACTION ASSESSMENT

September 28, 2011

Prepared for:

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EXHIBIT K160

Table of Contents

1. INTRODUCTION

In August 2011, Waste Management of Hawaii, Inc (WMH) identified significant irregularities with the landfill gas data that had purportedly been collected and recorded by its landfill gas technician at the Waimanalo Gulch Sanitary Landfill (WGSL). Further investigation revealed that some wellhead gas parameter measurements were not actually taken and that data had been fabricated instead of collected through verifiable measurements. Based on interviews conducted during the investigation, it appears that the failure to collect data and the fabrication of replacement data began in mid-2010 and continued until August 2011 when the failure was investigated and identified. The failure to collect data and the manual entry of fabricated data into Waste Management's Landfill Gas Management System (LGMS) database is a clear violation of the company's written policy and procedures.

As a result of the discovery and initial investigation of the fabricated data, WMH has undertaken a detailed assessment of (1) the current status of the wellfield and the gas collection and control system (GCCS) to determine whether the fabricated data has concealed adverse changes in the wellfield, and (2) the past status of the wellfield based on data that conservatively excludes all data that was manually entered into LGMS by the technician. The results of this investigation are presented in this report.

Based on the analysis presented here, Environmental Information Logistics, LLC (EIL) concludes that the wellfield and GCCS at WGSL is generally performing within the expected range of monitored parameters at the facility and that there is no evidence that the wellfield has undergone any adverse changes during periods with fabricated data. The analysis also concludes that the absence of some historical wellfield data, when compared to available wellfield data, does not significantly alter the results of this evaluation: there is no indication of any adverse changes in the wellfield, including no evidence of a past subsurface oxidation event (SOE).

Existing landfill gas extraction wells were sampled between August 24th and September 2nd, 2011 by EIL personnel with additional sampling conducted from September 6th to September 14th, 2011 by experienced WM landfill gas system operations and maintenance (O&M) personnel from California. This sampling data formed the basis for this assessment report.

WMH uses a Landtec GEM2000™ analyzer (GEM) to collect, store and upload to LGMS, gas temperature, gas quality, pressures, and gas flow from each landfill gas extraction well. An Agilent Micro3000™ gas chromatograph (GC) fitted with columns to allow for the measurement of methane, CO_2, oxygen, nitrogen, hydrogen and carbon monoxide was also used to analyze grab samples from each well. The normalized results are included in Appendix A. The data collected from the GEM and GC was analyzed to establish statistical parameters useful in describing the state of landfill gas generation and GCCS operation at the site. Thermometers were replaced at all wellheads to ensure that temperature measurements were accurate. In addition, historical norms were established based on validated data within the LGMS database and compared to the August and September, 2011 sampling events to provide trend information useful in evaluating long-term changes or trends in landfill gas generation and GCCS operation at the site.

In order to enhance data integrity, and help prevent this type of issue in the future, several changes to LGMS are underway with an expected deployment date by September 29, 2011. First, a system report is being modified to allow users to easily determine which records are uploaded directly from a monitoring instrument and which are manually entered. Second, the ability for users with "Technician" level access to manually enter data is being restricted as described below for each device type.

- Wells: Manual entry of primary composition and physical parameters normally measured by the GEM monitoring instrument will not be allowed by users with "Technician" level access. These users will retain the ability to manually enter comments and other gas concentrations not normally measured with a GEM instrument.

- Probes: Manual entry of primary composition and physical parameters normally measured by the GEM will no longer be allowed by users with "Technician" level access. These users will retain the ability to manually enter comments and other gas concentrations not normally measured with a GEM instrument.

- Sample Ports: Manual entry of primary composition and energy parameters normally measured by the GEM will no longer be allowed by users with "Technician" level access. These users will retain the ability to manually enter physical parameters, comments, and other gas concentrations.

WMH has also developed a draft "Monitoring and Contingency Plan for Elevated Temperatures and Subsurface Oxidation Conditions", herein referred to as the "draft Contingency Plan", that is being used to manage landfill gas extraction at the site. This draft plan establishes procedures for monitoring and operation of the GCCS in the event of elevated temperatures or evidence of a subsurface oxidation event (SOE). While this plan has not yet been finalized and approved, WMH is nonetheless implementing the procedures detailed in the Contingency Plan.

Research conducted by Dr. Morton Barlaz, of North Carolina State University in 2008 (submitted to US EPA in a report titled "Characterization of Biological Activity in Refuse Samples Excavated from the Waimanalo Gulch Sanitary Landfill") is incorporated herein by reference. This research provides a basis upon which to draw conclusions regarding gas generation at the site at elevated temperatures.

2. ANALYSIS OF THE STATE OF LANDFILL GAS GENERATION (Sept. 2011)

After discovery of the missing and fabricated data in August, 2011, WMH tasked EIL and WM's California landfill gas technician with collecting and then statistically analyzing validated landfill gas data to determine the current state of landfill gas generation and GCCS operations. The results and analysis of the August and September 2011 data are described in this section. The statistical data forming the basis of this analysis is presented in tables in Appendix B.

Based on the analysis presented here, the wellfield and GCCS at WGSL is generally performing within the expected range of monitored parameters and that there is no evidence of adverse changes in the wellfield.

2.1. Oxygen Evaluation

As recognized in the federal New Source Performance Standards (NSPS) for municipal solid waste landfills (40 CFR Part 60, Subpart WWW), a leading indicator of adverse conditions within a landfill is oxygen, for which the NSPS sets 5.0% as the maximum value [40 CFR § 60.753(c)]. The maximum oxygen concentration measured using the GEM at the site during this assessment was 0.3% by volume with an average of 0.0% (this data was excluded from the tables in Appendix B because it was predominantly zero and did not provide any statistically relevant information necessary for this analysis). SOE conditions require oxygen introduced into the landfill through ambient air intrusion. Since oxygen can be consumed during a SOE, each extraction well was sampled and analyzed for nitrogen to establish the potential or existence of this condition. The average nitrogen concentration was 3.5% which is significantly below the landfill NSPS threshold of 20%.

The data demonstrates that there is no significant oxygen or nitrogen present within the landfill waste mass, nor do the conditions present a risk of an SOE. Further, the lack of air intrusion demonstrates that no significant GCCS operational impacts have occurred at the site. WMH's installation of a vacuum controlled variable frequency drive (VFD) system on the flare system blowers in 2007 ensures that a constant vacuum is applied to the gas piping system. This system ensures stable operation of the extraction wells minimizing the potential for air intrusion.

2.2. Methane to CO2 Ratio Evaluation

Under typical anaerobic conditions, methane/carbon dioxide (CH_4/CO_2) ratios are above 1. The CH_4/CO_2 ratios observed at the site range from 0.4 to 1.5 with 60% of the wells having a ratio greater than 1 (Figure 1) and accounting for approximately 78.3% of the total collected gas from the site (Figure 2). This suggests that the biological and chemical reactions occurring within the waste are predominately anaerobic.

Research conducted by Dr. Morton Barlaz has demonstrated that, at the elevated gas temperatures found at WGSL, significant quantities of hydrogen and carbon monoxide are formed through naturally occurring biological and chemical processes and he and others have noted that the methanogenic process can be reduced by many factors including high temperatures. Further, carbohydrate fermentation will yield CO_2 and hydrogen that will accumulate in the landfill if methanogenisis is reduced producing ratios of CH_4 to CO_2 less than 1.

Figure 1 - WGSL Methane/CO2 Ratio Frequency

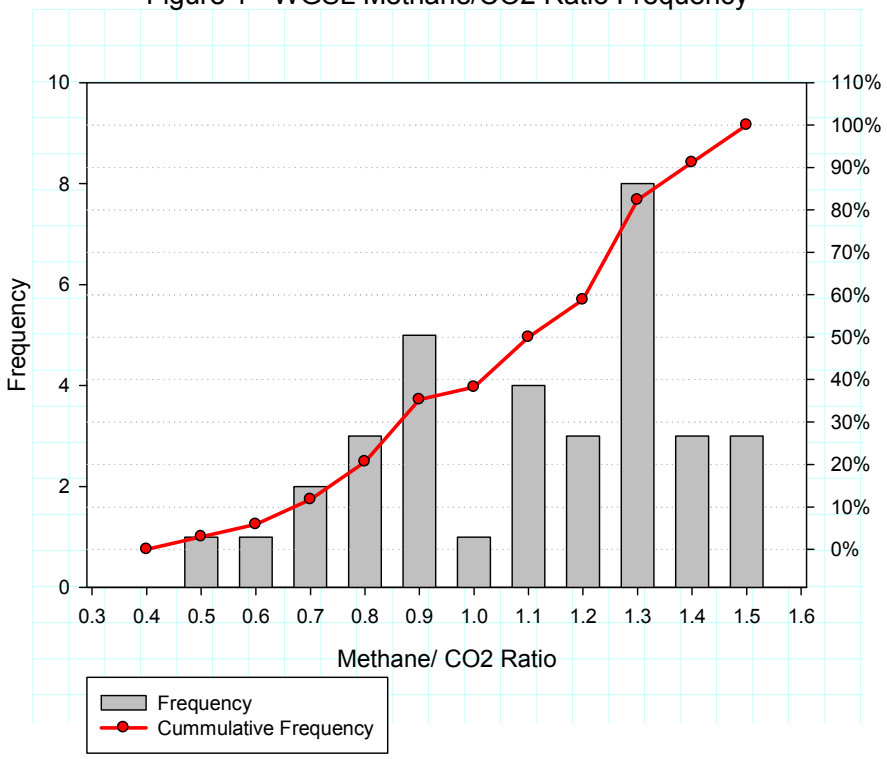


Figure 2 - Cummulative Well
Flow Comparison Based on CH4/CO2 Ratio

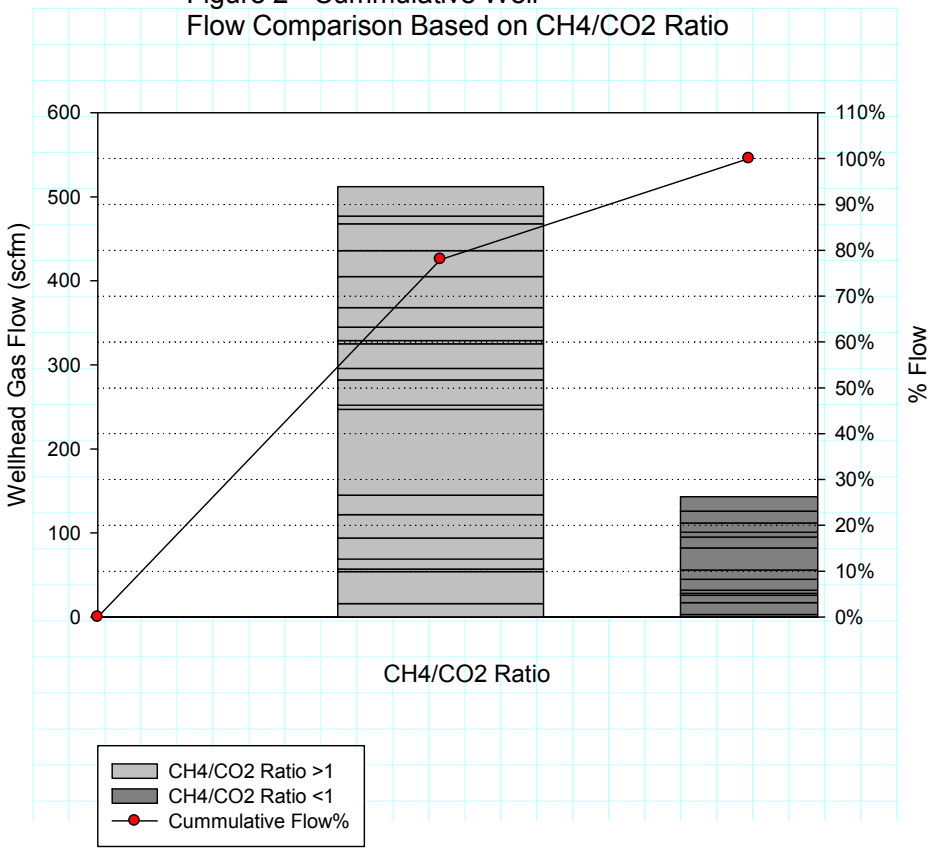


EXHIBIT K160

Of the 21 wells with CH_4/CO_2 ratios greater than 1, eleven (11) had methane concentrations above 50% (a Waste Management Best Management Practice target level), accounting for 43.8% of the average total collected gas flow (Table 1).

Table 1 – Extraction Wells > 50% Methane [1]

Statistical Analysis	Average Methane (%)	Average CH_4/CO_2 Ratio	Average Temperature (°F)	Average Flow (scfm)
GW-27	50.4	1.1	140	10
GW-38	50.6	1.2	144	16
GW-8	52.1	1.2	143	38
GW-46	52.2	1.2	130	3
GW-25	53.0	1.3	130	12
GW-35	54.4	1.3	146	25
GW-43	55.4	1.3	132	28
GW-36	56.5	1.4	147	23
GW-40	57.2	1.4	136	102
GW-39	57.4	1.4	120	5
GW-42	58.0	1.5	128	30
Well Average	54.3	1.3	136	27

[1] *Table created from data collected during August 24th and September 14th, 2011. Averages are statistical means of that data.*

The average gas flow from the wells listed in Table 1 is 27 scfm; a rate that can be used to describe good stable methanogenisis considering methane above 50% and a CH_4 to CO_2 ratio greater than 1. None of the wells in Table 1 show any indication of adverse conditions.

Even though methane concentrations were below 50% for some wells, the CH_4/CO_2 ratio still remained above 1 (Table 2).

Table 2 – Extraction Wells < 50% Methane and > 1:1 CH_4/CO_2 Ratios

Statistical Analysis	Average Methane (%)	Average CH_4/CO_2 Ratio	Average Temperature (°F)	Average Flow (scfm)
GW-12	42.3	1.0	152	14
GW-44 [2]	41.8	1.1	173	29
GW-7 [3]	37.9	1.1	169	4
GW-31	47.4	1.1	159	16
GW-14	47.7	1.2	145	23
GW-29	48.2	1.2	149	37
GW-37	46.5	1.2	141	31
GW-34	46.3	1.2	134	32
GW-26	47.5	1.2	134	9
GW-41	46.1	1.3	134	35
Well Average	45.2	1.2	149	23

[1] *Table created from data collected during August 24th and September 14th, 2011. Averages are statistical means of that data.*

[2] *The uncharacteristically high gas temperature compared to the CH_4/CO_2 ratio may be the result of gas transport pathways from outside of this temperature zone bringing in gas generated from well established methanogenic microbial populations.*

[3] *Gas temperatures have cooled from historical highs.*

The average gas flow from the wells listed in Table 2 is 23 scfm; a slightly slower rate than the extraction wells above 50% shown in Table 1. Despite lower methane concentrations, the CH_4 to CO_2 ratio is still greater than 1 (albeit slightly lower than those found in Table 1). This is consistent with Dr. Barlaz's research indicating an increase in temperature (on average 10 degrees F above those found in wells in Table 1) starts to reduce methanogenisis. However, none of the wells in Table 2 show any indication of adverse conditions.

Dr. Barlaz's research demonstrated that as temperatures increase, methanogenic microbial populations decline yielding lower CH_4/CO_2 ratios and reduced gas flow rates as fermentation processes exceed methanogenisis allowing for accumulation of CO2 and hydrogen as noted in Table 3.

Table 3 – Extraction Wells < 50% Methane and < 1 CH_4/CO_2 Ratios [1]

Statistical Analysis	Average Methane (%)	Average CH_4/CO_2 Ratio	Average Temperature (°F)	Average Flow (scfm)	Hydrogen[2] (%)
GW-32	21.9	0.4	172	3	26.7
GW-24	29.5	0.6	165	14	22.5
GW-49	21.2	0.6	170	9	18.2
GW-13	28.6	0.7	156	2	19.9
GW-2	31.3	0.7	168	4	18.3
GW-9	35.7	0.7	164	13	21.3
GW-6	31.8	0.8	158	11	15.0
GW-30	35.7	0.8	166	26	18.3
GW-15	34.9	0.8	152	13	17.3
GW-11	30.5	0.9	146	6	5.1
GW-33	39.9	0.9	160	11	19.0
GW-47	37.6	0.9	167	14	15.9
GW-48	37.6	0.9	169	17	20.1
Well Average	32.0	0.8	163	11	18.3

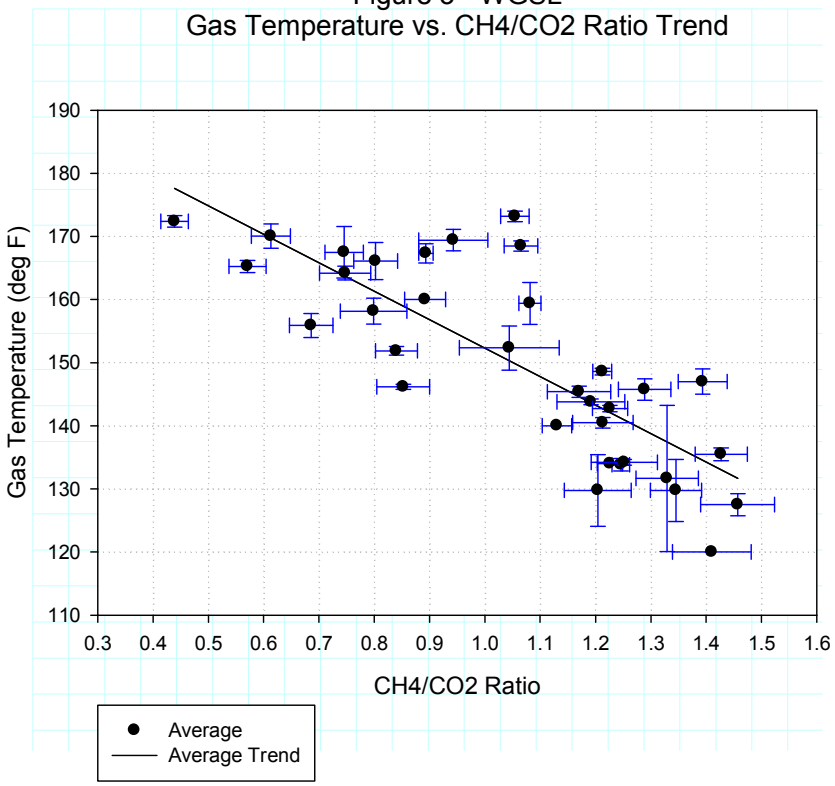
[1] *Table created from data collected during August 24th and September 14th, 2011. Averages are statistical means of that data.*

[2] *Hydrogen concentrations for each well were determined by GC on 9/14 and 9/15, 2011 (Appendix A).*

Gas temperatures are elevated approximately 10 °F on average above those wells listed in Table 2 and 20 °F above those wells listed in Table 1. Methane concentrations declined as did the CH_4/CO_2 ratios all of which are consistent with Dr. Barlaz's WGSL research.

Figure 3 illustrates the direct relationship between CH_4/CO_2 ratio and gas temperature.

Figure 3 - WGSL
Gas Temperature vs. CH4/CO2 Ratio Trend



Blue bars represent 95% confidence interval about data mean for each parameter.

Dr. Barlaz indicated in his research that thermophilic methanogens would be expected to have a temperature optimum of 149 °F. This temperature corresponds to a CH_4/CO_2 ratio of approximately 1.1. As temperatures rise, methane production declines which alters the CH_4/CO_2 ratio as more CO_2 and hydrogen are produced. The data collected during this assessment is consistent with prior research and shows that there is no evidence of a subsurface oxidation event (SOE) which would have exponential temperature increases at lower methane to CO_2 ratios.

2.3. Gas Temperature Evaluation

Average gas temperatures for all gas extraction wells at WGSL ranged from 120 to 173 °F with a standard deviation of 15.2 °F. The average temperature for all wells was 150 °F.

Under the draft Contingency Plan (once approved) the following wells will be subject to enhanced monitoring because of their elevated temperatures: GW-2, GW-7, GW-30, GW-32, GW-44, GW-47, GW-48, and GW-49. Each of these wells exhibit temperatures considered as Level 1 (166 °F – 175 °F). Depending on when the draft Contingency Plan is approved, the monitoring established for this level will be formally implemented, most likely in the 4th quarter of 2011.

The draft Contingency Plan also establishes monitoring and operational procedures for wells that exhibit monthly (or from previous monitoring event) gas temperature increases greater than 5 °F or a two month increase greater than 10 °F (Table 4). Table 4 lists the 14 wells that triggered this provision.

Although the wells in Table 4 show a temperature rise from historical averages, the temperatures are not substantially higher. The data shows that temperatures rose no more than 10°F above the 95% confidence interval of the historical mean. Further, the thermometers used at each well (which were all replaced for this assessment) have a scale resolution of 2 °F which reduces the significance of small changes. In addition, the recent placement of waste and stockpiled soil in much of the landfill area surrounding these wells likely reduced heat dissipation through the landfill surface because of the insulating properties of municipal solid waste allowing for temperature increases.

Table 4 – Gas Temperature Changes > 5 °F

ID	Historical Average (°F)	Aug./Sept. 2011 Average (°F)	Change (°F)	Change Above Historical 95% Confidence Interval (°F)	Hydrogen[1] (%)	Nitrogen[1] (%)	Aug./Sept. 2011 Average CO (ppmv)[2]
GW -15	146	152	6	5	17.3	0.2	45
GW- 2	162	168	6	3	18.3	9.9	175
GW -31	153	159	6	5	8.9	0.0	32
GW -34	128	134	6	3	0.0	7.9	0
GW -29	141	149	7	7	0.0	5.8	9
GW -41	127	134	7	6	0.0	11.8	10
GW-43	124	132	8	7	0.0	0.0	0
GW- 38	136	144	8	7	1.9	0.0	40
GW- 30	158	166	8	4	18.3	0.7	117
GW- 24	157	165	8	7	22.5	0.0	208
GW-32	164	172	8	7	26.7	0.0	171
GW-42	118	128	10	8	0.0	0.0	1
GW-33	149	160	12	7	19.0	0.4	206
GW -40	122	136	13	9	0.0	0.0	3

[1] *Hydrogen and nitrogen concentrations for each well were determined by GC on 9/14 and 9/15, 2011 (Appendix A).*
[2] *The average is based on Draeger and GC data.*

WM implemented the draft Contingency Plan for the wells listed in Table 4 regardless and found no evidence of an SOE. The draft Contingency Plan actions included well inspections, gas flow reduction (if necessary/possible), thermometer replacement and gas chromatograph analysis for nitrogen, hydrogen and CO concentration. Nitrogen concentrations were significantly less than the NSPS threshold (20%) and hydrogen as well as CO was observed in wells with higher temperatures consistent with WGSL research by Dr. Barlaz. In fact, the highest measured CO concentrations were at wells with zero nitrogen indicating no ambient air intrusion into the waste mass surrounding those wells. Lastly, no other SOE indicators were observed.

Only three draft Contingency Plan Level 1 wells had temperature increases greater than 5 °F: GW-2, GW-30 and GW-32. As explained below, none of these wells exhibit conditions above what would be considered normal. No evidence of an SOE exists.

GW-2: Average well pressure is at -0.3 inches water column ("w.c.). This vacuum is considered minimal for this well so no flow reduction is possible. CO measurements were performed by Draeger tubes and showed 130 and 150 ppm CO. A GC sample showed 225 ppm CO. Zero oxygen was measured and only 9.9% nitrogen (less than the 20% landfill NSPS

threshold) indicating that air intrusion is minimal. Further, the temperature rise is only slightly outside of historical norms and it is not unexpected that the rate of temperature dissipation will be reduced because of the insulating effect of the recently placed waste in this area. Hydrogen concentrations are as expected given the temperature. Data does not indicate a SOE.

GW-30: Well pressure is at -0.3 "w.c. Attempts to reduce gas flow were made, but no substantial change was observed. CO measurements were performed by Draeger tubes and showed 130 and 80 ppm. A GC sample showed 142 ppm. Zero oxygen was measured and only 0.8% nitrogen indicating that there is no air intrusion. Further, the temperature rise is only slightly outside of historical norms and it is not unexpected that the rate of temperature dissipation will be reduced because of the insulating effect of the recently placed waste in this area. Hydrogen concentrations are as expected given the temperature. Data does not indicate a SOE.

GW-32: Well pressure is at -0.3 "w.c. Attempts to reduce gas flow were made, but no substantial change was observed (gas flow averages less than 5 cfm). CO measurements were performed by Draeger tubes and showed 150 and 140 ppm. A GC sample showed 221 ppm. Zero oxygen was measured and only 0.8% nitrogen indicating that there is no air intrusion. Further, the temperature rise is only slightly outside of historical norms and it is not unexpected that the rate of temperature dissipation will be reduced because of the insulating effect of the recently placed waste in this area. Hydrogen concentrations are as expected given the temperature. Data does not indicate a SOE.

Therefore, conditions at these wells have been confirmed to be normal for WGSL.

Table 5 lists the results of additional monitoring undertaken to evaluate the observed temperature changes for wells that are not considered as Level 1 in the draft Contingency Plan.

Table 5 – Gas Temperature Changes > 5 °F and Level 1 Monitoring Not Triggered [1]

Device ID	Average CO (ppmv)[2]	Average Methane (%)	Average Pressure ("w.c.)	Average CH4/CO2	Hydrogen[3] (%)	Nitrogen[3] (%)
GW-24	208	29.5	-0.7	0.6	22.5	0.0
GW-15	45	34.9	-0.2	0.8	17.3	0.2
GW-33	206	39.9	-0.7	0.9	19.0	0.4
GW-41	10	46.1	-6.6	1.3	0.0	11.8
GW-34	0	46.3	-18.6	1.2	0.0	7.9
GW-31	32	47.4	-0.6	1.1	8.9	0.0
GW-29	9	48.2	-4.9	1.2	0.0	5.8
GW-38	40	50.6	-3.7	1.2	1.9	0.0
GW-43	0	55.4	-1.7	1.3	0.0	0.0
GW-40	3	57.2	-23.5	1.4	0.0	0.0
GW-42	1	58.0	-28.6	1.5	0.0	0.0

[1] *Table created from data collected during August 24th and September 14th, 2011. Averages are statistical means of that data.*

[2] *The average is based on Draeger and GC data collected during August 24th and September 14th, 2011.*

[3] *Hydrogen and nitrogen concentrations for each well were determined by gas chromatograph (GC) on 9/14 and 9/15, 2011.*

Methane to CO_2 ratios for all but 3 wells in Table 5 (GW-15, GW-24, and GW-33) were greater than 1. Similarly, hydrogen was measured at greater than 15% for those wells. However, zero oxygen was measured and no significant nitrogen (much less than the 20% NSPS threshold) indicating no air intrusion is occurring. Further, the temperature rises for these 3 wells are only slightly outside of historical norms (approximately 7 °F). As temperatures increase, methanogenic microbial populations decline yielding lower CH_4/CO_2 ratios and reduced gas flow rates as fermentation processes exceed methanogenisis allowing for accumulation of CO2 and hydrogen. Similarly, Dr. Barlaz has shown at WGSL that CO concentrations increase with higher gas temperatures. These wells have CO concentrations consistent with the observed temperature and elevated hydrogen content. Therefore, the data does not indicate a SOE.

For the remaining wells in Table 5, zero oxygen was measured at each well and nitrogen was measured at 0 or close to 0 in all but 3 wells (GW-29, GW-34, and GW-41). The measured nitrogen concentration in GW-29, GW-34, and GW-41was much less than the threshold established by EPA in the landfill NSPS. Further, the lack of hydrogen in any well and CH_4/CO_2 ratios greater than 1 indicate stable methanogenisis. Therefore, conditions at these wells have been confirmed to be normal for WGSL.

2.4. Balance Gas Evaluation

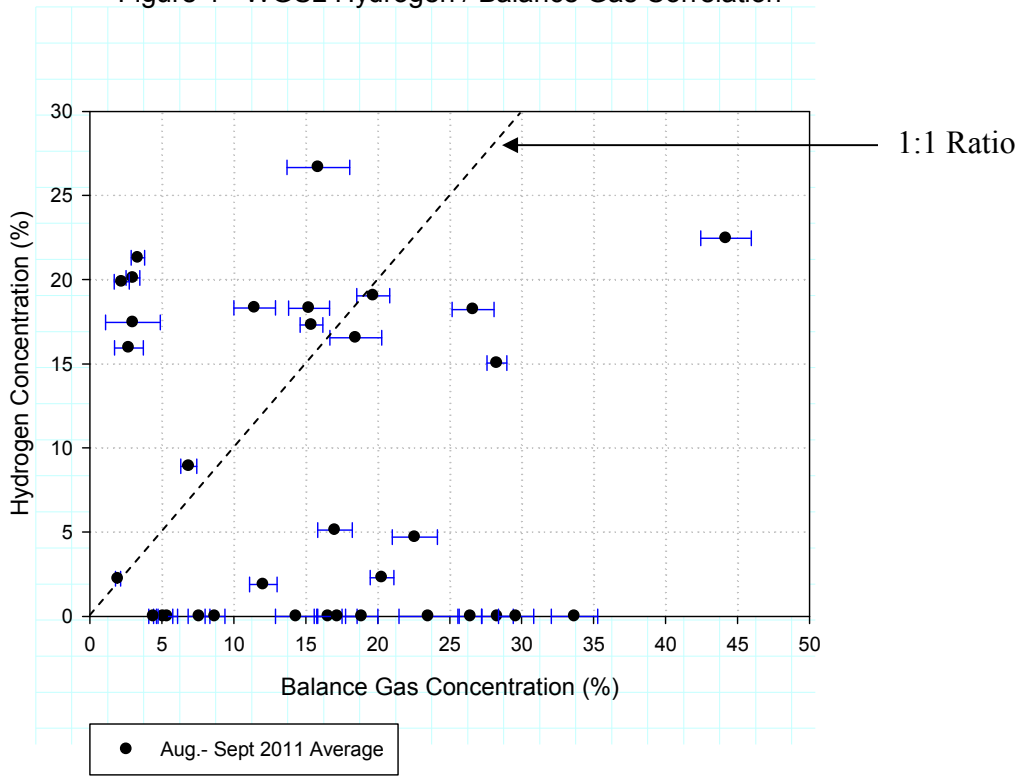
Balance gas consists of nitrogen, hydrogen, water vapor and trace gases found within landfill gas. During this assessment it ranged from 2.0% to 44.2% with an average of 15.6%. Data collected and analyzed by GC at the site on 9/14 and 9/15, 2011, illustrates that many extraction wells exhibit greater than 5% hydrogen and that it makes up the bulk of the balance gas concentration (Figure 4) in some wells. These results are similar to prior studies at the facility.

Wells falling above the 1:1 hydrogen to balance gas ratio have the preponderance of the balance gas as hydrogen while wells falling below have the bulk of the balance gas comprised of the other compounds noted above i.e. nitrogen or water vapor. This relationship is important because the field meter used at WGSL (as well as a majority of the landfills in the US) does not differentiate balance gas into its component parts. Therefore, understanding whether balance gas is comprised of hydrogen or the other compounds will assist in establishing if the GCCS are normal for the site.

Figure 5 illustrates the relationship between hydrogen and nitrogen at WGSL. There is no significant correlation suggesting two independent processes at work. Indeed, Dr. Barlaz has shown that hydrogen formation is the result of elevated temperature impacts on methanogenic microbes while nitrogen comes from ambient air intrusion into the waste mass. While both process impact methanogenisis (methanogens are anaerobic), only excessive nitrogen concentrations would indicate that oxygen has entered the landfill and as such provided one of the key components required to fuel a SOE.

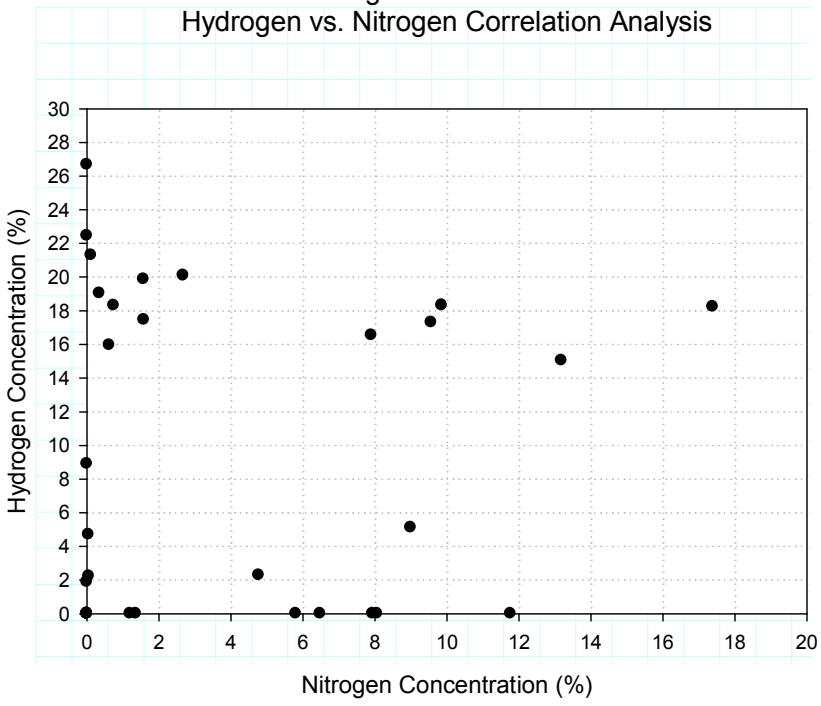
Figure 5 illustrates the fact that all of the extraction wells have nitrogen concentrations that are less than the 20% nitrogen threshold established within the landfill NSPS; evidence that conditions are <u>not</u> optimum for a SOE.

Figure 4 - WGSL Hydrogen / Balance Gas Correlation



Blue bar represent 95% confidence interval about mean.

Figure 5 - WGSL
Hydrogen vs. Nitrogen Correlation Analysis



The “draft Contingency Plan” being developed by WM is being implemented for the wells listed in Table 6 because of their balance gas concentration.

Table 6 – Balance Gas > 10% and hydrogen <5% (non-hydrogen producing well)[1,2]

ID	Average Balance Gas (%)	Nitrogen[3] (%)	Hydrogen[3] (%)	Average CH_4/CO_2 Ratio	Average Applied Pressure ("w.c.)
GW-14	11.5	0.0	4.7	1.2	-1.6
GW-29	12.1	5.8	0.0	1.2	-4.9
GW-26	14.3	8.1	0.0	1.3	-0.4
GW-37	15.2	1.4	0.0	1.2	-1.3
GW-34	15.9	7.9	0.0	1.2	-18.6
GW-41	17.0	11.8	0.0	1.3	-6.8
GW-12	17.2	4.8	2.3	1.0	-0.3
GW-11	33.7	9.0	5.1	0.9	-0.2

[1] *Table created from data collected during August 24th and September 14th, 2011. Averages are statistical means of that data.*

[2] *Nitrogen and hydrogen may not add up to equal balance gas because water vapor, another component of balance gas, has not been measured. Further, the sum of nitrogen and hydrogen may be more or less than balance gas because they result from a single discrete measurement that is being compared to an average balance gas concentration measured over the period August 24th to September 14th, 2011.*

[3] *Hydrogen and nitrogen concentrations for each well were determined by gas chromatograph (GC) on 9/14 and 9/15, 2011.*

In accordance with the draft Contingency Plan, vacuum was reduced at each well listed in Table 6 where possible (several wells are already at the lowest vacuum without going positive with the pressure that can be maintained specific to each well). However, the CH_4/CO_2 ratio was near or above 1.0 in the wells. As noted previously, Dr. Barlaz's research indicates that CH_4/CO_2 ratios greater than 1.0 are strong indicators of stable methanogenisis, especially in light of the low hydrogen content. The methanogenic microbes are consuming the hydrogen formed during the fermentation phase causing a rise in methane formation. In addition, zero oxygen was measured and no significant nitrogen (less than the 20% landfill NSPS threshold) indicating that there is no air intrusion. Therefore, although WM has implemented the draft Contingency Plan for these wells, there is no SOE occurring and conditions are not conducive to a SOE starting.

Table 7 shows the additional wells WM is implementing the draft Contingency Plan on because balance gas concentrations are above 10%, however, hydrogen is above 5%.

Table 7 – Balance Gas > 10% and hydrogen >5% (hydrogen producing wells)[1,2]

ID	Average Balance Gas (%)	Nitrogen[3] (%)	Hydrogen[3] (%)	Average Applied Pressure ("w.c.)
GW-33	15.4	0.4	19.0	-0.7
GW-9	16.6	0.1	21.3	-0.9
GW-44	18.5	1.6	17.5	-0.4
GW-24	18.9	0.0	22.5	-0.7
GW-30	19.7	0.7	18.3	-0.3

Table 7 – Balance Gas > 10% and hydrogen >5% (hydrogen producing wells)[1,2]

ID	Average Balance Gas (%)	Nitrogen[3] (%)	Hydrogen[3] (%)	Average Applied Pressure ("w.c.)
GW-47	20.3	0.6	15.9	-0.6
GW-48	22.6	2.7	20.1	-0.8
GW-15	23.5	0.2	17.3	-0.2
GW-7	26.5	7.9	16.5	-0.5
GW-2	26.6	9.9	18.3	-0.3
GW-32	28.3	0.0	26.7	-0.9
GW-6	28.3	13.2	15.0	-0.2
GW-13	29.6	1.6	19.9	-0.2
GW-49	44.2	17.4	18.2	-0.8

[1] *Table created from data collected during August 24th and September 14th, 2011. Averages are statistical means of that data.*

[2] *Nitrogen and hydrogen may not add up to equal balance gas because water vapor, another component of balance gas, has not been measured. Further, the sum of nitrogen and hydrogen may be more or less than balance gas because they result from a single discrete measurement that is being compared to an average balance gas concentration measured over the period August 24th to September 14th, 2011.*

[3] *Hydrogen and nitrogen concentrations for each well were determined by gas chromatograph (GC) on 9/14 and 9/15, 2011.*

In accordance with the draft Contingency Plan, vacuum was reduced at each well in Table 7 where possible (many wells are already at the lowest vacuum that can be applied without going positive with the pressure that can be maintained specific to each well). With the exception of GW-6 and GW-49, nitrogen was less than 10%. Zero oxygen was measured at each well indicating (considering the lack of any significant nitrogen in the well) no substantial air intrusion that would be adverse to the site. Wells GW-6 and GW-49 had nitrogen concentrations of 13.2% and 17.4% respectively, which is less than the 20% landfill NSPS threshold and despite exceeding WM's balance gas trigger threshold for follow-up monitoring,

GW-49 was temporarily brought off line because of its temperature (170 °F) and a Draeger tube CO concentration measurement of 650 ppm, however, follow-up GC analysis did not confirm this level. Stain tubes are impacted by gas temperature and although a cooling tube is used at the site to minimize this impact, it is not unreasonable to expect a large variation in stain tube results because of the elevated temperatures. Stain tube results for this well have ranged from 150 ppm to 650 ppm with the GC confirmation results conducted on 9/14 and 9/15, 2011 averaging 283 ppm. EIL does not believe that the Draeger tube sample outlier is significant and has dropped it from this analysis. GW-6 had CO concentrations of 95 ppm (via GC). Neither of the GC results for GW-49 and GW-6 raises a concern given the research by Dr. Barlaz and the results of other samples collected and analyzed by a third party laboratory in 2007 and 2008. Further, the presence of hydrogen strongly correlates with the formation carbon monoxide (Figure 6).

2.5. Analysis of Trace Carbon Monoxide

Table 8 illustrates the comparative results of historical sampling and the recent sampling conducted by Draeger and GC between August 24th and September 14th, 2011. All of the wells were within two standard deviations of the historical mean with the exception of GW-2, GW-9, GW-24, GW-30 and GW-33.

The current average temperature for these five wells is listed in Table 9:

Table 9 – Average Temperature Comparison[1]

ID	Average Gas Temperature	Degrees Above Historical 95%Confidence Interval	Nitrogen (%)[2]	Average CH_4/ CO_2 Ratio	Historical Average
GW-2	168 °F	3 °F	9.9	0.8	0.7
GW-9	164 °F	2 °F	0.1	0.8	0.6
GW-24	165 °F	7 °F	0.0	0.6	0.6
GW-30	166 °F	4 °F	0.7	0.8	0.9
GW-33	160 °F	7 °F	0.4	0.9	0.9

[1] *Table created from data collected during August 24th and September 14th, 2011. Averages are statistical means of that data.*

[2] *Nitrogen concentrations for each well were determined by gas chromatograph (GC) on 9/14 and 9/15, 2011.*

The temperature rise above the historical 95% confidence interval for these wells is less than 7 °F. Further, the thermometers used at each well (which, as noted previously, were all replaced for this assessment) have a scale resolution of 2 °F which reduces the significance of small changes.

Further, current oxygen concentrations for these wells are zero with nitrogen concentrations indicating no significant air intrusion (much less than the 20% landfill NSPS threshold).

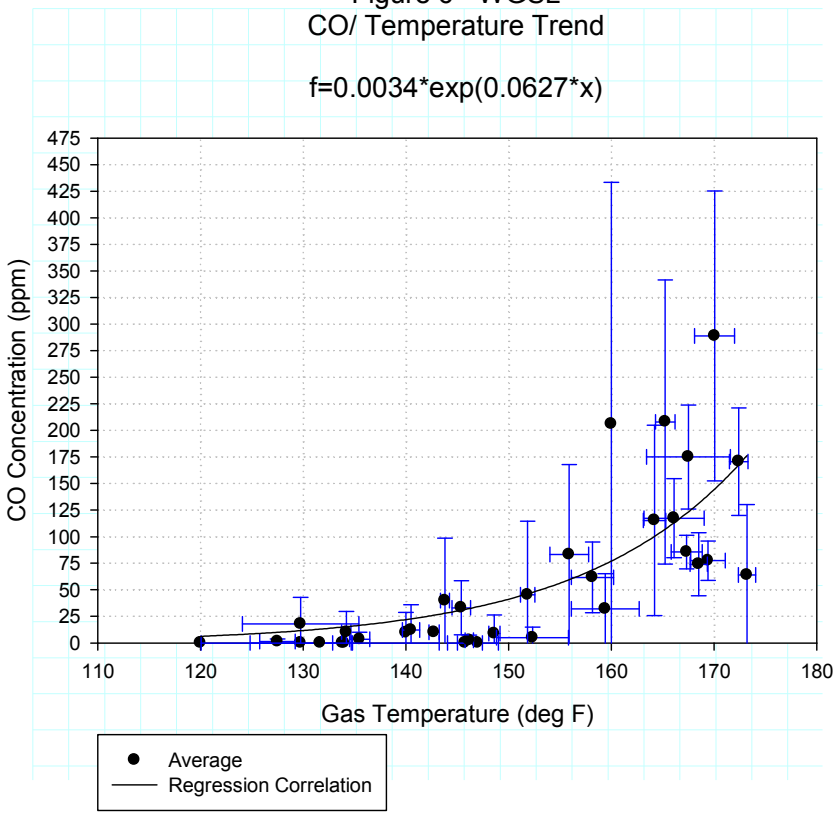
In addition, CH_4/ CO_2 ratios for GW-2 and GW-9 are higher than historical norms with no change in ratios observed at GW-24 or GW- 33 further confirming that no significant changes have occurred at these wells. GW-30 had a small (0.1) change, but nothing that would foster conditions sufficient to support a SOE.

Therefore, although gas temperatures are elevated compared to historical norms, conditions are not optimum for a subsurface oxidation event (SOE) and the elevated CO can be attributed to gas temperature consistent with the research conducted by Dr. Barlaz's. Figure 6 shows a comparison of gas temperature to measured CO concentrations at the wells during the August 24th – September 14th sampling.

	Table 8 - CO (Carbon Monoxide) Concentration Data										
Device ID	Draeger Tube Sampling 8/29/2011 (ppmv)	Draeger Tube Sampling 9/13/2011 (ppmv)	GC Sampling 9/14/2011 (ppmv)	Aug./Sept. 2011 Average (ppmv)	Aug./Sept. 2011 Standard Deviation (ppmv)	Aug./Sept. 2011 95% Confidence Interval (ppmv)	Historical Average (ppmv)	Historical Std. Dev. (ppmv)	95% Confidence Min. (ppmv)	95% Confidence Max. (ppmv)	Aug./Sept. 2011 Avg. Above 95% Confidence Interval (Yes or No)
WGSL0025	0		0	0	0.0	0.0	29	7	14	44	No
WGSL0026	0		0	0	0.0	0.0	37	11	15	59	No
WGSL0027	0		19	10	13.8	19.1	35	13	9	61	No
WGSL0029	0		18	9	12.5	17.4	33	11	11	54	No
WGSL0030	130	80	142	117	32.9	37.3	50	14	21	79	Yes
WGSL0031	15		49	32	23.9	33.2	73	31	11	135	No
WGSL0032	150	140	222	171	44.7	50.6	121	31	59	184	No
WGSL0033	90		322	206	164.0	227.3	61	24	14	108	Yes
WGSL0034	0		0	0	0.0	0.0	28	14	0	55	No
WGSL0035	0		0	0	0.0	0.0	21	11	0	42	No
WGSL0036	0		0	0	0.0	0.0	21	5	10	31	No
WGSL0037	0		24	12	17.2	23.8	133	181	0	495	No
WGSL0038	10		70	40	42.2	58.5	23	13	0	48	No
WGSL0039	0		0	0	0.0	0.0	51	28	0	107	No
WGSL0040	0		7	3	4.8	6.6	50				Yes
WGSL0041	0		20	10	14.2	19.7	26	25	0	76	No
WGSL0042	0		3	1	1.8	2.5	13		13	13	No
WGSL0043	0	0	0	0	0.0	0.0	24	14	0	51	No
WGSL0044	30		98	64	47.9	66.4	87	26	34	140	No
WGSL0046	5		31	18	18.1	25.1	23	25	0	73	No
WGSL0047	90	70	97	86	13.9	15.7	102	41	19	185	No
WGSL0048	80	60	92	77	16.2	18.3	68	27	14	121	No
WGSL0049	150	350	366	289	120.5	136.4	307	170	0	646	No
WGSLGW02	150	150	225	175	43.2	48.9	77	31	15	138	Yes
WGSLGW06	40	50	95	62	29.4	33.3	70	36	0	142	No
WGSLGW07	50	70	102	74	26.3	29.8	129	43	44	215	No
WGSLGW08	10		0	5	0.0	0.0	29	20	0	70	No
WGSLGW09	80	60	206	115	79.1	89.5	59	23	12	106	Yes
WGSLGW11	5		0	2.5	3.5	4.9	36	19	0	74	No
WGSLGW12	10		0	5	7.1	9.8	49	20	8	89	No
WGSLGW13	40		126	83	61.0	84.6	43	25	0	93	No
WGSLGW14	20		46	33	18.4	25.4	86	49	0	184	No
WGSLGW15	10		81	45	49.9	69.2	38	21	0	80	No
WGSLGW24	150	130	344	208	118.1	133.6	69	50	0	170	Yes

EXHIBIT K160

Figure 6 - WGSL
CO/ Temperature Trend

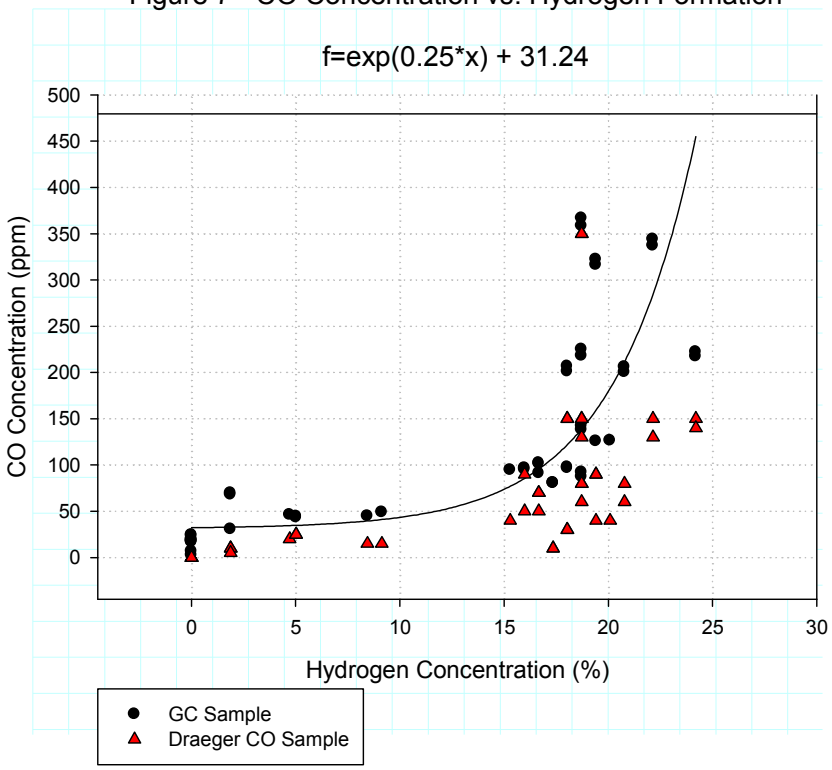


Blue bars represent 95% confidence interval about mean of each parameter.

CO data for each well for the August 24th to September 14th, 2011 assessment period ranged from 0 to 366 ppm with an average of 52 ppm. The research conducted by Dr. Barlaz shows significant CO generation from the same conditions producing hydrogen i.e. high temperatures. Dr. Barlaz attributes this to declining methanogenic microbe populations at these higher temperatures allowing both hydrogen and CO to accumulate because of lower consumption rates of those compounds by the microbes. Figure 7 shows that CO was not elevated in non-hydrogen producing wells (i.e. wells with a hydrogen concentration less than 5%) and only mildly elevated but consistent with previous readings for the hydrogen producing wells. In fact, no significant increase in CO occurs until hydrogen production exceeds 15%. As a comparison, Dr. Barlaz recorded CO concentrations of up to 893 ppm under controlled laboratory conditions with significant production of hydrogen.

None of the data analyzed in this assessment suggests any adverse conditions associated with the observed CO concentrations.

Figure 7 - CO Concentration vs. Hydrogen Formation



This study and previous ones have demonstrated that gas temperatures as high as 180 deg. F are normal for WGSL. Similarly, CO concentrations greater than 200 ppm have been shown to be a function of the chemical and microbial activity at these temperatures. There is low nitrogen present within the landfill (averaging 3.5% for all wells) which is significantly less than the NSPS threshold of 20% and hydrogen has been shown to be a large percentage of the balance gas calculated at each well. Therefore, conditions at WGSL have been confirmed to be normal with no adverse implications regarding landfill gas generation.

3. HISTORICAL REVIEW OF LANDFILL GAS DATA

Another aspect of this report is the analysis of historical landfill gas data to determine whether data that was previously entered manually by the former technician into the LGMS could have masked conditions indicating adverse changes in the wellfield, including evidence of a subsurface oxidation event (SOE) or conditions that materially increased the risk of a SOE.

Based on the analysis presented here, the absence of some historical wellfield data, when compared to available wellfield data, does not significantly alter the results of this evaluation: there is no indication of any adverse changes in the wellfield.

3.1. Individual Well Data Trends – Filtered Data Set

Although interviews conducted during the investigation revealed that some manually-uploaded data from mid-2010 until August 2011 was fabricated, WMH does not have direct evidence that that earlier data (before mid-2010) was fabricated. Nonetheless, WMH has conservatively analyzed the data set from 2006 through August 2011 by excluding all data that had been manually uploaded by the technician. Using this data set, EIL determined historical data norms based on validated data within LGMS and compared it to the August 24th to September 14th, 2011 verified sampling events to evaluate changes in landfill gas generation at the site for each well. Statistical data was evaluated for 2006 through 2009, 2010 through July 2011, August 2011 data automatically uploaded to LGMS from the GEM prior to the assessment by EIL, and the August 24th to September 14th, 2011 assessment data (Appendix C). Five parameters were evaluated including gas temperature, flow, balance gas concentration, methane to CO2 ratio, and well pressure.

Table 10 provides a summary of the Appendix C data illustrating the long term trends observed at each well.

Table 10 – Trend Summary

	Temperature	Flow	CH4/CO2 Ratio	Balance Gas Concentration	Well Pressure
GW-39	Down	down	stable	stable	up
GW-26	Peaked	down	stable	plateau	stable
GW-43	Peaked	up	up	down	variable
GW-14	Plateau	up	up	down	variable
GW-32	Plateau	down	up	stable	stable
GW-33	Plateau	down	stable	peaked	stable
GW-42	Plateau	plateau	plateau	stable	up
GW-47	Plateau	stable	stable	stable	stable
GW-12	Stable	stable	stable	down	stable

Table 10 – Trend Summary					
	Temperature	**Flow**	**CH4/CO2 Ratio**	**Balance Gas Concentration**	**Well Pressure**
GW-13	Stable	stable	stable	plateau	stable
GW-27	Stable	stable	up	stable	down
GW-35	Stable	down	plateau	variable	up
GW-36	Stable	stable	plateau	stable	up
GW-44	Stable	stable	stable	stable	stable
GW-46	Stable	down	stable	up	up
GW-6	Stable	stable	up	down	stable
GW-7	Stable	stable	plateau	down	stable
GW-8	Stable	plateau	stable	variable	stable
GW-9	Stable	up	stable	stable	stable
GW-11	Up	stable	stable	plateau	stable
GW-15	Up	down	stable	plateau	stable
GW-2	Up	down	up	stable	stable
GW-24	Up	stable	stable	stable	stable
GW-25	Up	down	up	stable	variable
GW-29	Up	stable	stable	up	up
GW-30	Up	down	stable	plateau	stable
GW-31	Up	down	stable	peaked	variable
GW-34	Up	plateau	stable	up	up
GW-37	Up	stable	stable	plateau	stable
GW-38	Up	down	stable	up	down
GW-40	Up	peaked	stable	stable	up
GW-41	Up	down	down	up	up
GW-48	Up	stable	stable	stable	stable
GW-49	Up	stable	stable	stable	stable

Index: down – downward trending data, up – upward trending data, stable – no significant trend either up or down, peaked – parameter increased to a high and then has fallen, plateau – parameter increased and has stabilized at elevated value, variable – no trend can be established.

Although temperature trending data is up for many wells, this report has shown that it is only slightly elevated compared to historical norms with a maximum rise of 13 °F (Table 4). In most of these instances, CH_4/CO_2 ratios are either stable or increasing indicating improved methanogenisis. Stable or declining flows are expected over time as the decomposition process proceeds. Many of the wells have stable well pressures which can be attributed to the VFD system mentioned previously. A constant vacuum source provides for a constant applied vacuum at each well. However, since each extraction well is managed based on monitoring, wells may undergo pressure changes to reflect the results of the monitoring to maintain optimum operation of the GCCS.

Therefore, although some wells have experienced a slight temperature rise, the preponderance of information indicates that the current conditions are consistent with historical norms or in fact improved in terms of the state of methanogenisis.

3.2. Well Data Variability –All Data

In addition to evaluating statistical trends of data filtered of information manually entered into LGMS, EIL overlaid the manually input data onto a graph of the historical (filtered data – manual input data removed) averages for each well. Error bars were determined based on the 95% confidence interval of the historical filtered data set. The current average data from the August 24th to September 14th, 2011 assessment data was also included. This analysis will illustrate the data trends between historical and current conditions as well as how different, if at all, the manually input data was compared to data uploaded automatically from the GEM.

The following 12 wells have exhibited long term stability: GW-6, GW-7, GW-8, GW-9, GW-12, GW-13, GW-27, GW-35, GW-36, GW-39, GW-44, and GW-46. There is no evidence that these wells have been impacted as illustrated by small temperature changes (+/- 3 °F)[1] and small CH_4/CO_2 ratio changes and in many cases higher CH_4/CO_2 ratios indicating improving methanogenic conditions (Figures 8 and 9). Further, the charts illustrate the fact that the manual input data is not inconsistent with either the historical norms or the data collected from August 24th to September 14th. In the single instance where the manual data was above the 95% temperature confidence interval of the historical norm (GW-33), the temperature data was only 3 °F higher and would not have triggered enhanced monitoring as prescribed in the draft Contingency Plan.

This data indicates that no matter what data set is evaluated for these 12 wells, temperatures and other indicators such as CH_4/CO_2 ratios has remained constant suggesting no change in the operation of the GCCS.

[1] The thermometers used at each well have a scale interval accuracy of +/- 2 °F.

Figure 8 - Gas Temperature Variability

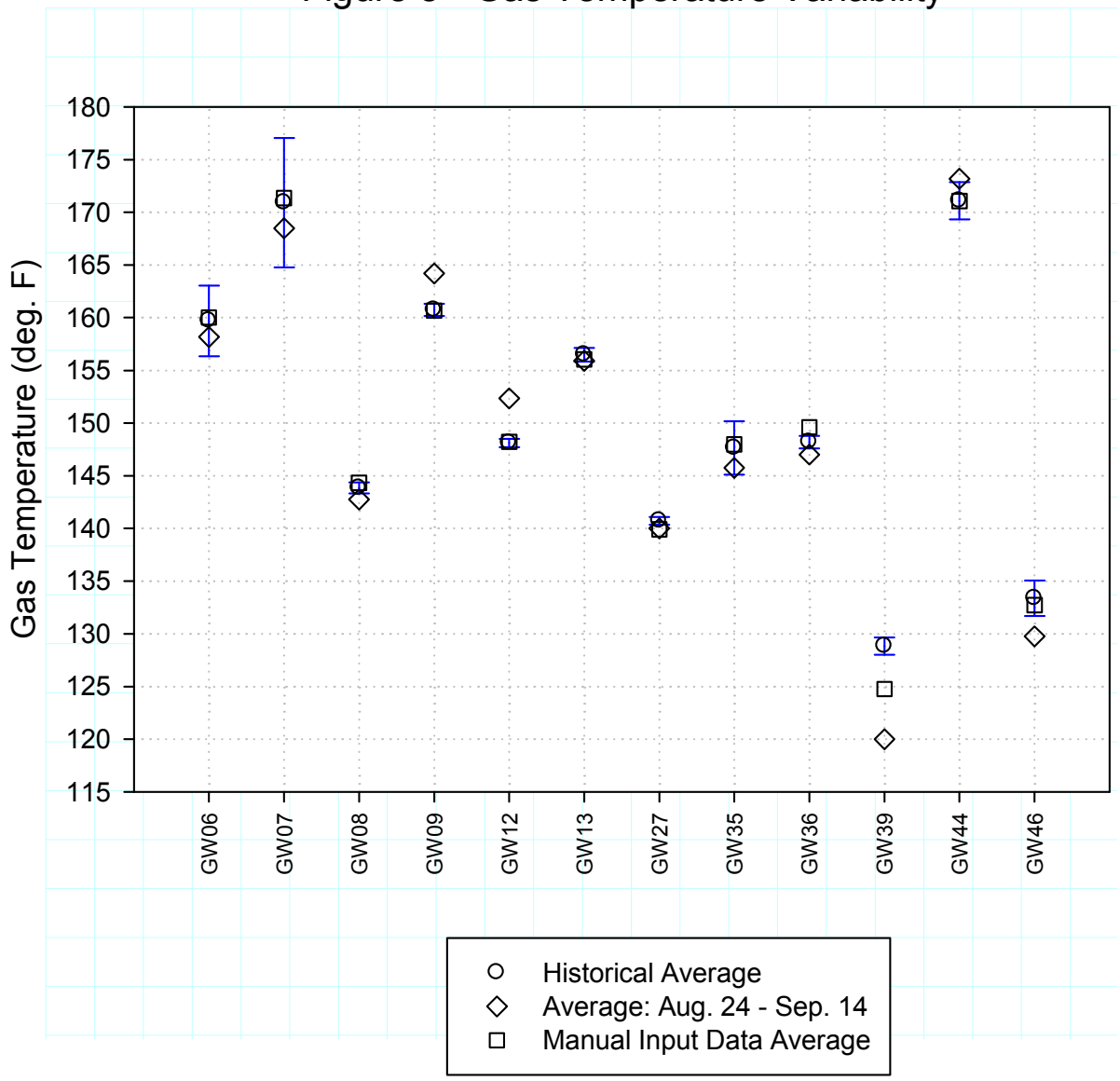


Figure 8 Notes -

[1]Blue bars represent 95% confidence interval about historical mean.
[2]The historical average is based on all data automatically uploaded from the field GEM instrument to LGMS.
[3]The manual input data average is based all data that was manually input into LGMS.

	GW06	GW07	GW08	GW09	GW12	GW13	GW27	GW35	GW36	GW39	GW44	GW46
+95% Confidence	161	173	144	161	149	157	141	149	150	130	172	135
Historical Avg.	160	171	144	161	148	156	141	148	148	129	171	133
-95% Confidence	158	168	144	160	147	156	140	147	147	127	170	132
Avg. : Aug. 24 - Sep. 14	158	169	143	164	152	156	140	146	147	120	173	130
Manual Input Data Avg.	160	171	144	161	148	156	140	148	150	125	171	133

EXHIBIT K160

Figure 9 - CH4/CO2 Variability

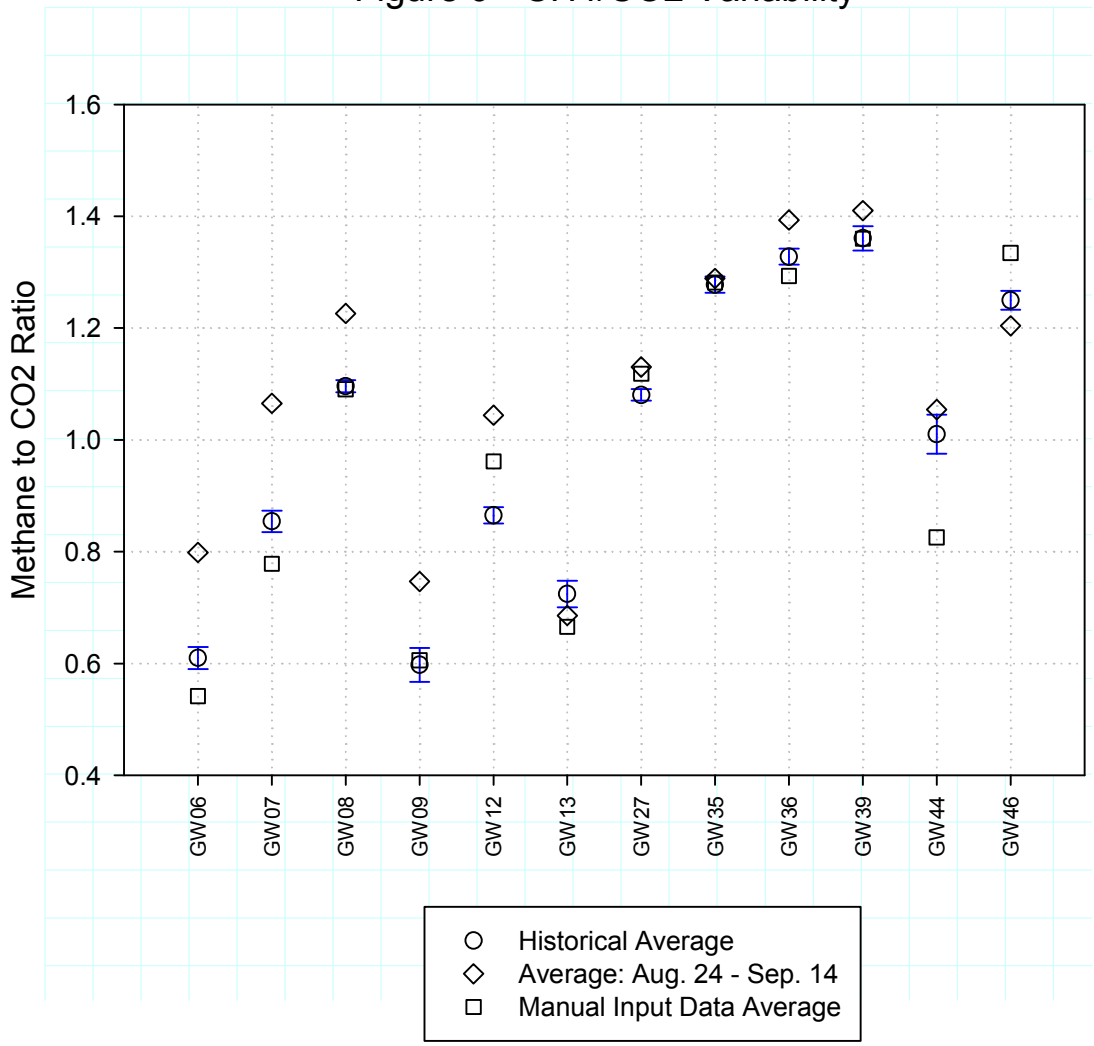


Figure 9 Notes -

[1]Blue bars represent 95% confidence interval about historical mean.
[2]The historical average is based on all data automatically uploaded from the field GEM instrument to LGMS.
[3]The manual input data average is based all data that was manually input into LGMS.

	GW06	GW07	GW08	GW09	GW12	GW13	GW27	GW35	GW36	GW39	GW44	GW46
+95% Confidence	0.6	0.9	1.1	0.8	0.9	0.8	1.1	1.3	1.4	1.4	1.0	1.3
Historical Avg.	0.6	0.9	1.1	0.6	0.9	0.7	1.1	1.3	1.3	1.4	1.0	1.2
-95% Confidence	0.6	0.8	1.1	0.4	0.8	0.7	1.1	1.3	1.3	1.3	1.0	1.2
Avg. : Aug. 24 - Sep. 14	0.8	1.1	1.2	0.7	1.0	0.7	1.1	1.3	1.4	1.4	1.1	1.2
Manual Input Data Avg.	0.5	0.8	1.1	0.6	1.0	0.7	1.1	1.3	1.3	1.4	0.8	1.3

The following 7 wells have exhibited temperature increases over the historical norm (Figure 10), but have peaked or stabilized at a higher operating temperature: GW-14, GW-26, GW-32, GW-33, GW-42, GW-43, and GW-47. In each case, the CH_4/ CO_2 ratio (Figure 11) has either increased or remained stable. As noted previously, an increase in this ratio indicates increasing methanogenisis.

In addition, balance gas (Figure 12) has either remained stable (+/- 3.5% or less) or declined for all of these wells except for GW-33 which saw concentrations rise to approximately 15%. Table 11 shows that hydrogen is present in some of the wells and that the nitrogen fraction (that which would be attributed to air intrusion) is not significant. As discussed previously, balance gas is comprised predominantly of hydrogen, nitrogen, or water vapor or a combination of the three. Any variance between balance gas and the sum of hydrogen and nitrogen is likely water vapor. In addition, the analysis of hydrogen and nitrogen represents a single point in time sample whereas the balance data is averaged over a period of time.

Table 11 – Hydrogen and Nitrogen Concentration of Select Wells Analyzed by GC (9/14 and 9/15, 2011)

Sample ID	Hydrogen (%)	Nitrogen (%)
GW-14	4.7	0.0
GW-26	0.0	8.1
GW-32	26.7	0.0
GW-33	19.0	0.4
GW-42	0.0	0.0
GW-43	0.0	0.0
GW-47	15.9	0.6

Although the draft Contingency Plan has been implemented for these wells as a result of the balance gas concentration and vacuum reduced at each well where possible (many wells are already at the lowest vacuum), the CH_4/CO_2 ratio indicates no detrimental conditions or changes at these wells.

Further, Figures 10, 11, and 12 illustrate the fact that the manual input data is not inconsistent with either the historical norms or the data collected from August 24th to September 14th. Where manual input CH_4/CO_2 ratios are lower, it is an under representation of the actual condition of the landfill suggesting that the state of methanogenisis is better than reported.

This data indicates that temperatures and other indicators such as CH_4/CO_2 ratios has remained consistent suggesting no change in the operation of the GCCS.

Figure 10 - Gas Temperature Variability

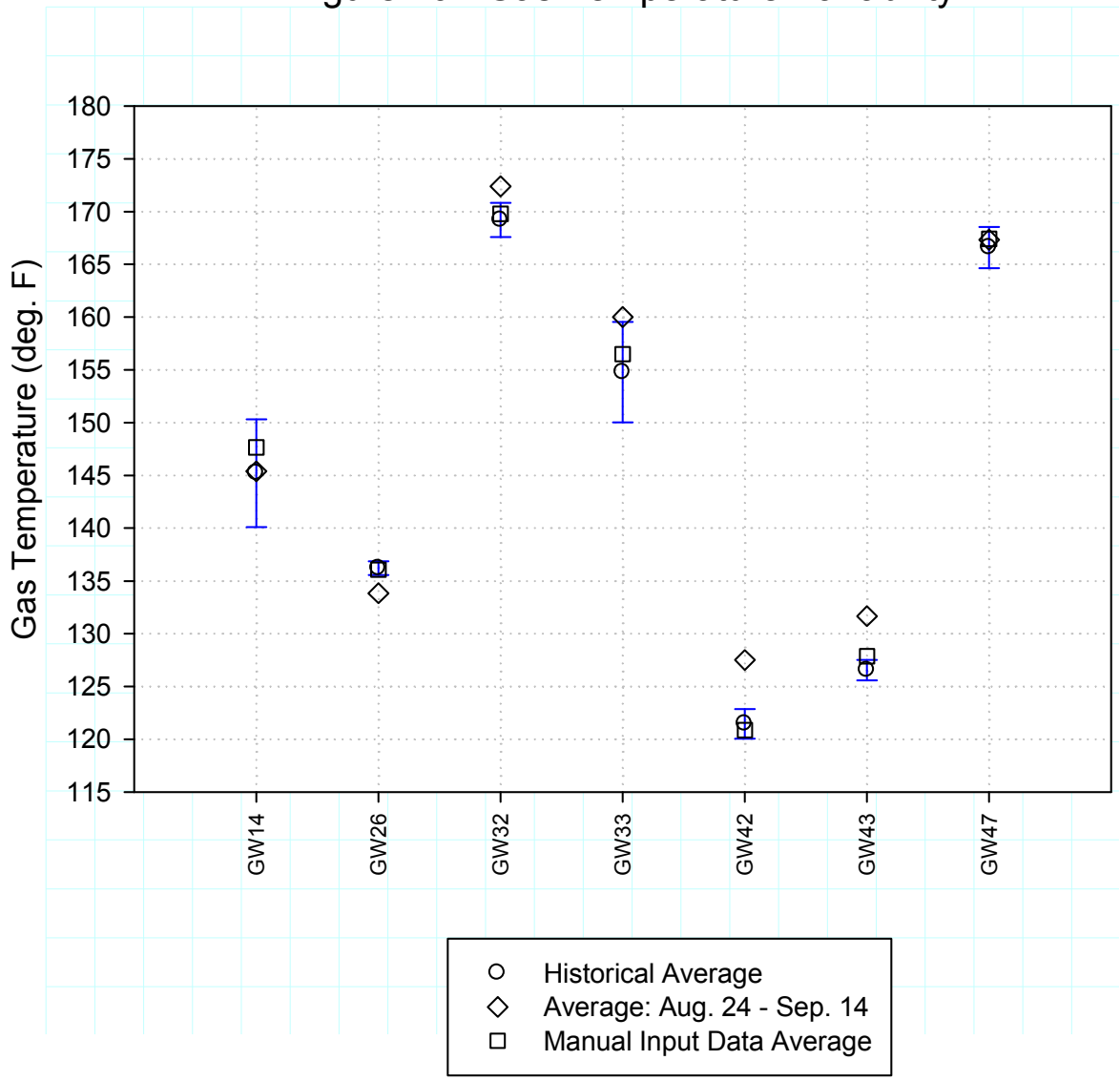


Figure 10 Notes -

[1]Blue bars represent 95% confidence interval about historical mean.
[2]The historical average is based on all data automatically uploaded from the field GEM instrument to LGMS.
[3]The manual input data average is based all data that was manually input into LGMS.

	GW14	GW26	GW32	GW33	GW42	GW43	GW47
+95% Confidence	147	137	170	157	122	128	167
Historical Avg.	145	136	169	155	121	127	167
-95% Confidence	143	136	168	153	121	125	166
Avg. : Aug. 24 - Sep. 14	145	134	172	160	128	132	167
Manual Input Data Avg.	148	136	170	157	121	128	167

EXHIBIT K160

Figure 11 - CH4/CO2 Variability

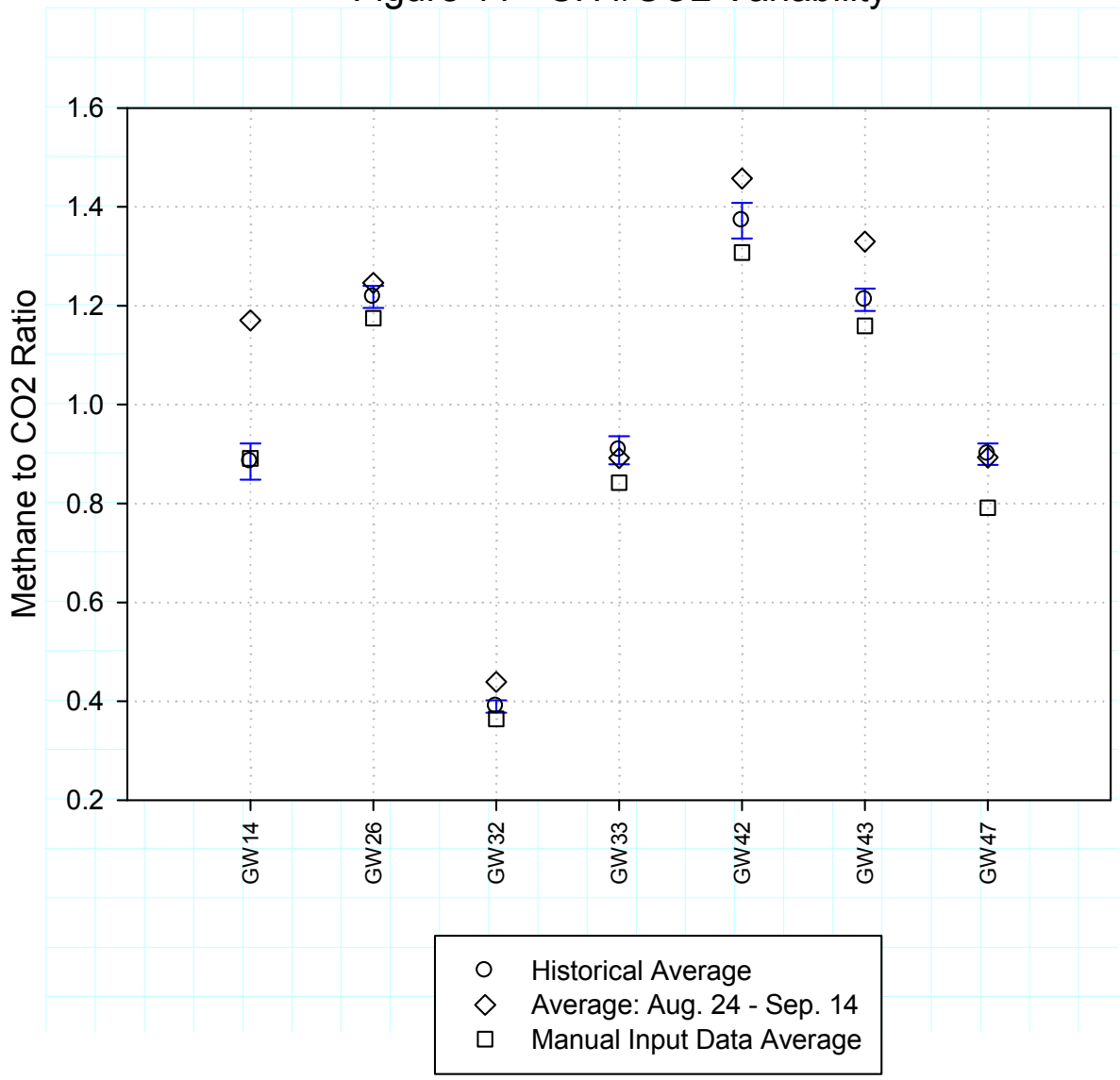


Figure 11 Notes -

[1]Blue bars represent 95% confidence interval about historical mean.
[2]The historical average is based on all data automatically uploaded from the field GEM instrument to LGMS.
[3]The manual input data average is based all data that was manually input into LGMS.

	GW14	GW26	GW32	GW33	GW42	GW43	GW47
+95% Confidence	0.9	1.2	0.4	0.9	1.4	1.3	0.9
Historical Avg.	0.9	1.2	0.4	0.9	1.4	1.2	0.9
-95% Confidence	0.8	1.2	0.4	0.9	1.3	1.2	0.9
Avg. : Aug. 24 - Sep. 14	1.2	1.2	0.4	0.9	1.5	1.3	0.9
Manual Input Data Avg.	0.9	1.2	0.4	0.8	1.3	1.2	0.8

Figure 12 - Balance Gas Variability

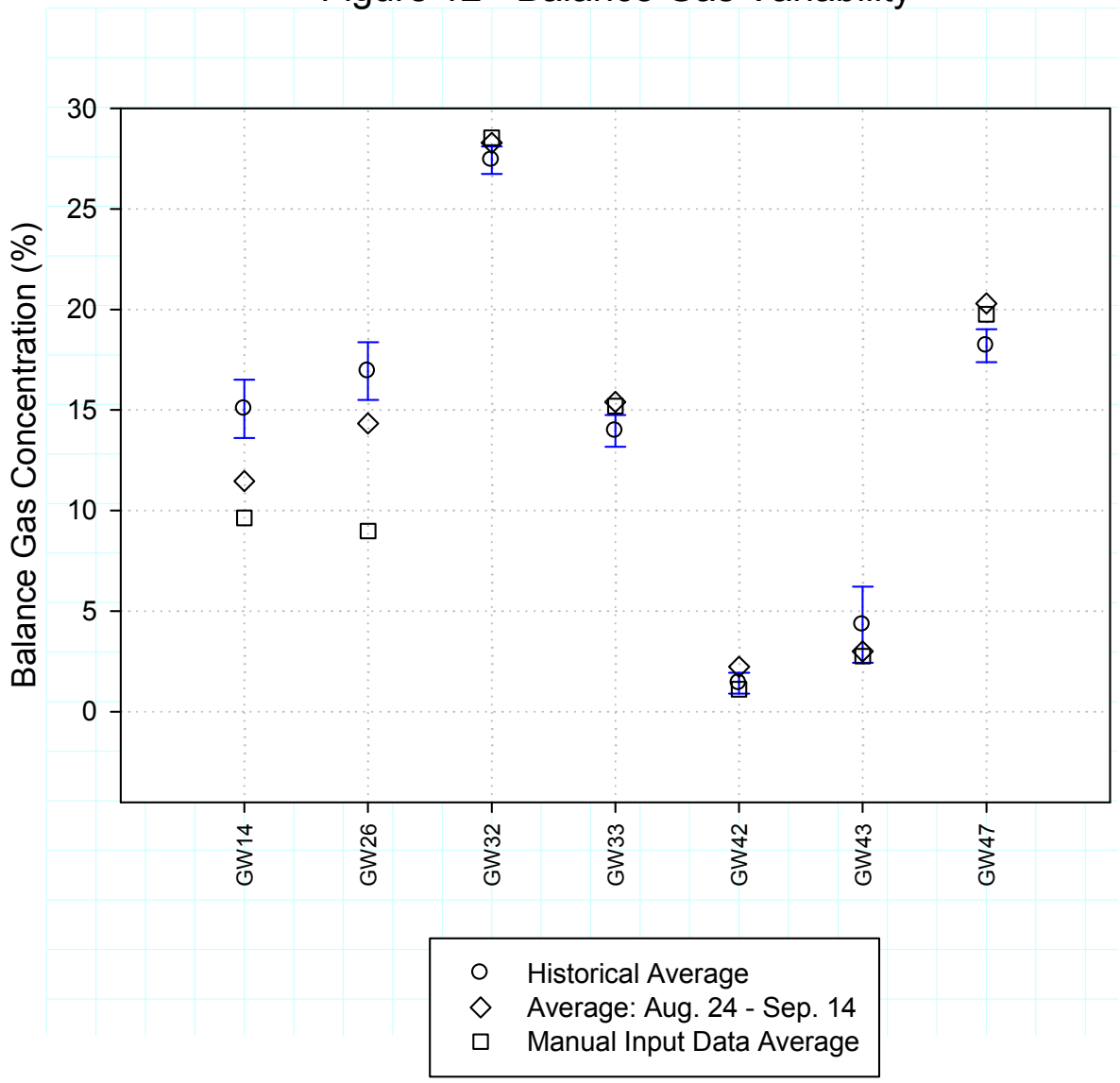


Figure 12 Notes -

[1]Blue bars represent 95% confidence interval about historical mean.
[2]The historical average is based on all data automatically uploaded from the field GEM instrument to LGMS.
[3]The manual input data average is based all data that was manually input into LGMS.

	GW14	GW26	GW32	GW33	GW42	GW43	GW47
+95% Confidence	16.9	19.2	28.7	16.2	1.9	7.0	19.3
Historical Avg.	15.1	16.9	27.4	14.0	1.4	4.3	18.2
-95% Confidence	13.2	14.6	26.2	11.7	1.0	1.6	17.1
Avg. : Aug. 24 - Sep. 14	11.5	14.3	28.3	15.4	2.2	3.0	20.3
Manual Input Data Avg.	9.6	9.0	28.5	15.2	1.1	2.8	19.8

EXHIBIT K160

The remaining 15 wells have exhibited temperature increases over the historical norm (Figure 13): GW-2, GW-11, GW-15, GW-24, GW-25, GW-29, GW-30, GW-31, GW-34, GW-37, GW-38, GW-40, GW-41, GW-48, and GW-49. In each case, the methane to CO2 ratio (Figure 14) has remained stable primarily within the range considered to represent stable methanogenesis.

In addition, balance gas (Figure 15) has either remained stable (+/- 3.5% or less) or declined for GW-2, GW-24, GW-25, GW-31, GW-40, GW-48, and GW-49 suggesting that no significant change in the landfill has occurred despite the rise in temperature.

Table 12 shows that hydrogen is present in some of the wells and that the nitrogen fraction (that which would be attributed to air intrusion) is less than the allowable concentration under the landfill NSPS. Balance gas is comprised predominantly of hydrogen, nitrogen, or water vapor or a combination of the three. Any variance between balance gas and the sum of hydrogen and nitrogen is likely water vapor. In addition, the analysis of hydrogen and nitrogen represents a single point in time sample whereas the balance data is averaged over a period of time.

Table 12 – Hydrogen and Nitrogen Concentration of Select Wells Analyzed by GC (9/14 and 9/15, 2011)

Sample ID	Hydrogen (%)	Nitrogen (%)
GW-2	18.3	9.9
GW-24	22.5	0.0
GW-25	0.0	6.5
GW-31	8.9	0.0
GW-40	0.0	0.0
GW-48	20.1	2.7
GW-49	18.2	17.4

The remaining wells (GW-11, GW-15, GW-29, GW-30, GW-34, GW-37, GW-38, and GW-41) had balance gas increases from 4 – 10% above historical ranges.

Table 13 shows that hydrogen is present in some of the wells and that the nitrogen fraction (that which would be attributed to air intrusion) is less than the threshold concentration under the landfill NSPS. Balance gas is comprised predominantly of hydrogen, nitrogen, or water vapor or a combination of the three. Any variance between balance gas and the sum of hydrogen and nitrogen is likely water vapor. In addition, the analysis of hydrogen and nitrogen represents a single point in time sample whereas the balance data is averaged over a period of time.

Table 13 – Hydrogen and Nitrogen Concentration of Select Wells Analyzed by GC (9/14 and 9/15, 2011)

Sample ID	Hydrogen (%)	Nitrogen (%)
GW-11	5.1	9.0
GW-15	17.3	0.2

Sample ID	Hydrogen (%)	Nitrogen (%)
GW-29	0.0	5.8
GW-30	18.3	0.7
GW-34	0.0	7.9
GW-37	0.0	1.4
GW-38	1.9	0.0
GW-41	0.0	11.8

GW-41 had the largest increase in balance gas, however, the current concentration is only slightly higher than the draft Contingency Plan target level for non-hydrogen producing wells (17% versus 10%) and CO concentrations are currently less than 25 ppm. GW-11, GW-15 and GW-49 all have significant hydrogen concentrations that make up much of the balance gas determined. There is no evidence, despite the rise in temperature, that these wells have been impacted (See Figures 13, 14 and 15).

Although the draft Contingency Plan has been implemented for these wells as a result of the balance gas concentration and vacuum reduced at each well where possible (many wells are already at the lowest vacuum), the CH_4/CO_2 ratio indicates no detrimental conditions or significant changes at these wells.

Further, Figures 13, 14, and 15 illustrate the fact that the manual input data is not inconsistent with either the historical norms or the data collected from August 24th to September 14th. Where manual input CH_4/CO_2 ratios are lower, it is an under representation of the actual condition of the landfill suggesting that the state of methanogenisis is better than reported.

This data indicates that temperatures and other indicators such as CH_4/CO_2 ratios has remained consistent suggesting no change in the operation of the GCCS.

Figure 13 - Gas Temperature Variability

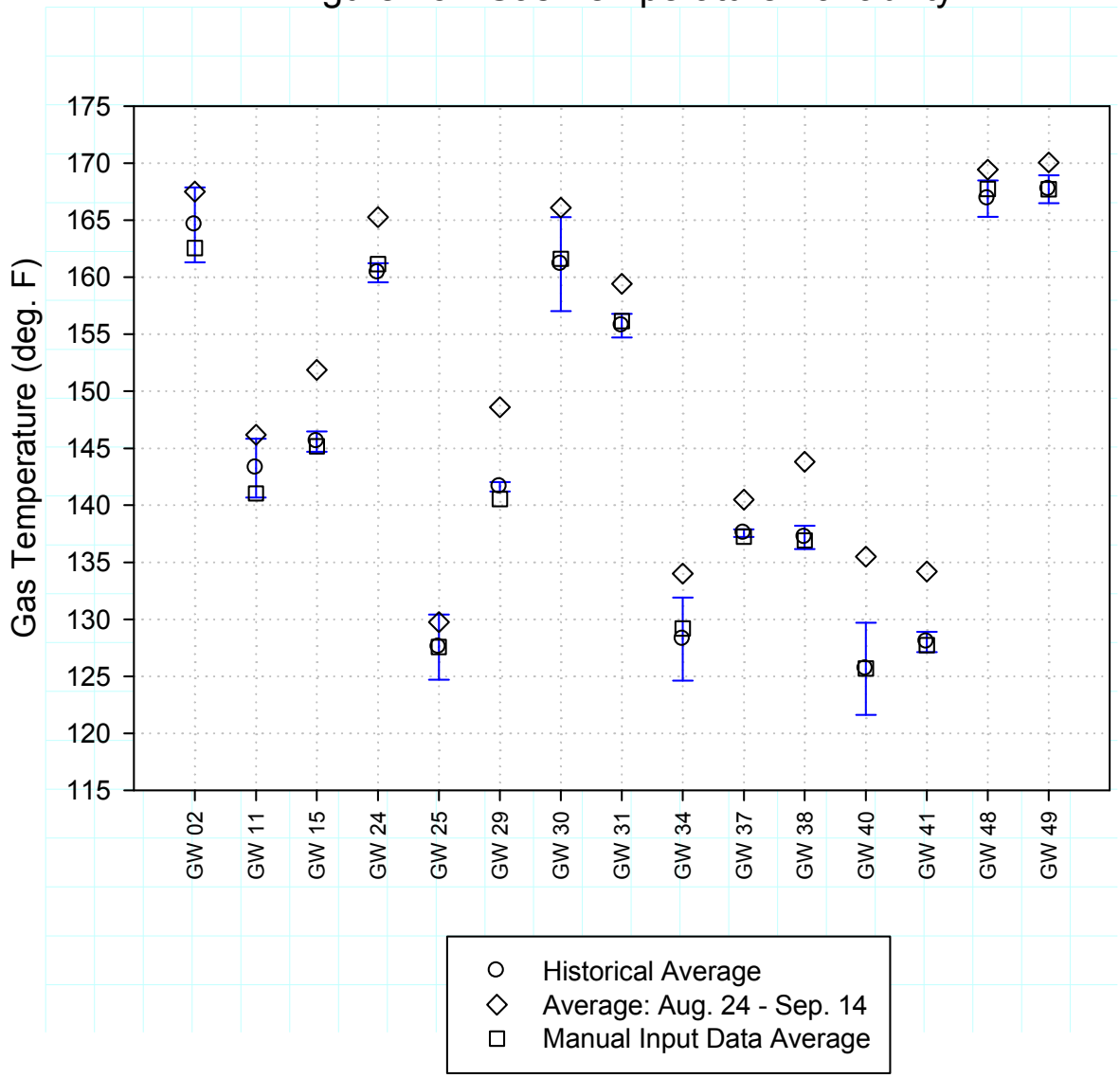


Figure 13 Notes -

[1]*Blue bars represent 95% confidence interval about historical mean.*
[2]*The historical average is based on all data automatically uploaded from the field GEM instrument to LGMS.*
[3]*The manual input data average is based all data that was manually input into LGMS.*

	GW 02	GW 11	GW 15	GW 24	GW 25	GW 29	GW 30	GW 31	GW 34	GW 37	GW 38	GW 40	GW 41	GW 48	GW 49
+95% Confidence	166	144	148	161	129	143	163	157	130	138	138	127	129	168	168
Historical Avg.	165	143	146	160	128	142	161	156	128	138	137	126	128	167	168
-95% Confidence	163	142	143	160	126	140	160	155	127	137	136	124	127	166	167
Avg. : Aug. 24 - Sep. 14	168	146	152	165	130	149	166	159	134	141	144	136	134	169	170
Manual Input Data Avg.	163	141	145	161	128	141	162	156	129	137	137	126	128	168	168

EXHIBIT K160

Figure 14 - CH4/CO2 Variability

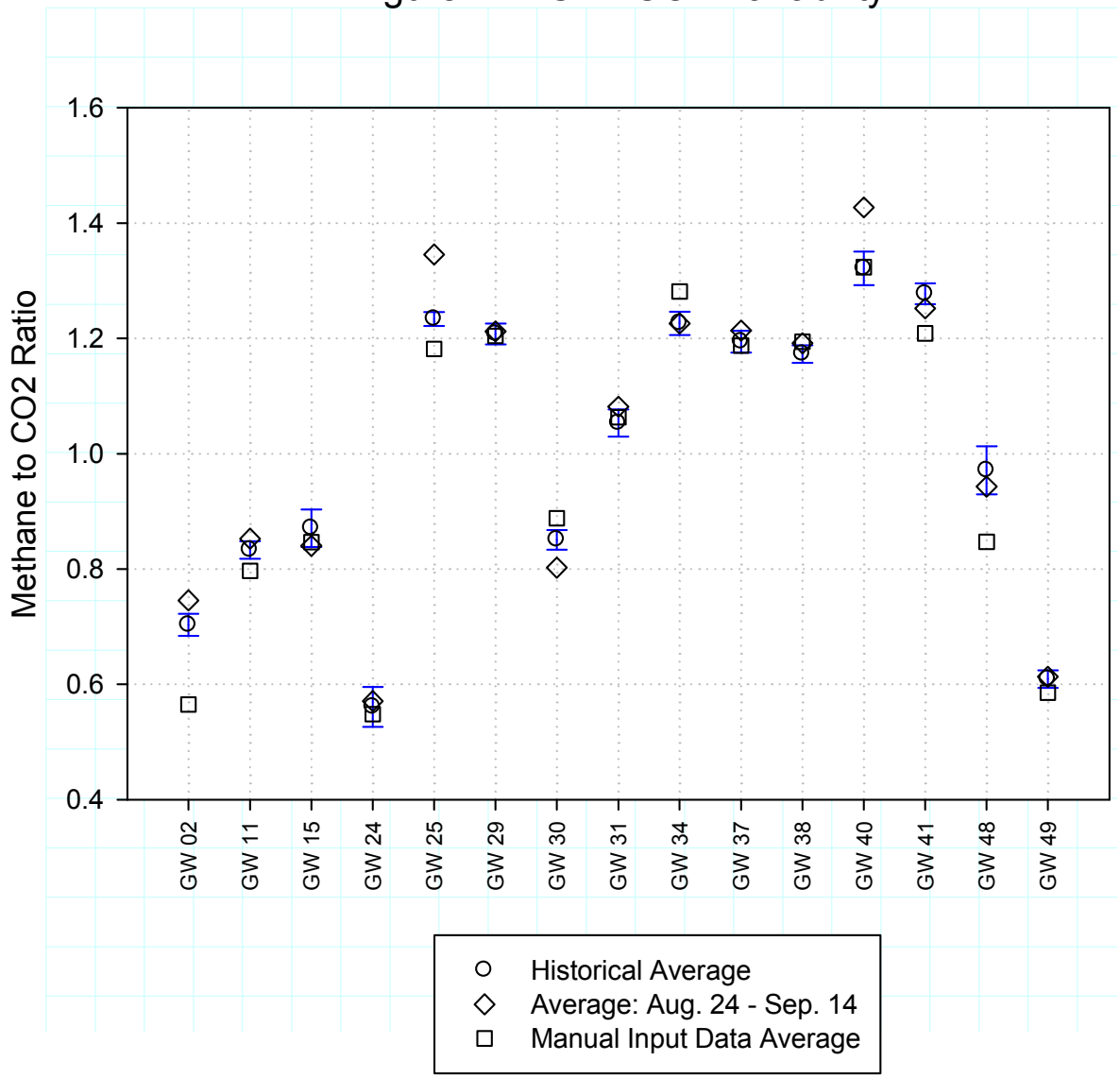


Figure 14 Notes -

[1]Blue bars represent 95% confidence interval about historical mean.
[2]The historical average is based on all data automatically uploaded from the field GEM instrument to LGMS.
[3]The manual input data average is based all data that was manually input into LGMS.

	GW 02	GW 11	GW 15	GW 24	GW 25	GW 29	GW 30	GW 31	GW 34	GW 37	GW 38	GW 40	GW 41	GW 48	GW 49
+95% Confidence	0.8	0.9	0.9	0.6	1.3	1.2	0.9	1.1	1.3	1.2	1.2	1.3	1.3	1.0	0.7
Historical Avg.	0.7	0.8	0.9	0.6	1.2	1.2	0.9	1.1	1.2	1.2	1.2	1.3	1.3	1.0	0.6
-95% Confidence	0.6	0.8	0.8	0.5	1.2	1.2	0.8	1.0	1.2	1.2	1.1	1.3	1.3	0.9	0.6
Avg. : Aug. 24 - Sep. 14	0.7	0.9	0.8	0.6	1.3	1.2	0.8	1.1	1.2	1.2	1.2	1.4	1.3	0.9	0.6
Manual Input Data Avg.	0.6	0.8	0.8	0.5	1.2	1.2	0.9	1.1	1.3	1.2	1.2	1.3	1.2	0.8	0.6

Figure 15 - Balance Gas Variability

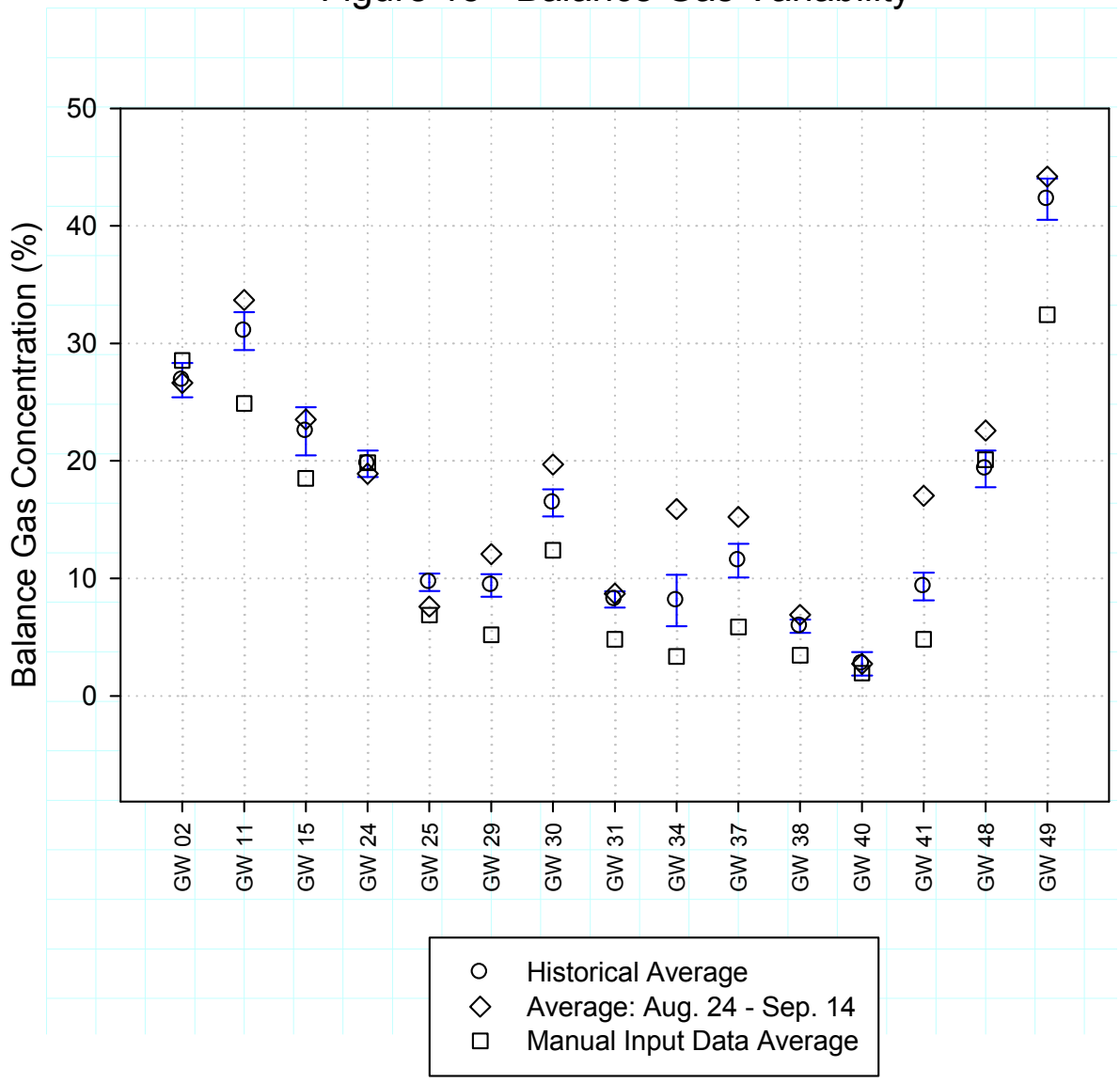


Figure 15 Notes -

[1]Blue bars represent 95% confidence interval about historical mean.
[2]The historical average is based on all data automatically uploaded from the field GEM instrument to LGMS.
[3]The manual input data average is based all data that was manually input into LGMS.

	GW 02	GW 11	GW 15	GW 24	GW 25	GW 29	GW 30	GW 31	GW 34	GW 37	GW 38	GW 40	GW 41	GW 48	GW 49
+95% Confidence	28.4	32.5	24.4	20.6	11.1	10.9	17.5	9.0	9.8	13.2	7.1	3.2	10.9	21.6	45.5
Historical Avg.	26.9	31.0	22.5	19.8	9.7	9.4	16.4	8.2	8.1	11.5	5.9	2.7	9.3	19.3	42.3
-95% Confidence	25.4	29.6	20.6	18.9	8.3	7.9	15.3	7.4	6.4	9.8	4.8	2.2	7.8	17.0	39.1
Avg. : Aug. 24 - Sep. 14	26.6	33.7	23.5	18.9	7.6	12.1	19.7	8.7	15.9	15.2	6.9	2.7	17.0	22.6	44.2
Manual Input Data Avg.	28.6	24.9	18.5	19.8	6.9	5.2	12.4	4.8	3.4	5.9	3.5	1.9	4.8	20.1	32.4

4. CONCLUSIONS

The newly collected data demonstrates that current conditions at WGSL appear to be consistent with no adverse impacts on landfill gas generation arising from the data integrity incident. Further, although gas temperatures have risen over the period in some wells, they have not exceeded expected levels based on their proximity to other wells with similar temperatures and can be explained by changes in fill elevations. Carbon monoxide concentrations are historically consistent and do not indicate any condition considered abnormal at the facility. There is no evidence that there have been adverse changes in the wellfield.

While the wells listed in Table 4 show a temperature rise from historical averages, they are not substantially higher. The data shows that temperatures rose no more than 10°F above the 95% confidence interval of the historical mean. In addition, the thermometers used at each well have a scale resolution of 2 °F which further reduces the significance of the observed increase. Further, added fill was placed in much of the landfill area surrounding these wells reducing heat flux and dissipation through the landfill surface. This is expected to cause some of the observed well temperatures to increase. Even though the temperature increases are not significant, WM has implemented the draft Contingency Plan and has not found any cause for corrective actions at any well.

In accordance with the draft Contingency Plan, vacuum was reduced at each well listed in Table 6 and Table 7 where possible (many wells are already at the lowest vacuum). However, the CH_4/CO_2 ratio indicates no detrimental conditions at these wells. With the exception of GW-6 and GW-49, the residual fraction of balance gas after accounting for hydrogen (primarily nitrogen) was less than 10% indicating no substantial air intrusion that would be adverse to the site. GW-49 was temporarily brought off line while additional CO sampling was conducted. GW-6 had CO concentrations of 95 ppm (via GC) while GW-49 had concentrations averaging 283 ppm (via GC) neither of which raises a concern given the research conducted by Dr. Barlaz.

There is no evidence of adverse changes in the condition of the wellfield. In particular, there is no evidence of any SOE, no smoke, no odor, no localized subsidence adjacent to any well. Therefore, despite the absence of some data during the time period in question, the available data shows no wild swings and no adverse changes in the condition of the wellfield. In particular, there is no evidence of an SOE or even conditions that would present a risk of an SOE. Further, the data indicates, even if the manual data was included in any evaluation, it would not significantly alter any of the conclusions or materially skew the data.

REFUSE 98036

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

Div. Chief
Asst. Chief
Disp. Engr.
RC Admin
Adm. Asst.
H-POWER
Plan. Engr.
Recy. Coor.
STEVE

March 11, 2005

05-230E CAB
File No. 0489-01

Dr. Eric S. Takamura
Director
Environmental Services Department
City and County of Honolulu
1000 Uluohia Street, Suite 308
Kapolei, Hawaii 96707

DEPARTMENT OF ENVIRONMENTAL SVCS
05 MAR 17 P4:00

Dear Dr. Takamura:

Subject: Covered Source Permit (CSP) No. 0489-01-C
Application No. 0489-01
Waimanalo Gulch Municipal Solid Waste Landfill
Gas Collection and Control System
Located at: 92-460 Farrington Highway, Oahu
Date of Expiration: March 10, 2010

The subject Covered Source Permit is issued in accordance with Hawaii Administrative Rules, Title 11, Chapter 60.1. The issuance of this permit is based on the plans, specifications and additional information submitted on December 15, 2000, July 25, 2001, August 19, 2003, and January 30, 2004. This Covered Source Permit is issued subject to the conditions/requirements set forth in the following Attachments:

Attachment I: Standard Conditions
Attachment II: Special Conditions
Attachment II - INSIG: Special Conditions - Insignificant Activities
Attachment III: Annual Fee Requirements
Attachment IV: Annual Emissions Reporting Requirements
Attachment V: Compliance Certification

The form(s) for submission are as follows:

Monitoring Report Form: Collection and Control System
Monitoring Report Form: Visible Emissions
Annual Emissions Report Form: Municipal Solid Waste Landfills
Supplemental Report Form: Modification/Reconstruction of MSW Landfill
Supplemental Report Form: Notification of Landfill Closure
Supplemental Report Form: Initial Compliance Report
Supplemental Report Form: Notification of Collection and Control Equipment Removal

This permit: (a) shall not in any manner affect the title of the premises upon which the equipment is to be located; (b) does not release the permittee from any liability for any loss due to personal injury or property damage caused by, resulting from or arising out of the design, installation, maintenance, or operation of the equipment; and (c) in no manner implies or suggests that the Hawaii Department of Health, or its officers, agents, or employees, assumes any liability, directly or indirectly, for any loss due to personal injury or property damage caused by, resulting from or arising out of the design, installation, maintenance, or operation of the equipment.

Sincerely,

FOR THOMAS E. ARIZUMI, P.E., CHIEF
Environmental Management Division

KK:lk

Enclosures

c: CAB Monitoring Section

ATTACHMENT I: STANDARD CONDITIONS
COVERED SOURCE PERMIT NO. 0489-01-C

Issuance Date: March 11, 2005 **Expiration Date: March 10, 2010**

This permit is granted in accordance with the Hawaii Administrative Rules (HAR), Title 11, Chapter 60.1, Air Pollution Control, and is subject to the following standard conditions:

1. Unless specifically identified, the terms and conditions contained in this permit are consistent with the applicable requirement, including form, on which each term or condition is based.

   (Auth.: HAR §11-60.1-90)

2. This permit, or a copy thereof, shall be maintained at or near the source and shall be made available for inspection upon request. The permit shall not be wilfully defaced, altered, forged, counterfeited, or falsified.

   (Auth.: HAR §11-60.1-6; SIP §11-60-11)[2]

3. This permit is not transferable whether by operation of law or otherwise, from person to person, from place to place, or from one piece of equipment to another without the approval of the Department of Health, except as provided in HAR, Section 11-60.1-91.

   (Auth.: HAR §11-60.1-7; SIP §11-60-9)[2]

4. A request for transfer from person to person shall be made on forms furnished by the Department of Health.

   (Auth.: HAR §11-60.1-7)

5. In the event of any changes in control or ownership of the facilities to be constructed or modified, this permit shall be binding on all subsequent owners and operators. The permittee shall notify the succeeding owner and operator of the existence of this permit and its conditions by letter, copies of which will be forwarded to the Department of Health and the Regional Administrator for the U.S. Environmental Protection Agency (EPA).

   (Auth.: HAR §11-60.1-5, §11-60.1-7, §11-60.1-94)

6. The facility covered by this permit shall be constructed and operated in accordance with the application, and any information submitted as part of the application, for the Covered Source Permit. There shall be no deviation unless additional or revised plans are submitted to and approved by the Department of Health, and the permit is amended to allow such deviation.

   (Auth.: HAR §11-60.1-2, §11-60.1-4, §11-60.1-82, §11-60.1-84, §11-60.1-90)

7. This permit (a) does not release the permittee from compliance with other applicable statutes of the State of Hawaii, or with applicable local laws, regulations, or ordinances, and (b) shall not constitute, nor be construed to be an approval of the design of the covered source.

   (Auth.: HAR §11-60.1-5, §11-60.1-82)

8. The permittee shall comply with all the terms and conditions of this permit. Any permit noncompliance constitutes a violation of HAR, Chapter 11-60.1 and the Clean Air Act and is grounds for enforcement action; for permit termination, suspension, reopening, or amendment; or for denial of a permit renewal application.

   (Auth.: HAR §11-60.1-3, §11-60.1-10, §11-60.1-19, §11-60.1-90)

9. If any term or condition of this permit becomes invalid as a result of a challenge to a portion of this permit, the other terms and conditions of this permit shall not be affected and shall remain valid.

   (Auth.: HAR §11-60.1-90)

10. The permittee shall not use as a defense in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the terms and conditions of this permit.

    (Auth.: HAR §11-60.1-90)

11. This permit may be terminated, suspended, reopened, or amended for cause pursuant to HAR, Sections 11-60.1-10 and 11-60.1-98, and Hawaii Revised Statutes (HRS), Chapter 342B-27, after affording the permittee an opportunity for a hearing in accordance with HRS, Chapter 91.

    (Auth.: HAR §11-60.1-3, §11-60.1-10, §11-60.1-90, §11-60.1-98)

12. The filing of a request by the permittee for the termination, suspension, reopening, or amendment of this permit, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

    (Auth.: HAR §11-60.1-90)

13. This permit does not convey any property rights of any sort, or any exclusive privilege.

    (Auth.: HAR §11-60.1-90)

14. The permittee shall notify the Department of Health in writing of the following dates:

    a. The **anticipated date of initial start-up** for each emission unit of a new source or significant modification not more than sixty (60) days or less than thirty (30) days prior to such date;
    b. The **actual date of construction commencement** within fifteen (15) days after such date; and
    c. The **actual date of start-up** within fifteen (15) days after such date.

    (Auth.: HAR §11-60.1-90)

15. The permittee shall furnish, in a timely manner, any information or records requested in writing by the Department of Health to determine whether cause exists for terminating, suspending, reopening, or amending this permit, or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Department of Health copies of records required to be kept by the permittee. For information claimed to be confidential, the Director of Health may require the permittee to furnish such records not only to the Department of Health but also directly to the U.S. EPA Administrator along with a claim of confidentiality.

    (Auth.: HAR §11-60.1-14, §11-60.1-90)

16. The permittee shall notify the Department of Health in writing, of the **intent to shut down air pollution control equipment for necessary scheduled maintenance** at least twenty-four (24) hours prior to the planned shutdown. The submittal of this notice shall not be a defense to an enforcement action. The notice shall include the following:

    a. Identification of the specific equipment to be taken out of service, as well as its location and permit number;
    b. The expected length of time that the air pollution control equipment will be out of service;
    c. The nature and quantity of emissions of air pollutants likely to be emitted during the shutdown period;
    d. Measures such as the use of off-shift labor and equipment that will be taken to minimize the length of the shutdown period; and
    e. The reasons why it would be impossible or impractical to shut down the source operation during the maintenance period.

    (Auth.: HAR §11-60.1-15; SIP §11-60-16)[2]

17. **Except for emergencies which result in noncompliance with any technology-based emission limitation in accordance with HAR, Section 11-60.1-16.5, in the event any emission unit, air pollution control equipment, or related equipment malfunctions or breaks down in such a manner as to cause the emission of air pollutants in violation of HAR, Chapter 11-60.1 or this permit**, the permittee shall immediately notify the Department of Health of the malfunction or breakdown, unless the protection of personnel or public health or safety demands immediate attention to the malfunction or breakdown and makes such notification infeasible. In the latter case, the notice shall be provided as soon as practicable. Within five (5) working days of this initial notification, the permittee shall also submit, in writing, the following information:

    a. Identification of each affected emission point and each emission limit exceeded;
    b. Magnitude of each excess emission;
    c. Time and duration of each excess emission;
    d. Identity of the process or control equipment causing each excess emission;
    e. Cause and nature of each excess emission;
    f. Description of the steps taken to remedy the situation, prevent a recurrence, limit the excessive emissions, and assure that the malfunction or breakdown does not interfere with the attainment and maintenance of the National Ambient Air Quality Standards and state ambient air quality standards;
    g. Documentation that the equipment or process was at all times maintained and operated in a manner consistent with good practice for minimizing emissions; and
    h. A statement that the excess emissions are not part of a recurring pattern indicative of inadequate design, operation, or maintenance.

    The submittal of these notices shall not be a defense to an enforcement action.

    (Auth.: HAR §11-60.1-16; SIP §11-60-16)[2]

18. A copy of applicable correspondence or records submitted to the Department of Health shall be provided to the U.S. EPA Administrator.

    (Auth.: HAR §11-60.1-90)

19. The permittee may request confidential treatment of any records in accordance with HAR Section 11-60.1-14.

    (Auth.: HAR §11-60.1-14, §11-60.1-90)

20. This permit shall become invalid with respect to the authorized construction if construction is not commenced as follows:

    a. Construction shall be commenced within eighteen (18) months after the permit takes effect, shall not be discontinued for a period of eighteen (18) months or more, and shall be completed within a reasonable time.
    b. For phased construction projects, each phase shall commence construction within eighteen (18) months of the projected and approved commencement dates in the permit. This provision shall be applicable only if the projected and approved commencement dates of each construction phase are defined in Attachment II, Special Conditions of this permit.

    (Auth.: HAR §11-60.1-9, §11-60.1-90)

21. The Department of Health may extend the time periods specified in Standard Condition No. 20 upon a satisfactory showing that an extension is justified. Requests for an extension shall be submitted in writing to the Department of Health.

    (Auth.: HAR §11-60.1-9, §11-60.1-90)

22. The permittee shall submit fees in accordance with HAR, Chapter 11-60.1, Subchapter 6.

    (Auth.: HAR §11-60.1-90)

23. All certifications shall be in accordance with HAR, Section 11-60.1-4.

    (Auth.: HAR §11-60.1-4, §11-60.1-90)

24. The permittee shall allow the Director of Health, the Regional Administrator for the U.S. EPA and/or an authorized representative, upon presentation of credentials or other documents required by law:

    a. To enter the premises where a source is located or emission-related activity is conducted, or where records must be kept under the conditions of this permit and inspect at reasonable times all facilities, equipment, including monitoring and air pollution control equipment, practices, operations, or records covered under the terms and conditions of this permit and request copies of records or copy records required by this permit; and
    b. To sample or monitor at reasonable times substances or parameters to assure compliance with this permit or applicable requirements of HAR, Chapter 11-60.1.

    (Auth.: HAR §11-60.1-11, §11-60.1-90)

25. Within thirty (30) days of **permanent discontinuance of the construction, modification, relocation, or operation of the facility covered by this permit**, the discontinuance shall be reported in writing to the Department of Health by a responsible official of the source.

    (Auth.: HAR §11-60.1-8; SIP §11-60-10)[2]

26. Each permit renewal application shall be submitted to the Department of Health no less than twelve (12) months and no more than eighteen (18) months prior to the permit expiration date. The Department of Health may allow a permit renewal application to be submitted no less than six (6) months prior to the permit expiration date, if the Department of Health determines that there is reasonable justification.

    (Auth.: HAR §11-60.1-101, 40 CFR §70.5 (a)(1)(iii))[1]

27. The terms and conditions included in this permit, including any provision designed to limit a source's potential to emit, are federally enforceable unless such terms, conditions, or requirements are specifically designated as not federally enforceable.

    (Auth.: HAR §11-60.1-93)

28. The compliance plan and compliance certification submittal requirements shall be in accordance with HAR, Sections 11-60.1-85 and 11-60.1-86. As specified in HAR, Section 11-60.1-86, the compliance certification shall be submitted to the Department of Health and the U.S. EPA Regional Administrator once per year, or more frequently as set by any applicable requirement.

    (Auth.: HAR §11-60.1-90)

29. **Any document (including reports) required to be submitted by this permit shall be certified as being true, accurate, and complete by a responsible official in accordance with HAR, Sections 11-60.1-1 and 11-60.1-4, and shall be mailed to the following address:**

Clean Air Branch
Environmental Management Division
State of Hawaii Department of Health
P.O. Box 3378
Honolulu, HI 96801-3378

Upon request, all correspondence to the State of Hawaii Department of Health associated with this Covered Source Permit shall have duplicate copies forwarded to:

Chief
Permits Office, (Attention: Air-3)
Air Division
U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, CA 94105

(Auth.: HAR §11-60.1-4, §11-60.1-90)

30. To determine compliance with submittal deadlines for time-sensitive documents, the postmark date of the document shall be used. If the document was hand-delivered, the date received ("stamped") at the Clean Air Branch shall be used to determine the submittal date.

    (Auth.: HAR §11-60.1-5, §11-60.1-90)

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[1] The citations to the Code of Federal Regulations (CFR) identified under a particular condition, indicate that the permit condition complies with the specified provision(s) of the CFR. Due to the integration of the preconstruction and operating permit requirements, permit conditions may incorporate more stringent requirements than those set forth in the CFR.

[2] The citations to the State Implementation Plan (SIP) identified under a particular condition, indicate that the permit condition complies with the specified provision(s) of the SIP.

ATTACHMENT II: SPECIAL CONDITIONS
COVERED SOURCE PERMIT NO. 0489-01-C

Issuance Date: March 11, 2005 **Expiration Date: March 10, 2010**

In addition to the standard conditions of the Covered Source Permit, the following special conditions shall apply to the permitted facility:

Section A. Equipment Description

1. This permit encompasses the following equipment and associated appurtenances:

   a. Waimanalo Gulch Municipal Solid Waste Landfill; and

   b. Landfill Gas Collection and Control system for landfill consisting of enclosed flare, extraction wells, and associated equipment.

   (Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.1, §60.752)[1]

Section B. Definitions

For the purposes of this permit, the following definitions shall be used:

1. *Active collection system* means a gas collection system that uses gas mover equipment.

2. *Active landfill* means a landfill in which solid waste is being placed or a landfill that is planned to accept waste in the future.

3. *Bioreactor* means a MSW landfill or portion of a MSW landfill where any liquid other than leachate (leachate includes landfill gas condensate) is added in a controlled fashion into the waste mass (often in combination with recirculating leachate) to reach a minimum average moisture content of at least 40 percent by weight to accelerate or enhance the anaerobic (without oxygen) biodegradation of the waste.

4. *Closed landfill* means a landfill in which solid waste is no longer being placed, and in which no additional solid wastes will be placed without first filing a notification of modification as prescribed under 40 CFR §60.7(a)(4). Once a notification of modification has been filed, and additional solid waste is placed in the landfill, the landfill is no longer closed.

5. *Closure* means that point in time when a landfill becomes a closed landfill.

6. *Commercial solid waste* means all types of solid waste generated by stores, offices, restaurants, warehouses, and other non-manufacturing activities, excluding residential and industrial wastes.

7. *Controlled landfill* means any landfill at which collection and control systems are required under 40 CFR 60 subpart WWW as a result of the non-methane organic compounds emission rate. The landfill is considered controlled at the time a collection and control system design plan is submitted in compliance with 40 CFR §60.752(b)(2)(I).

8. *Design capacity* means the maximum amount of solid waste a landfill can accept, as indicated in terms of volume or mass in the most recent permit issued by the State, local, or Tribal agency responsible for regulating the landfill, plus any in-place waste not accounted for in the most recent permit. If the owner or operator chooses to convert the design capacity from volume to mass or from mass to volume to demonstrate its design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, the calculation must include a site specific density, which must be recalculated annually.

9. *Deviation* means any instance in which an affected source subject to 40 CFR 60 subpart WWW, or an owner or operator of such a source:

    a. Fails to meet any requirement or obligation established by this subpart, including, but not limited to, any emissions limitation (including any operating limit) or work practice standard;

    b. Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

    c. Fails to meet any emission limitation, (including any operating limit), or work practice standard in this subpart during Startup, Shutdown or Malfunction, regardless of whether or not such failure is permitted by this subpart.

10. *Disposal facility* means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of solid waste.

11. *Emission rate cutoff* means the threshold annual emission rate to which a landfill compares its estimated emission rate to determine if control under the regulation is required.

12. *Emissions limitation* means any emission limit, opacity limit, operating limit, or visible emissions limit.

13. *Enclosed combustor* means an enclosed firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. An enclosed flare is considered an enclosed combustor.

14. *EPA-approved State plan* means a State plan that EPA has approved based on the requirements in 40 CFR part 60, subpart B to implement and enforce 40 CFR part 60, subpart Cc. An approved State plan becomes effective on the date specified in the notice published in the Federal Register announcing EPA's approval.

15. *Federal plan* means the EPA plan to implement 40 CFR part 60, subpart Cc for existing MSW landfills located in States and Indian country where State plans or tribal plans are not currently in effect. On the effective date of an EPA-approved State or tribal plan, the Federal plan no longer applies. The Federal plan is found at 40 CFR part 62, subpart GGG.

16. *Flare* means an open combustor without enclosure or shroud.

17. *Gas mover equipment* means the equipment (i.e., fan, blower, compressor) used to transport landfill gas through the header system.

18. *Household waste* means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including, but not limited to, single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas).

19. *Industrial solid waste* means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under Subtitle C of the Resource Conservation and Recovery Act, parts 264 and 265 of the Code of Federal Regulations, Title 40. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.

20. *Interior well* means any well or similar collection component located inside the perimeter of the landfill waste. A perimeter well located outside the landfilled waste is not an interior well.

21. *Landfill* means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile as those terms are defined under 40 CFR §257.2.

22. *Lateral expansion* means a horizontal expansion of the waste boundaries of an existing MSW landfill. A lateral expansion is not a modification unless it results in an increase in the design capacity of the landfill.

23. *Modification* means an increase in the permitted volume design capacity of the landfill by either horizontal or vertical expansion based on its permitted design capacity as of May 30, 1991. Modification does not occur until the owner or operator commences construction on the horizontal or vertical expansion.

24. *Municipal solid waste landfill* or *MSW landfill* means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. An MSW landfill may also receive other types of RCRA Subtitle D wastes (40 CFR §257.2) such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSW landfill may be separated by access roads. An MSW landfill may be publicly or privately owned. An MSW landfill may be a new MSW landfill, an existing MSW landfill, or a lateral expansion.

25. *Municipal solid waste landfill emissions* or *MSW landfill emissions* means gas generated by the decomposition of organic waste deposited in an MSW landfill or derived from the evolution of organic compounds in the waste.

26. *NMOC* means non-methane organic compounds, as measured according to the provisions of 40 CFR §60.754.

27. *Nondegradable waste* means any waste that does not decompose through chemical breakdown or microbiological activity. Examples are, but are not limited to, concrete, municipal waste combustor ash, and metals.

28. *Passive collection system* means a gas collection system that solely uses positive pressure within the landfill to move the gas rather than using gas mover equipment.

29. *Sludge* means any solid, semisolid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility, exclusive of the treated effluent from a wastewater treatment plant.

30. *Solid waste* means any garbage, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permits under 33 U.S.C. 1342, or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (42 U.S.C 2011 et seq.).

31. *Sufficient density* means any number, spacing, and combination of collection system components, including vertical wells, horizontal collectors, and surface collectors, necessary to maintain emission and migration control as determined by measures of performance set forth in 40 CFR 60 subpart WWW.

32. *Sufficient extraction rate* means a rate sufficient to maintain a negative pressure at all wellheads in the collection system without causing air infiltration, including any wellheads connected to the system as a result of expansion or excess surface emissions, for the life of the blower.

33. *Tribal plan* means a plan submitted by a tribal authority pursuant to 40 CFR parts 9, 35, 49, 50, and 81 to implement and enforce 40 CFR part 60, subpart Cc.

34. *Work practice standard* means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the Clean Air Act.

(Auth: HAR §11-60.1-3, §11-60.1-90, §11-60.1-161; 40 CFR §60.751, 40 CFR §63.1990)[1]

Section C. Applicable Federal Regulations

1. The municipal solid waste landfill is subject to the provisions of the following federal regulations:

   a. 40 CFR Part 60, Standards of Performance for New Stationary Sources, Subpart A - General Provisions;
   b. 40 CFR Part 60, Standards of Performance for New Stationary Sources, Subpart WWW - Standards of Performance for Municipal Solid Waste Landfills;
   c. 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants for Source Categories, Subpart A - General Provisions; and
   d. 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants for Source Categories , Subpart AAAA - Municipal Solid Waste Landfills.

   (Auth: HAR §11-60.1-3,§60.1-90, §60.1-174; 40 CFR §60.1, §60.750, 40 CFR §63.1930)[1]

2. The permittee shall comply with all applicable provisions of these standards including all emission limits, notification, testing, monitoring, and reporting requirements.

3. In addition to the requirements of Hawaii Revised Statues, Chapter 342B and Hawaii Administrative Rules, Chapters 11-59 and 60.1, the conditions specified in this Attachment are incorporated pursuant to federal regulations 40 CFR 60, Subparts A and WWW and

40 CFR 63, Subparts A and AAAA. Except as may be required by the aforementioned state law and rules, should there be a conflict between the conditions of this Attachment and the aforementioned federal regulations, the federal regulations shall take precedence.

(Auth: HAR §11-60.1-3, §11-60.1-90, §11-60.1-174; 40 CFR §60.1, §60.750)[1]

Section D. Operational Standards for the Collection and Control System

1. Landfill Air Emission Standards

   a. The permittee shall submit an initial design capacity report. The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values.

   b. The permittee shall submit to the administrator an amended design capacity report when there is any increase in the design capacity of a landfill subject to the provisions of 40 CFR 60 Subpart WWW.

   c. The control system for the landfill gas shall be designed and operated to reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million (ppm) by volume. The reduction efficiency or parts per million by volume shall be established by the initial performance test.

2. Gas Collection System Standards

   Each owner or operator of an MSW landfill gas collection and control system used to comply with the provisions of 40 CFR §60.752(b)(2)(ii) shall:

   a. Operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for:

      i. Five (5) years or more if active; or
      ii. Two (2) years or more if closed or at final grade;

   b. Operate the collection system with negative pressure at each wellhead except under the following conditions:

      i. A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in Special Condition G.2;

ii. Use of a geomembrane or synthetic cover. The owner or operator shall develop acceptable pressure limits in the design plan; and

iii. A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the Administrator.

c. Operate each interior wellhead in the collection system with a landfill gas temperature less than 55°C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The permittee may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

i. The nitrogen level shall be determined using 40 CFR Part 60, Appendix A, Method 3C.

ii. The oxygen level shall be determined by an oxygen meter using 40 CFR Part 60, Appendix A, Method 3A except that:

(1) The span shall be set so that the regulatory limit is between 20 and 50 percent of the span;
(2) A data recorder is not required;
(3) Only two calibration gases are required, a zero and span, and ambient air may be used as the span;
(4) A calibration error check is not required; and
(5) The allowable sample bias, zero drift, and calibration drift are ±10 percent.

Alternate test methods may be used provided prior approval is obtained from the Department of Health.

d. Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the permittee shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The permittee may establish an alternate traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30-meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.

e. Operate the system such that all collected gases are vented to the gas collection and control system. In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one (1) hour; and

f. Operate the control or treatment system at all times when the collected gas is routed to the system.

If monitoring demonstrates that the operational requirements of Special conditions D.2.b, D.2.c or D.2.d are not met, the permittee shall take corrective action as specified in Section E of this attachment. If corrective actions are taken as specified, the monitored exceedance is not a violation of the operational requirements in this section.

(Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.753)[1]

3. The permittee shall adopt a startup, shutdown and malfunction plan which conforms to the provisions of 40 CFR Subpart A, §63.6. The permittee shall operate and maintain the facility in accordance with the procedures specified in the current startup, shutdown, and malfunction plan. Any revisions made to the startup, shutdown, and malfunction plan in accordance with the procedures established by 40 CFR §63.6(e)(3) shall not be deemed to constitute permit revisions under 40 CFR 70 or 40 CFR 71. Moreover, none of the procedures specified by the startup, shutdown and malfunction plan for an affected source shall be deemed to fall within the permit shield provision in section 504(f) of the Clean Air Act.

(Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.753, 40 CFR §63.6) [1]

4. Discontinuance of Collection and Control System

The permittee may cap or remove a collection and control system provided that all the following conditions are met:

a. The landfill is a closed landfill as defined in this Attachment, Section B. A closure report shall be submitted to the Department of Health as provided in Special Condition F.7;
b. The collection and control system shall have been in operation a minimum of fifteen (15) years; and

c. The calculated NMOC gas produced by the landfill shall be less than 50 megagrams per year on three successive test dates. The procedures specified in Special Condition G.10 shall be used. The test dates shall be no less than 90 days apart and no more than 180 days apart.

(Auth: HAR §11-60.1-3, §11-60.1-90, §11-60.1-174; 40 CFR §60.752(b))[1]

5. Visible Emissions

   a. The permittee shall take measures to control fugitive dust at all material transfer points and throughout the workyard. The Department of Health may at any time require the permittee to further abate fugitive dust emissions if an inspection indicates poor or insufficient control.

   b. The permittee shall not cause or permit fugitive dust to become airborne without taking reasonable precautions and shall not cause or permit the discharge of visible emissions of fugitive dust beyond the lot line of the property on which the emissions originate.

   c. For any six (6) minute averaging period, the enclosed flare shall not exhibit visible emissions of twenty (20) percent or greater, except as follows: during start-up, shutdown, or equipment breakdown, the enclosed flare may exhibit visible emissions greater than twenty, but not exceeding sixty (60) percent opacity for a period aggregating not more than six minutes in any sixty (60) minute period.

   (Auth: HAR §11-60.1-3, §11-60.1-33, §11-60.1-90)

Section E. Compliance Provisions

1. Except as provided in the collection and control system design plan approved by the Department of Health, the permittee shall use the following methods to determine whether the gas collection system is in compliance with Special Condition D.2.

   a. Calculation of Maximum Expected Gas Generation Flow Rate

      For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with 40 CFR §60.752(b)(2)(ii)(A)(1), one of the following equations shall be used. The k and L_o kinetic factors should be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42) or other site specific values demonstrated to be appropriate and approved by the Department of Health. If k has been determined as specified in this Attachment, Section H, the value of k determined from the test shall be used. A value of no more than 15 years shall be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure.

      i. For sites with unknown year-to-year solid waste acceptance rate:

         $Q_m = 2L_oR(e^{-kc} - e^{-kt})$ where,

Q_m = maximum expected gas generation flow rate (m^3/yr)
L_o = methane generation potential, (m^3/Mg solid waste)
R = average annual acceptance rate (Mg/yr)
k = methane generation rate constant ($year^{-1}$)
t = age of the landfill at equipment installation plus the time the owner or operator intends to use the gas mover equipment or active life of the landfill, whichever is less. If the equipment is installed after closure, t is the age of the landfill at installation (years)
c = time since closure (years) (for an active landfill c = O and $e^{-kc} = 1$)

ii. For sites with known year-to-year solid waste acceptance rate:

$$Q_M = \sum_{I=1}^{n} 2kL_oM_i(e^{-kt}i) \text{ where,}$$

Q_M = maximum expected gas generation flow rate (m^3/year)
k = methane generation rate constant ($year^{-1}$)
L_o = methane generation potential, (m^3/Mg solid waste)
M_i = mass of solid waste in the i^{th} section (Mg)
t_i = age of the i^{th} section (years)

iii. The permittee may use actual flow data to project the maximum expected gas generation flow rate instead of, or in conjunction with, the equations listed in Special Conditions E.1.a.i and E.1.a.ii. If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using the equations in paragraphs (a)(1) (I) or (ii) or other methods shall be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment.

b. Gas Collector Density

For the purposes of determining sufficient density of gas collectors for compliance with 40 CFR §60.752(b)(2)(ii)(A)(2), the permittee shall design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the Administrator Department of Health, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.

c. Gas Collection System Flow Rate

For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with 40 CFR §60.752(b)(2)(ii)(A)(3), the permittee shall measure gauge pressure in the gas collection header at each individual well, monthly. If a positive pressure exists:

i. Action shall be initiated to correct the exceedance within 5 calendar days, except for the three conditions allowed under Special Condition No. D.2.b.

ii. If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure.

iii. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval.

d. The permittee is not required to install additional wells as required in Special Condition E.1.c during the first 180 days after gas collection system startup.

e. Identification of Excess Air Infiltration

The permittee shall monitor each well monthly for temperature and concentration of nitrogen or oxygen as provided in Special Condition D.2.c. If a well exceeds one of these operating parameters:

i. Action shall be initiated to correct the exceedance within 5 calendar days.

ii. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance.

iii. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval.

(Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.755)[1]

2. For purposes of compliance with 40 CFR §60.753(a), the permittee of a controlled landfill shall place each well or design component as specified in the approved design plan. Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of:

a. Five (5) years or more if active; or
b. Two (2) years or more if closed or at final grade.

(Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.755)[1]

3. The following procedures shall be used for compliance with the surface methane operational standard as provided in Special Condition D.2.d.:

   a. After installation of the collection system, the permittee shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in Special Condition E.4.
   b. The background concentration shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells.
   c. Surface emission monitoring shall be performed in accordance with section 4.3.1 of Method 21 of 40 CFR 60 appendix A, except that the probe inlet shall be placed within 5 to 10 centimeters of the ground. Monitoring shall be performed during typical meteorological conditions.
   d. Any reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the following actions shall be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of Special Condition D.2.d.

      i. The location of each monitored exceedance shall be marked and the location recorded.

      ii. Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within 10 calendar days of detecting the exceedance.

      iii. If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken and the location shall be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in Special Condition E.3.d.v shall be taken, and no further monitoring of that location is required until the action specified in Special Condition E.3.d.v has been taken.

      iv. Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in Special Conditions E.3.d.ii or E.3.d.iii shall be re-monitored one month from the initial exceedance. If the one-month remonitoring shows a concentration less than 500 parts per million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the one-month remonitoring shows an exceedance, the actions specified in Special Conditions E.3.d.ii or E.3.d.iii shall be taken.

v. For any location where monitored methane concentration equals or exceeds 500 parts per million above background three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the Administrator for approval.

e. The permittee shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.

(Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.755)[1]

4. The permittee shall comply with the following instrumentation specifications and procedures for surface emission monitoring devices:

   a. The portable analyzer shall meet the instrument specifications provided in section 3 of Method 21 of 40 CFR 60 appendix A, except that "methane"' shall replace all references to VOC.
   b. The calibration gas shall be methane, diluted to a nominal concentration of 500 parts per million in air.
   c. To meet the performance evaluation requirements in section 3.1.3 of Method 21 of 40 CFR 60 appendix A, the instrument evaluation procedures of section 4.4 of Method 21 of 40 CFR 60 appendix A shall be used.
   d. The calibration procedures provided in section 4.2 of Method 21 of 40 CFR 60 appendix A shall be followed immediately before commencing a surface monitoring survey.

   (Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.755)[1]

5. The provisions of Attachment II, Section E apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed five (5) days for collection systems and shall not exceed one hour for treatment or control devices.

   (Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.755)[1]

Section F. Monitoring and Recordkeeping Requirements

Monitoring

1. Gas Collection System

   Except as provided in the collection and control system design plan approved by the Department of Health, each permittee with an active gas collection system shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and:

   a. Measure the gauge pressure in the gas collection header on a monthly basis; and
   b. Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis; and
   c. Monitor temperature of the landfill gas on a monthly basis.

   (Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.769)[1]

2. Enclosed Flare

   The permittee shall calibrate, maintain, and operate the following equipment according to the manufacturer's specifications:

   a. A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ±1 percent of the temperature being measured expressed in degrees Celsius or ±0.5 degrees Celsius, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity equal to or greater than 44 megawatts.

   b. A device that records flow to or bypass of the control device. The permittee shall either:

      i. Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or

      ii. Secure the bypass line valve in the closed position with a car- seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

   (Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.756)[1]

3. Surface Concentrations of Methane

   Each permittee shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in this Attachment, Special Condition No. E.4. Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.

   (Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.756)[1]

4. Alternatives

   Each permittee that specified alternatives in the collection and control design plan shall comply with any additional monitoring requirements set forth in the plan as approved by the Department of Health.

   (Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.756)[1]

5. Performance Tests

   Initial and annual source performance tests shall be conducted on the collection and control system pursuant to Attachment II, Section H. Test summaries and results shall be maintained in accordance with the requirements of this section.

   (Auth: HAR §11-60.1-3, §11-60.1-5, §11-60.1-90)[1]

6. In the event that the collection and control system is not in operation and in compliance with this Attachment, Sections D and E:

   a. Annual NMOC emission rates shall be calculated in accordance with Attachment II, Section G; and

   b. NMOC emission rate reports shall be submitted in accordance with Attachment II, Special Condition F.2.

   (Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.757)[1]

7. Visible Emissions (V.E.)

   a. The permittee shall conduct **monthly** (*calendar month*) V.E. observations for the enclosed flare in accordance with Method 9 or by use of a Ringelmann Chart as provided. For the opacity limits specified in Special Condition D.8.c, the annual source performance test shall satisfy visible emission monitoring requirements for the month the source test was performed. For each period, two (2) consecutive six (6) minute

observations shall be taken at fifteen (15) second intervals for each equipment. Records shall be completed and maintained in accordance with the *Visible Emissions Form Requirements*.

(Auth: HAR §11-60.1-8, §11-60.1-15, §11-60.1-16, §11-60.1-90)

Recordkeeping

8. Except where otherwise specified, all records, including supporting information, data, calculations, sample reports, and measurements used to calculate emissions, shall be maintained in a permanent form suitable for inspection, retained for **at least five (5) years** following the date of such records, and provided to the Department of Health or their authorized representative upon request.

   (Auth: HAR §11-60.1-3, §11-60.1-90, §11-60.1-174; 40 CFR §60.758)[1]

9. Each permittee that specified alternatives in the collection and control design plan shall comply with any additional recordkeeping requirements set forth in the plan as approved by the Department of Health.

   (Auth: HAR §11-60.1-3, §11-60.1-90, §11-60.1-174; 40 CFR §60.758)[1]

10. Except as provided in the collection and control system design plan approved by the Department of Health, the permittee shall maintain the following records:

    a. Equipment operating parameters specified to be monitored in Special Conditions F.1 - F.4, including:

       i. Gauge pressure in each extraction well;

       ii. Nitrogen or oxygen concentration in extracted landfill gas;

       iii. Temperature of extracted landfill gas;

       iv. Methane concentrations along landfill surface;

       v. Gas flow from collection system to the control device; and

       vi. Combustion temperature of an enclosed combustion device or the continuous presence of a pilot flame for an open flare.

b. The following data, as measured during the initial performance test or compliance determination, shall be maintained for the life of the control equipment. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years.

   i. The maximum expected gas generation flow rate as calculated in Special Condition E.1.a. The owner or operator may use another method to determine the maximum gas generation flow rate, if the method is included in the collection and control system design plan approved by the Department.

   ii. The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in Special Condition C.4.a.

   ii. For an enclosed combustion device other than a boiler or process heater with a design heat input capacity equal to or greater than 44 megawatts:

      (1) The average combustion temperature measured at least every 15 minutes and averaged over the same time period of the performance test.
      (2) The percent reduction of NMOC achieved by the control device.

c. Instances in which positive pressure occurs in efforts to avoid a fire, including the date, time, and duration of positive pressure.

d. Periods of operation during which the parameter boundaries established during the most recent performance test are exceeded, including:

   i. For enclosed combustors except for boilers and process heaters with design heat input capacity of 44 megawatts (150 million British thermal unit per hour) or greater: all 3-hour periods of operation during which the average combustion temperature was more than 28°C below the average combustion temperature.

e. Continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines.

f. Plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector for the life of the collection system, including:

   i. Installation date and location of all newly installed collectors; and

   ii. Documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as well as any nonproductive areas excluded from collection.

g. All collection and control system exceedances of the operational standards in Attachment II, Section D, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance. Records shall also include the dates, times, duration, reasons, sampler's name, and any corrective actions, as applicable.

h. Source performance test plans, summaries, and results for the collection and control system.

I. Equipment inspection, maintenance, and repair work. A log shall be maintained for the equipment covered under this permit. Replacement of parts and repairs to the facility shall be well documented. At a minimum, the log shall include:

i. Date of the inspection/maintenance/repair;

ii. Description of the findings and any maintenance/repair work performed; and

iii. The name and title of the personnel performing the inspection/work.

(Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.753 and 60.758)[1]

11. Records of the control device vendor specifications shall be maintained until removal.

(Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.753 and 60.758)[1]

Section G. Notification and Reporting Requirements

1. Notification and reporting pertaining to the following events for each landfill shall be done in accordance with Attachment I, Standard Condition Nos. 14, 16, 17 and 25, respectively:

a. *Anticipated date of initial start-up, actual date of construction commencement, and actual date of start-up;*
b. *Intent to shut down air pollution control equipment for necessary scheduled maintenance;*
c. *Emissions of air pollutants in violation of HAR, Chapter 11-60.1 or this permit (excluding technology-based emission exceedances due to emergencies); and*
d. *Permanent discontinuance of construction, modification, relocation, or operation of the facility covered by this permit.*

(Auth: HAR §11-60.1-8, §11-60.1-15, §11-60.1-16, §11-60.1-90; SIP §11-60-10, §11-60-16)[2]

2. Monitoring Reports

The permittee shall submit **semi-annually** the following written report to the Department of Health. The report shall be submitted **within sixty (60) days after** *the end of each semi-annual calendar period (January 1 - June 30 and July 1 - December 31),* shall be signed and dated by an authorized representative, and shall include:

a. Information as required by the Initial Compliance Report in Special Condition G.3; and
b. Additional information, including:

i. Average and maximum gauge pressure within each gas extraction well measured over 6-month period;

ii. Average and maximum nitrogen concentration or average and maximum oxygen concentration measured over 6-month period;

iii. Average and maximum landfill gas temperature in extraction well measured over six-month period;

iv. Average and maximum methane concentration at landfill surface measured over quarterly period. If annual monitoring is allowed, the average and maximum methane concentration at landfill surface during the most recent monitoring event;

v. Identification of any instances when the gas flow has been diverted from the control device, enclosed combustor, or open flare;

vi. Average, maximum, and minimum combustion temperature of an enclosed combustion device, as applicable;

vii. Identification of any instances in which the pilot flame or flare flame for an open flare was not present;

viii. For all maximum values, include the date and time that the value was identified;

ix. For all instances of non-compliance, indicate the dates, times, duration, and reason; and

x. Any opacity exceedances as determined by the required monthly visible emissions monitoring. Each exceedance reported shall include the date, six (6) minute average opacity reading, possible reasons for exceedance, duration of exceedance, and corrective actions taken. If there were no exceedances, the permittee shall submit in writing a statement indicating that for each equipment there were no exceedances for that semi-annual period.

The Monitoring Report Form(s): **Collection and Control System**, and **Visible Emissions** shall be used.

(Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.756)[1]

3. Initial Compliance Report

The permittee with an active collection system shall submit an initial compliance report **within 180 days** *of installation and start-up of the collection and control system.* The initial annual report shall include the initial performance test and the following information:

a. Value, date, time, and duration of each exceedance of applicable parameters for:

   i. Gauge pressure in the gas collection header;

   ii. Nitrogen or oxygen concentration in the landfill gas;

   iii. Temperature of landfill gas; and

   iv. Surface concentrations of methane.

b. Description, reason, dates, start and end times, and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified in Attachment II, Section E.
c. Description, reason, dates, start and end times, and duration of all periods when the control device was not operating for a period exceeding one (1) hour and length of time the control device was not operating.
d. All periods when the collection system was not operating in excess of five (5) days, including dates and times that operation ceased, reason for not operating, actions taken, dates and times that operation resumed, and future operational protocol that will prevent a reoccurrence of the situation.
e. The location of each exceedance of the 500 ppm surface methane concentration as provided in 60.753(d), concentration at each location for which an exceedance was recorded in the previous month. Also identify the dates of sampling, sampler's name, and actions taken to address the exceedance.
f. The date of installation and the location of each well or collection system expansion added.

The Supplemental Report Form *Initial Compliance Report* shall be used.

(Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.758)[1]

4. Annual Emissions Reporting

   a. As required by Attachment IV, the permittee shall report annually the NMOC emission rate and total tons per year emitted of each regulated air pollutant from the municipal solid waste landfill facility, including hazardous air pollutants. The reporting of annual emissions is due **within sixty (60) days following** *the end of each calendar year.*

      The enclosed Annual Emissions Report Form: *Municipal Solid Waste Landfills,* shall be used for reporting.

      Upon written request of the facility, the deadline for reporting of annual emissions may be extended, if the Department of Health determines that reasonable justification exists for the extension.

   (Auth: HAR §11-60.1-3, §11-60.1-90)

5. Performance test reports

   a. At least **thirty (30) days prior** *to conducting a source performance test*, the permittee shall submit to the Department of Health a test plan in accordance with Special Condition H.4.

   b. Written reports of the results of all source performance tests conducted pursuant to this permit shall be submitted to the Department of Health **within sixty (60) days** *after the completion of the performance test* in accordance with Special Condition H.6.

   (Auth: HAR §11-60.1-3, §11-60.1-90)

6. Design Capacity Increase

   The permittee shall submit information regarding landfill modifications (as defined in Special Condition B.12) to the Department of Health at least **thirty (30) days prior** to commencement of construction. The information submitted shall include the following:

   a. Name, address, and phone number of the facility and the plant site manager or other contact;
   b. Current design capacity of the landfill (m^3 and Mg);
   c. Current site-specific density (Mg/m^3);
   d. Description of the reconstruction or modification;
   e. Site map of the landfill containing the following information:

      i. Location of the landfill and area of proposed modification or reconstruction;

      ii. Current lateral boundaries of the existing landfill;

iii. Proposed lateral boundaries of the expansion; and

iv. Current and proposed vertical dimensions of the landfill;

f. Projected date of construction commencement;
g. Projected waste acceptance rate for the proposed modification;
h. Certification that no air pollution equipment will be added to the facility and operational methods will remain similar as permitted under this Covered Source Permit; and
i. Certification that the permittee shall comply with each applicable requirement of this Covered Source Permit.
j. Other information as may be required by the Department of Health; and
k. A ***certified statement by a responsible official*** that all information contained in the notification is accurate and true.

The enclosed Supplemental Report Form: *Modification/Reconstruction of MSW Landfill,* shall be used.

(Auth: HAR §11-60.1-3, §11-60.1-90)

7. Landfill Closure

The permittee shall submit a **closure report** to the Department of Health **within 30 days** of waste acceptance cessation. If a closure report is submitted, no additional wastes may be placed into the landfill without filing a notification of modification as in 40 CFR §60.7(a)(4). The closure report shall contain the following information:

a. Last day of waste acceptance (month, day, year);
b. Date of closure (month, day, year);
c. Design capacity (Mg and m3);
d. Quantity of refuse-in-place (Mg and m3); and
e. Identification and quantity of additional capacity, if any;
f. Certification that no additional waste will be placed in the landfill; and
g. Name, address, and phone number of the facility and the plant site manager or other contact.

The enclosed Supplemental Report Form: *Notification of Upcoming Landfill Closure,* shall be used.

The Department of Health may request additional information as may be necessary to verify that permanent closure has taken place in accordance with 40 CFR §60.258.60.

(Auth: HAR §11-60.1-3, §11-60.1-90, §11-60.1-174; 40 CFR §60.757)[1]

8. Equipment Removal Notification

The permittee shall submit an equipment removal report to the Department of Health **30 days prior** to removal or cessation of operation of the control equipment.

a. The equipment removal report shall contain the following items:

i. A copy of the closure report submitted in accordance with Special Condition G.7;

ii. A copy of the initial performance test report demonstrating that the 15-year minimum control period has expired; and

iii. Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year.

b. The Department of Health may request such additional information as may be necessary to verify that all of the conditions for removal in Special Condition G.10 have been met.

The enclosed Supplemental Report Form: *Notification of Collection and Control Equipment Removal,* shall be used.

(Auth: HAR §11-60.1-3, §11-60.1-90, §11-60.1-174; 40 CFR §60.757)[1]

9. Compliance Certification

During the permit term, the permittee shall submit at least **annually** to the Department of Health and U.S. EPA Region 9, a compliance certification pursuant to HAR, Subsection 11-60.1-86. The permittee shall indicate whether or not compliance is being met with each term or condition of this permit. The compliance certification shall include, at a minimum, the following information:

a. The identification of each term or condition of the permit that is the basis of the certification;
b. The compliance status;
c. Whether compliance was continuous or intermittent;
d. The methods used for determining the compliance status of the source currently and over the reporting period;
e. Any additional information indicating the source's compliance status with an applicable enhanced monitoring and compliance certification including the requirements of Section 114 (a)(3) of the Clean Air Act or any applicable monitoring and analysis provisions of Section 504(b) of the Clean Air Act; and
f. Any additional information as required by the Department of Health including information to determine compliance.

The compliance certification shall be submitted within ninety (90) days after the end of each calendar year, and shall be signed and dated by an authorized representative.

Upon written request of the permittee, the deadline for submitting the compliance certification may be extended, if the Department of Health determines that reasonable justification exists for the extension.

(Auth: HAR §11-60.1-4, §11-60.1-86, §11-60.1-90)

10. Discontinuance of the Collection and Control System

The permittee shall calculate the NMOC emission rate for purposes of determining when a collection and control system can be removed, using the following equation:

$M_{NMOC} = 1.89 \times 10^{-3} Q_{LFG} C_{NMOC}$, where

M_{NMOC} = mass emission rate of NMOC (Mg/yr)
Q_{LFG} = flow rate of landfill gas (m3/min)
C_{NMOC} = NMOC concentration (ppm by volume as hexane)

a. The flow rate of landfill gas, Q_{LFG}, shall be determined by measuring the total landfill gas flow rate at the common header pipe that leads to the control device using a gas flow measuring device calibrated according to the provisions of section 4 of Method 2E of appendix A.
b. The average NMOC concentration, C_{NMOC}, shall be determined by collecting and analyzing landfill gas sampled from the common header pipe before the gas moving or condensate removal equipment using the procedures in Method 25C or Method 18 of appendix A. If using Method 18 of appendix A, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The sample location on the common header pipe shall be before any condensate removal or other gas refining units. The permittee shall divide the NMOC concentration from Method 25C of 40 CFR 60 appendix A by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.
c. The owner or operator may use another method to determine landfill gas flow rate and NMOC concentration if the method has been approved by the Administrator.

(Auth: HAR §11-60.1-3, §11-60.1-90, §11-60.1-174; 40 CFR §60.754)[1]

Section H. Testing Requirements

1. **Within sixty (60) days after** *achieving the maximum production rate* of the collection and control system but not later than one hundred eighty (180) days after initial start-up, and annually thereafter, the permittee shall conduct or cause to be conducted performance tests on the collection and control system for the following purposes:

   a. To establish the reduction efficiency or parts per million volume of a control system designed and operated to reduce NMOC by 98 weight-percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at 3 percent oxygen.

   The Department of Health may require testing at other points in the facility or more frequent testing if an inspection indicates poor or insufficient controls.

   (Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.754)[1]

2. On an annual basis or other times as may be specified by the Department of Health, performance tests for the emissions of NMOC and the determination of opacity shall be conducted and results reported in accordance with the test methods set forth in 40 CFR Part 60, Appendix A and 40 CFR Part 60.8. The following test methods or U.S. EPA-approved equivalent methods with written consent from the Department of Health shall be used:

   a. The permittee shall use Method 25, 25C, or Method 18 of 40 CFR 60 Appendix A to determine compliance with the 98 weight-percent efficiency or the 20 ppmv outlet concentration level, unless another method to demonstrate compliance is included in the collection and control system design plan approved by the Department of Health.
   b. The permittee shall use Method 3 or 3A determine the oxygen for correcting the NMOC concentration as hexane to 3 percent.
   c. The permittee shall use Method 25A in place of Method 25 in cases where the outlet concentration is less than 50 parts per million NMOC as carbon (8 ppm NMOC as hexane).
   d. If using Method 18 of Appendix A, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42).
   e. The permittee shall use the following equation to calculate efficiency:

      Control Efficiency = $(NMOC_{in} - NMOC_{out})/NMOC_{in}$

      Where, $NMOC_{in}$ = mass of NMOC entering control device and
      $NMOC_{out}$ = mass of NMOC exiting control device.

   (Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.754)[1]

3. The initial performance test report shall include the following information:

   a. A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion;
   b. The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based;
   c. The documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable material;
   d. The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on nonproductivity and the calculations of gas generation flow rate for each excluded area;
   e. The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill; and
   f. The provisions fo the control of off-site migration.

   (Auth: HAR §11-60.1-3,§11-60.1-90, §11-60.1-174; 40 CFR §60.754, 60.757)[1]

3. The performance tests shall be made at the expense of the permittee and shall be conducted at the maximum expected operating capacity of the collection and control system. All performance tests may be monitored by the Department of Health.

   (Auth: HAR §11-60.1-3, §11-60.1-11, §11-60.1-90, SIP §11-60-15)[2]

4. At least **thirty (30) calendar days prior** *to conducting a performance test*, the owner or operator shall submit a written performance test plan to the Department of Health that includes date(s) of the test, test duration, test locations, test methods, source operation, location of visible emissions, and other parameters that may affect performance test results. Such a plan shall conform to U.S. EPA guidelines including quality assurance procedures. A test plan or quality assurance plan that does not have the approval of the Department of Health may be grounds to invalidate any test and require a retest.

   (Auth: HAR §11-60.1-3, §11-60.1-11, §11-60.1-90, 40 CFR §60.8, SIP §11-60-15)[1,2]

5. Any deviations from these conditions, test methods, or procedures may be cause for rejection of the test results unless such deviations are approved by the Department of Health before the tests.

   (Auth: HAR §11-60.1-3, §11-60.1-11, §11-60.1-90)

6. **Within sixty (60) days after** *completion of the performance test*, the permittee shall submit to the Department of Health the test report which shall include the operating conditions (e.g., operating rate in tons/hour and pressure drop readings, etc.) of the portable drum mix asphalt concrete plant, the summarized test results, comparative results with the permit emissions limits, and other pertinent field data, laboratory data, and support calculations.

   (Auth: HAR §11-60.1-3, §11-60.1-11, §11-60.1-90)

7. Upon written request and justification, the Department of Health may waive the requirement for, or a portion of, a specific performance test. The waiver request is to be submitted prior to the required test and must include documentation justifying such action. Documentation should include, but is not limited to, the results of the prior performance test indicating compliance by a wide margin, documentation of continuing compliance, and further that operations of the source have not changed since the previous test.

   (Auth: HAR §11-60.1-3, §11-60.1-11, §11-60.1-90)

Section I. Agency Notification

Any document, including reports, required to be submitted by this Covered Source Permit shall be done in accordance with Attachment I, Standard Condition No. 29.

(Auth: HAR §11-60.1-4, §11-60.1-90)

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[1] The citations to the Code of Federal Regulations (CFR) identified under a particular condition, indicate that the permit condition complies with the specified provision(s) of the CFR. Due to the integration of the preconstruction and operating permit requirements, permit conditions may incorporate more stringent requirements than those set forth in the CFR.

[2] The citations to the State Implementation Plan (SIP) identified under a particular condition, indicate that the permit condition complies with the specified provision(s) of the SIP.

ATTACHMENT II - INSIG: SPECIAL CONDITIONS
COVERED SOURCE PERMIT NO. 0489-01-C
INSIGNIFICANT ACTIVITIES

Issuance Date: March 11, 2005 **Expiration Date: March 10, 2010**

In addition to the Standard Conditions of the Covered Source Permit, the following Special Conditions shall apply to the permitted facility:

Section A. Equipment Description

This attachment encompasses insignificant activities listed in HAR, §11-60.1-82(f) and (g) for which provisions of this permit and HAR, Subchapter 2, General Prohibitions apply.

(Auth: HAR §11-60.1-3)

Section B. Operational Limitations

1. The permittee shall take measures to operate applicable insignificant activities in accordance with the provisions of HAR, Subchapter 2 for visible emissions, fugitive dust, incineration, process industries, sulfur oxides from fuel combustion, storage of volatile organic compounds, volatile organic compound water separation, pump and compressor requirements, and waste gas disposal.

   (Auth: HAR §11-60.1-3, §11-60.1-82, §11-60.1-90)

2. The Department of Health may at any time require the permittee to further abate emissions if an inspection indicates poor or insufficient controls.

   (Auth: HAR §11-60.1-3, §11-60.1-5, §11-60.1-82, §11-60.1-90)

Section C. Monitoring and Recordkeeping Requirements

1. The Department of Health reserves the right to require monitoring, recordkeeping, or testing of any insignificant activity to determine compliance with the applicable requirements.

   (Auth: HAR §11-60.1-3, §11-60.1-90)

2. All records shall be maintained for at least five (5) years from the date of any required monitoring, recordkeeping, testing, or reporting. These records shall be in a permanent form suitable for inspection and made available to the Department of Health or their authorized representative upon request.

   (Auth: HAR §11-60.1-3, §11-60.1-11, §11-60.1-90)

Section D. Notification and Reporting

Compliance Certification

During the permit term, the permittee shall submit at least **annually** to the Department of Health and U.S. EPA Region 9, Attachment V: Compliance Certification pursuant to HAR, Subsection 11-60.1-86. The permittee shall indicate whether or not compliance is being met with each term or condition of this permit. The compliance certification shall include, at a minimum, the following information:

a. The identification of each term or condition of the permit that is the basis of the certification;
b. The compliance status;
c. Whether compliance was continuous or intermittent;
d. The methods used for determining the compliance status of the source currently and over the reporting period; and
e. Any additional information as required by the Department of Health including information to determine compliance.

In lieu of addressing each emission unit as specified in Attachment V, the permittee may address insignificant activities as a single unit provided compliance is met with all applicable requirements. If compliance is not totally attained, the permittee shall identify the specific insignificant activity and provide the details associated with the noncompliance.

The compliance certification shall be submitted **within ninety (90) days after** the end of each calendar year, and shall be signed and dated by a responsible official or authorized representative.

Upon written request of the permittee, the deadline for submitting the compliance certification may be extended, if the Department of Health determines that reasonable justification exists for the extension.

(Auth: HAR §11-60.1-4, §11-60.1-86, §11-60.1-90

Section E. Agency Notification

Any document (including reports) required to be submitted by this Covered Source Permit shall be done in accordance with Attachment 1, Standard Condition No. 29.

(Auth: HAR §11-60.1-4, §11-60.1-90)

ATTACHMENT III: ANNUAL FEE REQUIREMENTS
COVERED SOURCE PERMIT NO. 0489-01-C

Issuance Date: March 11, 2005 **Expiration Date: March 10, 2010**

The following requirements for the submittal of annual fees are established pursuant to HAR, Title 11, Chapter 60.1, Air Pollution Control. Should HAR, Chapter 60.1 be revised such that the following requirements are in conflict with the provisions of HAR, Chapter 60.1, the permittee shall comply with the provisions of HAR, Chapter 60.1:

1. Annual fees shall be paid in full:

   a. **Within sixty (60) days after** the end of each calendar year; and
   b. **Within thirty (30) days after** the permanent discontinuance of the covered source.

2. The annual fees shall be determined and submitted in accordance with HAR, Chapter 11-60.1, Subchapter 6.

3. The annual emissions data for which the annual fees are based shall accompany the submittal of any annual fees and be submitted on forms furnished by the Department of Health.

4. The annual fees and the emission data shall be mailed to:

Clean Air Branch
Environmental Management Division
Hawaii Department of Health
P.O. Box 3378
Honolulu, HI 96801-3378

ATTACHMENT IV: ANNUAL EMISSIONS REPORTING REQUIREMENTS
COVERED SOURCE PERMIT NO. 0489-01-C

Issuance Date: March 11, 2005 **Expiration Date: March 10, 2010**

In accordance with the HAR, Title 11, Chapter 60.1, Air Pollution Control, the permittee shall report to the Department of Health the nature and amounts of emissions.

1. Complete the attached Annual Emissions Report Form: "Municipal Solid Waste Landfills."

2. The reporting period shall be from January 1 to December 31 of each year. All reports shall be submitted to the Department of Health **within sixty (60) days after** *the end of each calendar year* and shall be mailed to the following address:

Clean Air Branch
Environmental Management Division
Hawaii Department of Health
P.O. Box 3378
Honolulu, HI 96801-3378

3. The permittee shall retain the information submitted, including all emission calculations. These records shall be in a permanent form suitable for inspection, retained for a minimum of five (5) years, and made available to the Department of Health upon request.

4. Any information submitted to the Department of Health without a request for confidentiality shall be considered public record.

5. In accordance with HAR, Section 11-60.1-14, the permittee may request confidential treatment of specific information, including information concerning secret processes or methods of manufacture, by submitting a written request to the Department of Health and clearly identifying the specific information that is to be accorded confidential treatment.

ATTACHMENT V: COMPLIANCE CERTIFICATION
COVERED SOURCE PERMIT NO. 0489-01-C

Issuance Date: March 11, 2005 **Expiration Date: March 10, 2010**

In accordance with the Hawaii Administrative Rules, Title 11, Chapter 60.1, Air Pollution Control, the permittee shall report to the Department of Health the following certification at least annually, or more frequently as set by an applicable requirement:

(Make Copies for Future Use)

For Period: _____ Date: _____

Facility Name: _____

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by Department of Health as public record. I further state that I will assume responsibility for the construction, modification, or operation of the source in accordance with the Hawaii Administrative Rules, Title 11, Chapter 60.1, Air Pollution Control, and any permit issued thereof.

Responsible Official (PRINT): _____

TITLE: _____

Responsible Official (Signature): _____

Complete the following information for ***each*** term or condition of the permit that applies to ***each*** emissions unit at the source. Also include any additional information as required by the Department. The compliance certification may reference information contained in a previous compliance certification submittal to the Department, provided such referenced information is certified as being current and still applicable.

1. Current permit number: _____
2. Emissions Unit No./Description: _____
3. Identify the permit term(s) or condition(s) that is/are the basis of this certification:

   _____
   _____
   _____
   _____
   _____

4. Compliance status during the reporting period:
   a. Has the emissions unit been in compliance with the identified permit term(s) or condition(s)?

      ☐ YES ☐ NO

   b. If YES, was compliance continuous or intermittent?

      ☐ Continuous ☐ Intermittent

c. If NO, explain.

5. The methods used for determining the compliance status of the emissions unit currently and over the reporting period (e.g., monitoring, recordkeeping, reporting, test methods, etc.):

Provide a detailed description of the methods used to determine compliance: (e.g., monitoring device type and location, test method description, or parameter being recorded, frequency of recordkeeping, etc.)

6. Statement of Compliance with Enhanced Monitoring and Compliance Certification Requirements.

a. Is the emissions unit identified in this application in compliance with applicable enhanced monitoring and compliance certification requirements?

☐ YES ☐ NO

b. If YES, identify those requirements:

c. If NO, describe below which requirements are not being met:

MONITORING REPORT FORM
COLLECTION AND CONTROL SYSTEM
COVERED SOURCE PERMIT NO. 0489-01-C
(PAGE 1 OF 3)

Issuance Date: March 11, 2005 **Expiration Date: March 10, 2010**

In accordance with the Hawaii Administrative Rules, Title 11, Chapter 60.1, Air Pollution Control, the permittee shall report to the Department of Health the following information **semi-annually**:

(Make Copies for Future Use)

For Period: _____ Date: _____

Facility Name: _____

Facility Location: _____

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Responsible Official (Print): _____

Title: _____

Responsible Official (Signature): _____ Date: _____

1. Value and length of time for exceedance of applicable parameters. If there were 'no exceedances' identified, then write no exceedances in the comment column.

Parameter	Value	Date	Start Time	End Time	Duration	Comments
Gauge pressure in gas collection header						
Nitrogen Conc.(%), or						
Oxygen Conc. (%)						
Temp. (°C) of landfill gas						
Surface Conc. of Methane (ppmv as hexane)						

2. Average and maximum values for the following:

Parameter	Average Value	Maximum Value	Date of Max. Value	Comments
Gauge pressure in gas collection header				
Nitrogen Conc. (%)				
Oxygen Conc. (%)				
Temp. (°C) of landfill gas				
Surface Concentrations of Methane*				

*If annual monitoring is allowed, the average and maximum methane concentration at landfill surface during the most recent monitoring event.

MONITORING REPORT FORM
COLLECTION AND CONTROL SYSTEM
COVERED SOURCE PERMIT NO. 0489-01-C
(CONTINUED, PAGE 2 OF 3)

Issuance Date: March 11, 2005 **Expiration Date: March 10, 2010**

2. Identify the dates, times, duration, reason, and description of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow. If there were no occurrences, then write 'no occurrences' in the comment column.

Description and Reason	Date	Start - End Time	Duration	Comments

3. Identify the dates, times, duration, reason, and description of all periods when the control device was not operating for a period exceeding one (1) hour and length of time the control device was not operating. If there were no occurrences, then write 'no occurrences' in the comment column.

Description and Reason	Dates	Start/End Times	Duration	Comments

4. Identify all periods when the collection system was not operating in excess of five (5) days, including the dates and times that operation ceased, reason for not operating, actions taken, dates and times that operation resumed, and future operational protocol that will prevent a reoccurrence of the situation. If there were no occurrences, then write 'no occurrences' in the comment column.

Reason, Actions Taken	Start/End Dates	Start/End Times	Duration	Future Protocol, Comments

MONITORING REPORT FORM
COLLECTION AND CONTROL SYSTEM
COVERED SOURCE PERMIT NO. 0489-01-C
(CONTINUED, PAGE 3 OF 3)

Issuance Date: March 11, 2005 **Expiration Date: March 10, 2010**

5. Identify the location of each exceedance of the 500 ppm surface methane concentration and the concentration at each location for which an exceedance was recorded in the previous month. Also identify the dates of sampling, sampler's name, and actions taken to address the exceedance. If there were no exceedances, then write 'no occurrences' in the table.

Sampling Date	Location	Conc. (ppm)	Previous Conc. (ppm)	Actions Taken	Sampler's Name

6. Identify the date of installation and the location of each well or collection system expansion added. If no additions were made, then write 'no additions' in the table.

Installation Date	Description of Addition	Location

7. Identify any instances when the gas flow has been diverted from the control device, enclosed combustor, or open flare. If there were no occurrences, then write 'no occurrences' in the table.

Description and Reason	Dates	Start/End Times	Duration	Comments

ANNUAL EMISSIONS REPORT FORM
MUNICIPAL SOLID WASTE LANDFILLS
COVERED SOURCE PERMIT NO. 0489-01-C

Issuance Date: March 11, 2005 **Expiration Date: March 10, 2010**

In accordance with the Hawaii Administrative Rules, Title 11, Chapter 60.1, Air Pollution Control, the permittee shall report to the Department of Health the nature and amounts of emissions, annually.

(Make Copies for Future Use)

For Period: _____ Date: _____

Facility Name: _____

Facility Location: _____

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Responsible Official (Print): _____

Title: _____

Responsible Official (Signature): _____ Date: _____

1. Landfill Emissions

Landfill type (circle one): Area Trench Ramp

Average annual refuse acceptance rate during active life (Mg/yr): _____

Parameter	Site-Specific Value, if available	Calculation Method
Methane generation potential, L_o (m^3 CH_4/Mg refuse)		
Methane generation rate constant, k (yr^{-1})		
Concentration of CH_4 in landfill gas (ppmv)		
Concentration of CO_2 in landfill gas (ppmv)		
Concentration of N_2 in landfill gas (ppmv)		
Concentration of O_2 in landfill gas (ppmv)		
Temperature of landfill gas (°C)		

Note:
If the permittee intends to use the site-specific values to compute annual emissions from the municipal solid waste landfill, all data, background information, and calculations shall be provided with the submittal of this form. If the requested information is not provided, default values will be assumed.

2. For MSW Landfills with a Collection and Control System:

Indicate the control efficiency of the collection and control system: _____

Control Efficiency = $(NMOC_{in} - NMOC_{out})/NMOC_{in}$

Where, $NMOC_{in}$ = mass of NMOC entering control device and
$NMOC_{out}$ = mass of NMOC exiting control device.

SUPPLEMENTAL REPORT FORM
MODIFICATION/RECONSTRUCTION OF MSW LANDFILL
COVERED SOURCE PERMIT NO. 0489-01-C

Issuance Date: March 11, 2005 **Expiration Date: March 10, 2010**

This form fulfills the requirements of the Amended Design Capacity Report.

(Make Copies for Future Use)

For Period: _____ Date: _____

Facility Name: _____

Facility Location: _____

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

I certify that no air pollution equipment will be added to the facility and operational methods will remain similar as permitted under this Covered Source Permit.

I certify to comply with each applicable requirement of this Covered Source Permit.

Responsible Official (Print): _____

Title: _____

Responsible Official (Signature): _____ Date: _____

1. Current design capacity of the landfill (m^3 and Mg): _____
2. Current site-specific density (Mg/m^3): _____
3. Description of the reconstruction or modification: _____

_____

_____

_____

4. Current lateral dimensions of the landfill (meters): _____

   Proposed lateral dimensions of the landfill (meters): _____

   Current vertical limit of the landfill (meters): _____

   Proposed vertical limit of the landfill (meters): _____
5. Projected date of construction commencement: _____
6. Projected waste acceptance rate (Mg/yr): _____
7. Include a site map of thelandfill containing the following information:
   a) Location of the landfill and area of proposed modification or reconstruction;
   b) Current lateral boundaries of the existing landfill;
   c) Proposed lateral boundaries of the expansion; and
   d) Current and proposed vertical dimensions of the landfill.

SUPPLEMENTAL REPORT FORM
NOTIFICATION OF LANDFILL CLOSURE
COVERED SOURCE PERMIT NO. 0489-01-C

Issuance Date: March 11, 2005 **Expiration Date: March 10, 2010**

For Period: _____ Date: _____

Facility Name: _____

Facility Location: _____

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

I certify that the landfill closure is intended to be permanent.

Responsible Official (Print): _____

Title: _____

Responsible Official (Signature): _____ Date: _____

Last day of waste acceptance (month, day, year): _____

Date of landfill closure (month, day, year): _____

Final design capacity of landfill (Mg or m^3): _____

Final quantity of refuse-in-place (Mg **and** m^3): _____

Anticipated additional capacity, if any (Mg or m^3): _____

SUPPLEMENTAL REPORT FORM
INITIAL COMPLIANCE REPORT
COVERED SOURCE PERMIT NO. 0489-01-C
(PAGE 1 OF 2)

Issuance Date: March 11, 2005 **Expiration Date: March 10, 2010**

In accordance with the Hawaii Administrative Rules, Title 11, Chapter 60.1, Air Pollution Control, the permittee shall report the following to the Department of Health:

This report shall be submitted to the Department of Health *within 180 days of installation and start-up* of the collection and control system. Attach additional sheets if necessary. The initial performance test report shall also be included with this submittal.

Facility Name: _____ Date: _____

Facility Location: _____

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Responsible Official (Print): _____

Title: _____

Responsible Official (Signature): _____ Date: _____

Start-up date of collection and control system: _____

1. Value and length of time for exceedance of applicable parameters. If there were no exceedances identified, then write "no exceedances" in the comment column.

Parameter	Value	Date	Start Time	End Time	Duration	Comments
Gauge pressure in gas collection header						
Nitrogen Concentration or						
Oxygen Concentration						
Temperature of landfill gas						
Surface Concentrations of Methane						

2. Identify the dates, times, duration, reason, and description of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow. If there were no occurrences, then write 'no occurrences' in the comment column.

Description and Reason	Date	Start - End Time	Duration	Comments

SUPPLEMENTAL REPORT FORM
INITIAL COMPLIANCE REPORT
COVERED SOURCE PERMIT NO. 0489-01-C
(CONTINUED, PAGE 2 OF 2)

Issuance Date: March 11, 2005 **Expiration Date: March 10, 2010**

In accordance with the Hawaii Administrative Rules, Title 11, Chapter 60.1, Air Pollution Control, the permittee shall report the following to the Department of Health:

3. Identify the dates, times, duration, reason, and description of all periods when the control device was not operating for a period exceeding one (1) hour and length of time the control device was not operating. If there were no occurrences, then write 'no occurrences' in the comment column.

Description and Reason	Dates	Start/End Times	Duration	Comments

4. Identify all periods when the collection system was not operating in excess of five (5) days, including the dates and times that operation ceased, reason for not operating, actions taken, dates and times that operation resumed, and future operational protocol that will prevent a reoccurrence of the situation. If there were no occurrences, then write 'no occurrences' in the comment column.

Reason, Actions Taken	Start/End Dates	Start/End Times	Duration	Future Protocol, Comments

5. Identify the location of each exceedance of the 500 ppm surface methane concentration and the concentration at each location for which an exceedance was recorded in the previous month. Also identify the dates of sampling, sampler's name, and actions taken to address the exceedance. If there were no exceedances, then write 'no occurrences' in the table.

Sampling Date	Location	Conc. (ppm)	Previous Conc. (ppm)	Actions Taken	Sampler's Name

6. Identify the date of installation and the location of each well or collection system expansion added. If no additions were made, then write 'no additions' in the table.

Installation Date	Description of Addition	Location

SUPPLEMENTAL REPORT FORM
NOTIFICATION OF COLLECTION AND CONTROL EQUIPMENT REMOVAL
COVERED SOURCE PERMIT NO. 0489-01-C

Issuance Date: March 11, 2005 **Expiration Date: March 10, 2010**

For Period: _____ Date: _____

Facility Name: _____

Facility Location: _____

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

I certify that the landfill closure is intended to be permanent.

Responsible Official (Print): _____

Title: _____

Responsible Official (Signature): _____ Date: _____

Last day of waste acceptance (month, day, year): _____

Date of landfill closure (month, day, year): _____

Final design capacity of landfill (Mg or m^3): _____

Date of closure report (month, day, year), including a copy of the closure report: _____

Has the collection and control system been in operation for a minimum of 15 years (based on the date of the most recent addition to the system?) Yes No

Include dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year. (Use equations for landfills without a collection and control system to make this determination.)

MONITORING REPORT FORM
VISIBLE EMISSIONS
COVERED SOURCE PERMIT NO. 0489-01-C

Issuance Date: March 11, 2005 **Expiration Date: March 10, 2010**

In accordance with the Hawaii Administrative Rules, Title 11, Chapter 60.1, Air Pollution Control, the permittee shall report to the Department of Health the following information semi-annually:

(Make Copies for Future Use)

For Period:_____ Date:_____

Facility Name:_____

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Responsible Official (PRINT): _____

TITLE: _____

Responsible Official (Signature): _____

Visible Emissions:
Report the following on the lines provided below: all date(s) and six (6) minute average opacity reading(s) which the opacity limit was exceeded during the monthly observations; if there were no exceedances during the monthly observations, then write "no exceedances" in the comment column.

EQUIPMENT	SERIAL/ID NO.	DATE	6 MIN. AVG. (%)	COMMENTS

VISIBLE EMISSIONS FORM REQUIREMENTS
STATE OF HAWAII

The following Visible Emissions (V.E.) Form shall be completed **monthly** (*each calendar month*) for each equipment subject to opacity limits in accordance with Method 9 or by use of a Ringelmann Chart as provided. At least **annually** (*calendar year*), V.E. observations shall be conducted for each equipment subject to opacity limits by a certified reader in accordance with Method 9. The V.E. Form shall be completed as follows:

1. Visible emissions observations shall take place during the day only and shall be compared to the Ringelmann Chart provided. The opacity shall be noted in 5 percent increments (i.e., 25%).

2. Orient the sun within a 140 degree sector to your back. Provide a source layout sketch on the V.E. Form using the symbols as shown.

3. Stand at least three (3) stack heights, but not more than a quarter mile from the stack.

4. Two (2) observations shall be taken at fifteen (15) second intervals for six (6) consecutive minutes for each equipment.

5. The six (6) minute average opacity reading shall be calculated for each observation.

6. If possible, the observations shall be performed as follows:

    a. Read from where the line of sight is at right angles to the wind direction.
    b. The line of sight shall not include more than one (1) plume at a time.
    c. Read at the point in the plume with the greatest opacity (without condensed water vapor), ideally while the plume is no wider than the stack diameter.
    d. Read the plume at fifteen (15) second intervals only. Do not read continuously.
    e. The equipment shall be operating at maximum permitted capacity.

7. If the equipment was shut-down for that period, briefly explain the reason for shut-down in the comment column.

The permittee shall retain the completed V.E. Forms for recordkeeping. These records shall be in a permanent form suitable for inspection, retained for a minimum of five (5) years, and made available to the Department of Health, or their representative upon request.

VISIBLE EMISSIONS FORM
STATE OF HAWAII

(Make Copies for Future Use For Each Equipment)

Permit No.: 0489-01-C

Company Name:_____

Equipment and Fuel:_____

Site Conditions:

Stack height above ground (ft):_____

Stack distance from observer (ft):_____

Emission color (black or white):_____

Sky conditions (% cloud cover):_____

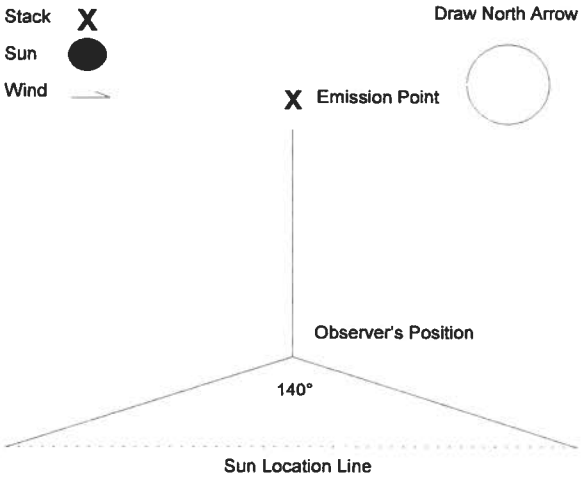
Wind speed (mph):_____

Temperature (°F):_____

Observer Name:_____

Certified? (Yes/No):_____

Observation Date and Start Time:_____



SECONDS / MINUTES	0	15	30	45	COMMENTS
1					
2					
3					
4					
5					
6					
Six (6) Minute Average Opacity Reading (%):					

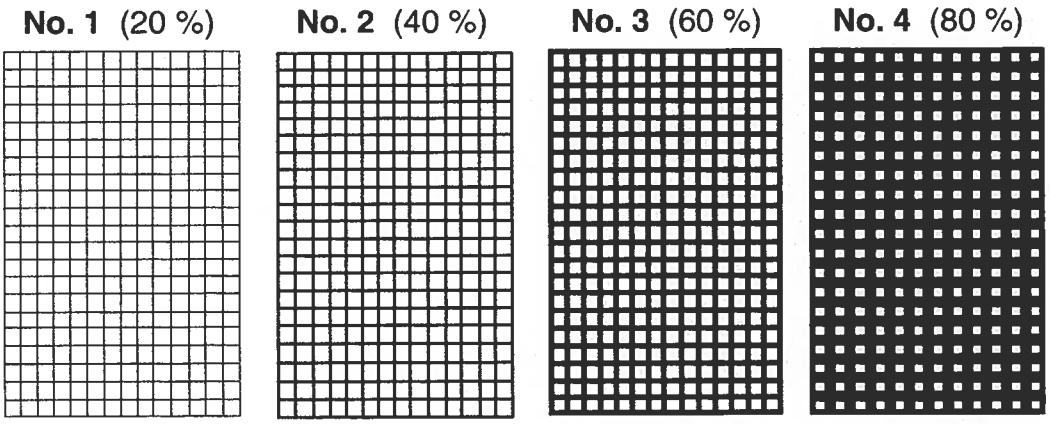
Observation Date and Start Time:_____

SECONDS / MINUTES	0	15	30	45	COMMENTS
1					
2					
3					
4					
5					
6					
Six (6) Minute Average Opacity Reading (%):					

The Ringelmann Chart

In the late 1800's in Paris, France, Professor Maximilian Ringelmann developed the **Ringelmann Chart** to measure the combustion efficiency of coal-fired boilers. The shade of the smoke plume shows how well a boiler is operating - the poorer its combustion efficiency, the more unburned carbon particles in the smoke and the darker the plume.

Professor Ringelmann's chart established four measured shades of gray between white, valued at zero, and black, at five. These specific shades of gray, Ringelmann No. 1 to Ringelmann No. 4, can be accurately reproduced by placing a grid of black lines of a given width and spacing on a white background. Viewed from a distance, the grid lines and background merge into the shades of gray, to be compared to the shade of the smoke plume.



Ringelmann Chart (not to scale)

Regulating Visible Emissions

The Ringelmann Chart became one of the first tools used to measure visible emissions. Introduced into the United States in 1897, it was soon accepted as the standard measure of smoke density and was used by engineers for power plant testing and smokeless combustion studies. In 1910, the Chart was officially adopted as part of the Smoke Ordinance for Boston, Mass.

Many city, state, and federal regulations now set smoke density limits based on the Ringelmann Smoke Chart. Although not originally designed as a regulatory tool to control air pollution, it gives good practical results when used by well-trained observers.

City and County of Honolulu
DEPARTMENT OF PLANNING AND PERMITTING
650 South King Street
Honolulu, Hawaii 96813

PLANNING DIVISION MASTER APPLICATION FORM

Additional data, drawings/plans, and fee requirements are listed on a separate sheet title "Instructions for Filing". *PLEASE ASK FOR THESE INSTRUCTIONS.*

All specified materials described in the "Instructions for Filing" and required fees must accompany this form; incomplete applications will delay processing. You are encouraged to consult with Planning Division staff in completing the application. Please call appropriate phone number given in the "Instructions for Filing".

Please print legibly or type the required information. SUBMITTED FEE: $ N/A

PERMIT/APPROVAL REQUESTED (Check one or more as appropriate):

☐ GENERAL PLAN AMENDMENT	☒ SPECIAL USE PERMIT
☐ STATE LAND USE BOUNDARY AMENDMENT (<15 acres) From _____(District) to _____(District)	☐ ZONING DISTRICT BOUNDARY ADJUSTMENT, ADMINISTRATIVE
☐ DEVELOPMENT PLAN (DP)/SUSTAINABLE COMMUNITIES PLAN (SCP) AMENDMENT Indicate DP/SCP area _____	☐ ZONE CHANGE From _____(District) to _____(District) ☐ AMEND UNILATERAL AGREEMENT TO ORDINANCE NO._____

☐ PUBLIC INFRASTRUCTURE MAP REVISION (Indicate Map Symbol Request):
☐CY (Corporation Yard) ☐DSP (Desalination Plant) ☐D (Drainage Way (Open Channel) ☐FS (Fire Station) ☐GB (Government Building)
☐GC (Golf Course) ☐P (Parks) ☐PS (Police Station) ☐PKG (Parking Facility/Transit Center) ☐RES (Water Reservoir) ☐SPS (Sewage Pump Station)
☐STP (Sewage Treatment Plant) ☐SW (Solid Waste Facility) ☐TC (Transit Corridor) ☐R (Arterial & Collector Roadway) ☐W (Potable Well)

(Project/Parcel specific information should be provided for General Plan and Development Plan amendments only if appropriate.)
TAX MAP KEY(S): 9-2-3: 072 and 073
STREET ADDRESS/LOCATION OF PROPERTY: 92-460 Farrington Highway, Kapolei, HI 96707
APPLICATION/SUBJECT AREA *(Acres/sq.ft.)*: N/A
THE PROPOSED PROJECT IS LOCATED ☒ INSIDE ☐X OUTSIDE THE:
☒ Urban Growth Boundary
☐ Urban Community Boundary
☐ Rural Community Boundary
OF THE Ewa DEVELOPMENT PLAN/SUSTAINABLE COMMUNITY PLAN
ZONING DISTRICT(S): AG-2. General Agricultural STATE LAND USE DISTRICT: Agricultural

RECORDED FEE OWNER:
Name (& title, if any) City and County of Honolulu
Organization c/o Dept. of Environmental Services
Mailing Address 1000 Uluohia Street, Suite 308
Kapolei, HI 96707
Phone Number 768-3486
Signature
Timothy E. Steinberger, Director

PRESENT USE(S) OF PROPERTY/BUILDING:
Municipal Sanitary Landfill

PROJECT NAME (If any): Waimanalo Gulch Sanitary Landfill

APPLICANT:
Name City and County of Honolulu
Organization Department of Environmental Services
Mailing Address 1000 Uluohia Street, Suite 308
Kapolei, HI 96707
Phone Number 768-3486
Signature
Timothy E. Steinberger, Director

AUTHORIZED AGENT/CONTACT PERSON:
Name Wilma Namumnart
Mailing Address 1000 Uluohia Street, Suite 201
Kapolei, HI 96707
Phone Number 768-3401
Signature
Wilma Namumnart, Refuse Division, Dept. of Environmental Services

REQUEST/PROPOSAL (Briefly describe the nature of the request, proposed activity or project):
Request for modification of condition 14 of SUP FILE No. 2008/SUP-2. See attached documents.

DPP/ELOG NO._____ DPP/POSSE NO._____

P:\FORMS\MASTERAPPLICATION-11-05.DOC

EXHIBIT K161 at 1

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
TELEPHONE: (808) 768-3486 • FAX: (808) 768-3487 • WEBSITE: http://envhonolulu.org

PETER B. CARLISLE
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

MANUEL S. LANUEVO, P.E., LEED AP
DEPUTY DIRECTOR

ROSS S. TANIMOTO, P.E.
DEPUTY DIRECTOR

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'11 JUN 28 A10 :25

IN REPLY REFER TO:
DIR 11-012

DEPT OF PLANNING AND PERMITTING
CITY & COUNTY OF HONOLULU

June 28, 2011

David K. Tanuoue, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Re: **Special Use Permit (SUP) No. 2008/SUP-2; State Land Use Commission (LUC) Docket No. SP09-403; In re Department of Environmental Services, City and County of Honolulu; Application to Modify SUP No. 2008/SUP 2 by Modifying the LUC's Order Adopting the City and County of Honolulu Planning Commission's Findings of Fact, Conclusions of Law, and Decision and Order with Modifications dated October 22, 2009**

The Department of Environmental Services, City and County of Honolulu (the "Applicant" or the "Department of Environmental Services"), respectfully moves the Planning Commission, City and County of Honolulu (the "Planning Commission"), for an Order modifying State Special Use Permit ("SUP") No. 2008/SUP-2, which superseded State SUP No. 86/SUP-5, and which permitted a 92.5 acre expansion and time extension to capacity as allowed by the Department of Health, State of Hawaii ("DOH") for the disposal of solid waste at the Waimanalo Gulch Sanitary Landfill ("WGSL" or "Landfill").

This Application is made in accordance with Section 2-18 and Section 2-49 of the Rules of the Planning Commission and Section 15-15-70 of the State of Hawaii, Land Use Commission ("LUC") Rules. Further, the LUC has formally asserted to the Circuit Court of the First Circuit that there is nothing precluding the Department of Environmental Services from requesting relief from conditions of the 2009 LUC Order in the future: "there is nothing to preclude ENV from requesting [from the Planning Commission] an extension of the 2012 date if it is unable, using reasonable diligence as required in Condition No. 4, to identify and develop a new landfill site." See Exhibit "A," Appellee State of Hawai'i, Land Use Commission's Answering Brief, filed on April 12, 2010, In the Matter of Department of Environmental Services, City and County of

Honolulu vs. Land Use Commission, State of Hawaii, et al., Civil No. 09-1-2719-11, p. 9, attached hereto and incorporated herein.

Also, presenting this Application first to the Planning Commission for its consideration, rather than directly to the LUC, will promote the maximum opportunity for public participation and input by all interested parties. Furthermore, in light of the lack of specificity in the applicable rules, enabling both the Planning Commission and the LUC to consider Applicant's request will reduce the possibility of a procedural challenge. Finally, if the Planning Commission determines that it does not have the authority to consider this request, it may so conclude and direct Applicant to seek consideration from the LUC.

Applicant specifically requests that the Planning Commission modify the LUC's Order Adopting the City and County of Honolulu Planning Commission's Findings of Fact, Conclusions of Law, and Decision and Order with Modifications, dated October 22, 2009 (the "2009 LUC Decision"), by deleting the July 31, 2012, deadline to cease disposal of municipal solid waste ("MSW") at WGSL, as set forth in Condition No. 14 of said Order. The Department of Environmental Services seeks to use the WGSL until it reaches its permitted capacity, as allowed by the DOH, and as set forth in the Planning Commission's Findings of Fact, Conclusions, and Decision, dated August 4, 2009 (the "2009 Planning Commission Decision").

The basis for this Application is that the current permitted area of the Landfill, approximately 200 acres, has a useful life well beyond July 31, 2012. See *Final Environmental Impact Statement, Waimanalo Gulch Sanitary Landfill Lateral Expansion, Waimanalo Gulch, Oahu, Hawaii, TMKs: (1) 9-2-003: 072 and 073*, dated October 2008 ("2008 FEIS")[1] at Section 1.1, Proposed Action at pg. 1-1 ("The landfill has been in operation since 1989 and has capacity remaining with the unused 92.5 acres of the approximately 200 acre property for an estimated minimum life of approximately 15 years") (footnote omitted); see also Section 2.6.3, Landfill Capacity at pg. 2-27 ("At present, the lifespan of WGSL is projected for a minimum period of 15 years.") The 2008 FEIS, which was accepted by the Department of Planning and Permitting, City and County of Honolulu ("Department of Planning and Permitting") on October 13, 2008, thoroughly studied the current footprint, operations and environmental impacts associated with the use of the WGSL to capacity. See 2009 Planning Commission Decision, pg. 2, ¶ 3; see also 2008 FEIS at Section 1, Executive Summary; Section 3, Introduction; Section 4, Project Description; and Section 5, Environmental Setting, Potential Impacts and Mitigation Measures. Neither the permitted area nor the methods of operation will change with this

[1] Although the 2008 FEIS is a part of the record in Docket No. SP09-403, for ease of reference, attached hereto and incorporated herein as Exhibit "B" is the 2008 FEIS on CD-ROM.

Application. See 2008 FEIS at Section 1.1, Proposed Action; Section 4, Project Description. Moreover, the Landfill's current footprint has already been approved by the Planning Commission and the LUC and the Landfill has a solid waste permit from the DOH. See 2009 Planning Commission Decision, Decision and Order, pg. 24; see also 2009 LUC Decision pgs. 4-5; Declaration of Timothy E. Steinberger ("Dec. Steinberger"), ¶¶ 17, 19. It is therefore in the public interest to use WGSL, the only permitted MSW landfill on O'ahu, to capacity: this ensures maximum utility of our island's finite land resources and allows Applicant to properly manage the MSW of the City and County of Honolulu ("City") so as to protect the public health and safety of O'ahu's residents and visitors.

If the Landfill is forced to cease accepting MSW for disposal on July 31, 2012, in accordance with Condition No. 14 of the 2009 LUC Order, there will be no viable options to meet O'ahu's solid waste management needs. See 2008 FEIS at Section 1.2.2., No Action Alternative at pgs. 1-2 ("The No Action Alternative, which would involve taking no further action to extend the use of the WGSL was rejected because the consequences would result in an unacceptable health, safety, and economic impact to all communities on O'ahu."); see also Section 9.3., No Action Alternative, pgs. 9-6 to 9-8. For example, certain types of MSW, including special wastes such as sewage sludge, animal carcasses, treated medical waste; residue from the City's Honolulu Program of Waste Energy Recovery waste-to-energy facility ("H-POWER"); and bulky item waste cannot be disposed of at H-POWER and must be disposed of at a permitted landfill. See 2009 Planning Commission Decision, ¶¶ 94, 97, pg. 19. That landfill is WGSL. See 2009 Planning Commission Decision, ¶¶ 91, 92, 94, pgs. 18-19. Without WGSL, the inability to dispose of various wastes will potentially create serious health and safety issues. See 2009 Planning Commission Decision, ¶ 93, pg. 18.

In order to alleviate this potential health and safety risk, it is respectfully requested that the Planning Commission modify SUP No. 2008/SUP-2 by deleting Condition No. 14 of the 2009 LUC Decision, thereby allowing the usage of WGSL to dispose of MSW until the site reaches its permitted capacity as provided in the 2009 Planning Commission Decision.

I. BACKGROUND

A. Establishment of the Landfill

On October 17, 1985, the Director of Land Utilization, City and County of Honolulu (nka the Department of Planning and Permitting), accepted the Environmental Impact Statement for the establishment of a landfill at Waimanalo Gulch, Honouliuli, 'Ewa, O'ahu, Hawai'i. See 2008 FEIS at Section 2.5, Historical Background of the State Special Use Permit, at pgs. 2-18.

On February 4, 1987, the Planning Commission approved the SUP application to establish the Landfill on approximately 60.5 acres of land within the Agricultural District, subject to six conditions. The application was submitted by the Department of Public Works, City and County of Honolulu (nka the Department of Environmental Services). Id.

Because the SUP was for land greater than fifteen acres, on April 20, 1987, the LUC also approved the issuance of the SUP in Special Permit Docket Number 87-362 to establish the Landfill, subject to eight conditions.[2] See the LUC's Findings of Fact, Conclusions of Law and Decision and Order dated April 20, 1987, attached hereto and incorporated herein as Exhibit "C."

B. Expansion of the Landfill by 26 acres

On July 26, 1989, the Planning Commission approved an amendment to the SUP to expand the Landfill by 26 acres, with one additional condition. Applicant had requested the amendment because 26 acres had been inadvertently left out of the original SUP. The additional 26 acres was necessary to allow enough land area for the proposed administration building, weighing station, drainage structures and access roads. See 2008 FEIS at pgs. 2-19.

On October 31, 1989, the LUC also approved the SUP amendment to expand the existing permitted area by 26 acres, with the additional condition as recommended by the Planning Commission. See the LUC's Findings of Fact, Conclusions of Law and Decision and Order dated October 31, 1989, attached hereto and incorporated herein as Exhibit "D," pgs. 9-10.

C. Further Expansion of the Landfill by 21 acres

On January 10, 2003, the Department of Planning and Permitting accepted the Final Supplemental Environmental Impact Statement ("FEIS"), which addressed a proposed 21-acre expansion of the landfill. See 2008 FEIS at pgs. 2-19.

On March 13, 2003, the Planning Commission granted the application of the Department of Environmental Services to expand the landfill by 21 acres ("2003 Planning Commission Decision" attached hereto and incorporated herein as Exhibit "E"), which, at that time, was projected to extend the life of the landfill by 5 years. The proposed

---

[2] "Special permits for areas greater than fifteen (15) acres require approval of both the planning commission and the land use commission." Rules of Planning Commission § 2-38; see also Hawai'i Revised Statutes ("HRS") § 205-6.

expansion included four cells (E1 through E4) for disposing of MSW, berms, detention and stilling basins, drainage channels and access routes. In this Decision, the Planning Commission recommended that the Department of Environmental Services submit an alternative landfill site, or sites, to the City Council by December 31, 2003. The Planning Commission did not, however, condition its approval on this recommendation. See 2003 Planning Commission Decision.

With its approval of the 21-acre expansion, the Planning Commission imposed two additional conditions. One of those conditions, Condition No. 10, required the following:

> Within 5 years from the date of this Special Use Permit Amendment approval or date of the Solid Waste Management Permit approval for this expansion, whichever occurs later but not beyond May 1, 2008, the 200-acre property shall be restricted from accepting any additional waste material and be closed in accordance with an approved closure plan.

Id., at p. 5.

On June 9, 2003, the LUC issued the 2003 LUC Decision, attached hereto and incorporated herein as Exhibit "F." The LUC adopted Condition No. 10 of the 2003 Planning Commission Decision as Condition No. 12 in the 2003 LUC Decision. The LUC Decision also required the City Council to select a new site for a landfill, with the assistance of the Blue Ribbon Site Selection Committee, by June 1, 2004. See 2003 LUC Decision, pgs. 7-9.

D. Resolution Adopted by City Council Selecting WGSL as the City's Future Landfill Site.

After receiving from the LUC an extension of the deadline to make its determination, on December 1, 2004, the City Council selected WGSL as the City's future landfill site. The resolution setting forth the City Council's decision, Resolution No. 04-348, CD1, FD1 (December 1, 2004), City Council, City and County of Honolulu ("WGSL Resolution"), is attached hereto and incorporated herein as Exhibit "G." In selecting the Landfill as the future site, the City Council noted, in pertinent part, the following:

> (1) The site currently has over 15 years capacity left with further expansion, and this capacity can be further extended should the city be successful in reducing the amount of waste currently entering the landfill through recycling and the use of new technologies;

(2) The city already owns the property and the infrastructure is already in place, making the site the most economical and least expensive to develop and maintain as a landfill;

(3) Other sites will require a large capital outlay by the city to acquire the land through condemnation and to develop and construct the site and required supporting infrastructure;

(4) A landfill management contract is already in place for 15 years;

(5) This is the only site where the costs and revenues for a landfill are known factors; and

(6) The current landfill operator is committed to implementing necessary improvements to landfill operations to address community concerns regarding visual impact, odors, airborne waste, litter and dust control[.]

WGSL Resolution, pgs. 2-3.

As expressed in the WGSL Resolution, the City Council decided that WGSL would satisfy O'ahu's need for a landfill to manage its solid waste for the foreseeable future.

E. Extension of Waste Acceptance Deadline at WGSL.

On July 6, 2007, the Department of Environmental Services filed an application with the Department of Planning and Permitting to amend Condition No. 10 of the 2003 Planning Commission Decision, by extending the deadline to accept waste at WGSL from May 1, 2008, to May 1, 2010, or until WGSL reached its permitted capacity, whichever occurred first. This timeline extension was necessary in order to accommodate and implement the City Council's selection of WGSL as the City's future landfill site. See State Special Use Permit (SUP) No. 86/SUP-5, In re Department of Environmental Services, City and County of Honolulu (FKA Department of Public Works, City and County of Honolulu); Application to Modify (1) the Findings of Fact, Conclusions and Decision dated March 13, 2003, and (2) the Decision and Order Approving Amendment to Special Use Permit Issued June 9, 2003, filed with the Department of Planning and Permitting on July 6, 2007, without accompanying exhibits ("2007 Application"), attached hereto and incorporated herein as

Exhibit "H." An FEIS for the further expansion of WGSL by approximately 92.5 acres, to the full acreage of the site at approximately 200 acres, needed to be completed before the Department of Environmental Services could prepare an application for a new SUP that would cover the entire WGSL property. See 2008 FEIS at pgs. 2-21.

On January 16, 2008, the Planning Commission granted the Department of Environmental Services' application to amend Condition No. 10 of the 2003 Planning Commission Decision to extend the waste acceptance deadline by two years (to May 1, 2010), or until WGSL reached its permitted capacity, and issued its Findings of Fact, Conclusions of Law, and Decision and Order (the "2008 Planning Commission Decision"), attached hereto and incorporated herein as Exhibit "I." The Planning Commission recommended that the LUC similarly amend Condition No. 12 of the 2003 LUC Decision. See 2008 Planning Commission Decision, pgs. 7-8.

On March 7, 2008, the LUC issued its Findings of Fact, Conclusions of Law, and Decision and Order adopting with Modifications, the City and County of Honolulu Planning Commission's Recommendation to Approve Amendment to Special Use Permit on March 14, 2008 (the "2008 LUC Decision"), attached hereto and incorporated herein as Exhibit "J." The LUC adopted the Planning Commission's recommendation with modifications by amending the waste acceptance deadline from May 1, 2010, to November 1, 2009, and by requiring the Department of Environmental Services to report to the LUC every six months on the actions taken to alleviate further use of WGSL. See 2008 LUC Decision, p. 18.

F. Application for a New SUP to Supersede Prior SUP to Allow a 92.5-Acre Expansion and Time Extension for WGSL.

On December 3, 2008, the Department of Environmental Services filed an application for a new SUP (the "Application") to supersede the existing SUP (State Special Use Permit No. 86/SUP-5), to allow a 92.5-acre expansion and time extension for the existing operating portion of WGSL. See 2009 Planning Commission Decision, ¶ 5, pg. 2. The Department of Environmental Services concurrently sought to withdraw its existing SUP permit for approximately 107.5 acres (File No. 86/SUP-5) and the conditions imposed therein, if the new SUP permit was granted. Id. at ¶ 6, pg. 3. The Application, designated as County Special Use Permit File No. 2008/SUP-2, was processed by the Department of Planning and Permitting, which recommended to the Planning Commission that the Application be approved with conditions. Id. at ¶ 10, pg. 3.

The Planning Commission conducted a contested case hearing on the Application on June 22, 2009, June 24, 2009, July 1, 2009, July 2, 2009, and July 8, 2009. Id. at ¶¶ 19, 20, 22, 23, 25, pgs. 5-6. On July 31, 2009, the Planning Commission recommended

approval of the Application subject to 10 conditions, and further recommended approval of the withdrawal of the prior SUP for WGSL (SUP File No. 86/SUP-5) upon 2008/SUP-2 taking effect, and that all conditions previously placed on the Property under SUP File No. 86/SUP-5 would then be null and void. The decision of the Planning Commission was set forth in its Findings of Fact, Conclusions of Law, and Decision and Order dated August 4, 2009, attached hereto and incorporated herein as Exhibit "K." The 2009 Planning Commission Decision was based on the evidence presented at the contested case hearing, the credibility of the witnesses testifying at the hearing, the proposed findings of fact, conclusions of law, and decisions and orders submitted by the parties and their respective responses thereto, and the written arguments of the parties. Id. at pg. 1.

Notably, the 2009 Planning Commission Decision does not contain any expiration date for the SUP or any deadline for the acceptance of waste at WGSL. Commissioner Kerry Komatsubara ("Komatsubara"), who authored this Decision, explained that "[t]he term or the length of the new SUP shall be until the Waimanalo Gulch landfill reaches its capacity as compared to a definite time period of 'X' number of years." Komatsubara noted that the Department of Environmental Services had "demonstrated that we need a landfill. I think it's pretty obvious; we need a landfill on this island for us to move forward…it would not be in the community's best interest if we were to close this landfill before we find another landfill." Komatsubara further explained his reasoning as follows:

> In my opinion, simply putting on a new closure date to this new SUP will not lead to the closure of the Waimanalo Gulch Sanitary Landfill. I believe that the focus should not be on picking a date. The focus should be on how do we get the City to select a new site because you're not going to close this landfill until you find another site. I don't think it's in the interest of our community not to have a landfill.
>
> ***
>
> So what this proposal does is, it says look, [Applicant] can keep [WGSL] open until your [*sic*] full, until you've reached the capacity, but you have an obligation starting from next year [2010] to start looking for a new site. Now whether you take it seriously or not, that's up to you because we have the power to call you in, and you have the obligation now to report every year on what you're doing to find a new landfill site whether it be a replacement site or supplemental site or both. We have the right to hold a hearing at any time we feel that you are not…the applicant is not in good faith moving forward with reasonable diligence to find a new site.

***

> ...I think going down the old path of just putting a [closure] date in there has not worked. We put it down three or four times before and every time we came to that date, it was extended further and further...I'd rather not say it's a certain date only to know that when we reach that date we're going to extend it further until we find the new site. I'd rather focus on an effort to find a new site and have [Applicant] come in every year and explain to us where you are in your effort to find a new site. That's what this [order] does.

Relevant portions of the transcript of the July 31, 2009, decision-making hearing of the Planning Commission are attached hereto and incorporated herein as Exhibit "L."

On October 22, 2009, the LUC issued its written Order Adopting the City and County of Honolulu Planning Commission's Findings of Fact, Conclusions of Law, and Decision and Order with Modifications ("2009 LUC Decision"), attached hereto and incorporated herein as Exhibit "M."

The 2009 LUC Decision granted the Application subject to "(1) the withdrawal of County Special Use Permit File No. 86/SUP-5 and LUC Docket No. SP87-362, provided that the existing conditions therein shall be incorporated to the extent they are consistent with and applicable to this decision and are not duplicative of any additional conditions imposed hereafter; (2) the conditions as recommended by the Planning Commission in County Special Use Permit File No. 2008/SUP-2 (LUC Docket No. SP09-403) and modified as appropriate"; and (3) the following relevant conditions:

> 14. Municipal solid waste shall be allowed at the WGSL up to July 31, 2012, provided that only ash and residue from H-POWER shall be allowed at the WGSL after July 31, 2012.
>
> 15. The Honolulu City Council through the City Administration shall report to the public every three months on the efforts of the City Council and the City Administration in regard to the continued use of the WGSL, including any funding arrangements that are being considered by the City Council and the City Administration.
>
> 16. The City Council and the City Administration shall have a public hearing every three months to report on the status of their efforts to either reduce or continue the use of the WGSL.

2009 LUC Decision, pgs. 4, 8-9.

G. Subsequent Court Proceedings Related to the 2009 LUC Decision

On November 19, 2009, the Department of Environmental Services filed its Notice of Appeal; Statement of the Case; Designation of Record on Appeal; Order for Certification and Transmission of Record; Exhibits "A" and "B" to the Circuit Court of the First Circuit ("Circuit Court"). Specifically, the Department of Environmental Services appealed the LUC's imposition of a July 31, 2012, deadline to cease the disposal of MSW at WGSL, as set forth in Condition No. 14 of the 2009 LUC Decision, as arbitrary and capricious, characterized by abuse of discretion and a clearly unwarranted exercise of discretion in light of the record developed before the Planning Commission. The Department of Environmental Services further appealed the LUC's imposition of reporting requirements, as set forth in Condition Nos. 15 and 16 of the 2009 LUC Decision, as in excess of the statutory authority and jurisdiction of the LUC. See Dec. Steinberger, ¶ 20.

Oral arguments were held before the Honorable Judge Rhonda A. Nishimura of the Circuit Court on July 14, 2010. Id.

On September 21, 2010, the Circuit Court issued its Order Affirming Land Use Commission's Order Adopting the City and County of Honolulu Planning Commission's Findings of Fact, Conclusions of Law and Decision and Order Dated October 22, 2009 with Modifications, which is attached hereto and incorporated herein as Exhibit "N." Said Order modified Conditions No. 15 and 16 of the 2009 LUC Decision by deleting the references to the Honolulu City Council and the City administration, and substituting the same with the Department of Environmental Services. The Order also erroneously affirmed Condition No. 14 of the 2009 LUC Decision. Id.

Final Judgment was filed on October 19, 2010, and the Notice of Entry of Judgment was filed on October 21, 2010. On November 12, 2010, the Department of Environmental Services timely filed its Notice of Appeal and Civil Appeals Docketing Statement to the Intermediate Court of Appeals ("ICA") relating to that portion of the Circuit Court's Order which wrongly affirmed the LUC's arbitrary and unsupported deadline of July 31, 2012, to cease acceptance of MSW at WGSL. See Dec. Steinberger, ¶¶ 20, 21.

The Department of Environmental Services filed its Opening Brief to the ICA on February 15, 2011. Briefing is not yet concluded and the case remains pending before the ICA. Id.

II. REQUEST FOR MODIFICATION OF SUP No. 2008/SUP-2

Section 2-49 of the Rules of the Planning Commission provides, in relevant part:

> (a) A petitioner who desires a modification or deletion of a condition imposed by the commission shall make such a request to the commission in writing. This request shall be processed in the same manner as the original petition for a SUP. A public hearing on the request shall be held prior to any commission action.
>
> . . .
>
> (c). . . Modification of conditions for areas greater than fifteen (15) acres will require the concurrence of the land use commission.

As discussed above, the Planning Commission did not place any expiration date on 2008/SUP-2 or any deadline for the acceptance of waste at WGSL. See generally 2009 Planning Commission Decision; see also Exhibit "L." The LUC, however, imposed the July 31, 2012, deadline to close WGSL to MSW in Condition No. 14. See 2009 LUC Decision, pg. 8.

The current DOH Solid Waste Management Permit for WGSL, which encompasses the approximately 200 acre property, was issued on June 4, 2010, and is attached hereto and incorporated herein as Exhibit "O." That permit states that WGSL "may accept MSW and ash for disposal until the date specified in the associated Special Use Permit or until the landfill/monofill reaches its permitted capacity, whichever comes first." Id. at pgs. 1, 9. The SUP now in effect requires that the Landfill stop accepting MSW on July 31, 2012, well before WGSL will reach its permitted capacity. See 2008 FEIS at Section 1.1, Proposed Action at pg. 1-1; Section 2.6.3, Landfill Capacity at pg. 2-27; see also Dec. Steinberger, ¶ 22. For the reasons that follow below, it is not only practical to extend the Landfill's solid waste acceptance deadline, but also necessary and critical for effective and safe management of the City's solid waste.

A. The Currently Permitted Landfill Has a Useful Life that Will Extend Well Beyond the July 31, 2012, Deadline.

WGSL is located on approximately 200 acres of land and has years of capacity remaining within this permitted area. See 2008 FEIS at Section 1.1, Proposed Action at

pg. 1-1; Section 2.6.3, Landfill Capacity at pg. 2-27; see also Dec. Steinberger, ¶ 22. Based upon typical rates of disposal at WGSL, that remaining capacity is estimated to be approximately fifteen years.[3] Id. From 2005 through 2009, the volume of municipal solid waste disposed of at WGSL is illustrated as follows:

Disposal of MSW at WGSL[4]

Year	2005	2006	2007	2008	2009
Tons	391,579	286,842	306,691	233,065	178,512

This chart reflects that the Department of Environmental Services has been actively reducing waste volumes that are directed to WGSL through its various waste diversion programs.[5] See 2009 Planning Commission Decision, ¶ 100, pg. 20 ("The City is actively reducing waste volume that is directed to the landfill."). However, even with such waste diversion programs, WGSL remains vitally important to the City's Integrated Solid Waste Management Plan. See 2009 Planning Commission Decision, ¶ 91, pg. 18. The continued availability of WGSL is a DOH permit condition to operate H-POWER (e.g., to dispose of the waste that exceeds the capacity of H-POWER, or waste that is diverted from that facility due to routine maintenance or unanticipated closures). See 2009 Planning Commission Decision, ¶ 92, pg. 18. The Landfill is also needed for clean up in the event of a natural

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[3] The remaining capacity of WGSL is an estimate only as rates of disposal fluctuate based upon numerous factors, e.g., the economy, waste diversion programs such as the implementation of island-wide recycling, possible disaster events, etc.

[4] See Opala.org, Recycling and Landfill Diversion, http://www.opala.org/solid_waste/archive/facts2.html.

[5] For example, the Department of Environmental Services is expanding its H-POWER plant with a third boiler, which is expected to increase the facility's capacity by an additional 300,000 tons of MSW per year by late 2011 or early 2012. See 2009 Planning Commission Decision, ¶ 100, pg. 20; see also Dec. Steinberger, ¶ 23. The Department of Environmental Services also completed full implementation of its island-wide, curbside recycling program in May 2010, which is in addition to its program of community recycling bins. Dec. Steinberger, ¶ 23. A facility at the City's Sand Island Wastewater Treatment Plant turns bio-solids into fertilizer pellets, so that such material may be reused as a soil amendment product. Id. The Department of Environmental Services' other initiatives include awarding a contract for a new recycling facility that will accept green waste, food waste and sewage sludge. Id.

disaster, to properly dispose of special wastes such as screenings and sludge from sewage treatment plants, animal carcasses, tank bottom sludge, contaminated food waste that cannot be recycled, and contaminated soil that is below certain toxicity levels ("special wastes") and bulky wastes, and because there is waste material that cannot be combusted, recycled, reused, or shipped.[6] See 2009 Planning Commission Decision, ¶ 92, 97, pgs. 18-19.

The City remains committed to adopting and implementing waste handling programs that will reduce O'ahu's dependency on landfilling. Dec. Steinberger, ¶ 23. The fact remains, however, that there are no methods or technologies that will completely eliminate the need for landfilling. See 2008 FEIS, Appendix K, Alternatives Analysis, 2008. If WGSL is forced to cease accepting MSW for disposal on July 31, 2012, then there will be no permitted landfill to serve O'ahu's municipal solid waste disposal needs, and this could have significant public health and safety implications for the residents and visitors of this island. See 2008 FEIS at Section 9.3., No Action Alternative, pgs. 9-6 to 9-8.

B. WGSL Remains an Integral Part of the City's Solid Waste Management System.

The Landfill is a critical component of the City's solid waste management system and the final destination for certain solid wastes including MSW, recycling residue, and H-POWER generated ash, residue and waste that cannot further be combusted, recycled or reused. See 2009 Planning Commission Decision, ¶¶ 92, 95, 97, pgs. 18-19. If SUP No. 2008/SUP-2 is not amended by deleting Condition No. 14 of the 2009 LUC Decision, the Landfill will be forced to stop accepting MSW as of July 31, 2012, and special wastes, bulky wastes and waste material that cannot be combusted, recycled, reused, or shipped, will have nowhere to go for proper disposal. See 2009 Planning Commission Decision, ¶¶ 92, 97, pgs. 18-19; 2008 FEIS at Section 9.3., No Action Alternative, pgs. 9-6 to 9-8; see also Dec. Steinberger, ¶ 24. This stoppage will have an adverse, island-wide impact on all of the communities on O'ahu because the City will no longer have the ability to dispose of certain wastes in a sanitary manner. Id. The City would also no longer be permitted to operate H-POWER, as that facility must have a MSW landfill disposal option as required by its DOH solid waste permit. See 2009 Planning Commission Decision, ¶ 92, pg. 18; see also Dec. Steinberger, ¶ 24. Furthermore, in the event of a disaster such as a hurricane or a tsunami, the City would have no permitted site to dispose of the ensuing debris. Id. In other words, not only would there be no sanitary or secure means of disposing of special wastes and bulky wastes, H-POWER would no longer be permitted to accept any MSW and there would be no facility to properly dispose of disaster debris. Dec. Steinberger, ¶ 24. Therefore, forcing the Landfill to cease accepting MSW will likely result in major public

[6] As explained in part 2 herein, off-island shipment of MSW is not a viable option.

health and safety problems for the City, its residents and visitors, and the State of Hawai'i. See 2009 Planning Commission Decision, ¶ 93, pg. 18.

1. WGSL Remains Necessary Even with an Expanded H-POWER.

Although most municipal waste is currently directed to the H-POWER facility, H-POWER does not have the capacity, or ability, to accept all of Oahu's refuse. See 2009 Planning Commission Decision, ¶ 97, pg. 19. WGSL also remains necessary in order to dispose of disaster debris, bulky wastes and special wastes. Id.; see also ¶ 92, pg. 18. Further, as discussed previously, the DOH solid waste permit for H-POWER requires that a landfill disposal option for MSW be available. Id. at ¶ 92, pg. 18.

The recent closure of WGSL from January 12 to January 28, 2011, due to unprecedented storms in December 2010 and in January 2011, has served to highlight the need for a landfill. During that seventeen-day closure period, there were delays in the disposal of H-POWER residue, bulky item waste, and wastewater sludge. All such wastes cannot be disposed of at H-POWER and must be disposed of in the Landfill. The closure of WGSL greatly impacted the disposal of H-POWER residue, bulky item waste, and wastewater sludge, all of which cannot be disposed of at H-POWER and must be disposed of at WGSL, the only permitted facility on O'ahu to accept these types of waste. The closure of WGSL also hampered H-POWER's ability to accept MSW because of the backlog of residue that accumulated at the facility. City refuse transfer stations that depend on H-POWER for waste disposal were also adversely impacted and experienced heavy buildups of trash. City wastewater treatment facilities resorted to temporary on-site storage of sewage sludge to cope with the situation. Further, the Department of Environmental Services ceased collection of bulky item wastes, resulting in unsightly piles of waste in many neighborhoods across the island. Generators of other special wastes that are normally disposed of at WGSL had to make their own arrangements to store or otherwise dispose of their waste until the Landfill could be reopened. The closure of WGSL had far reaching impacts upon the City's ability to dispose of solid waste, with restrictions imposed at all six of the City's convenience centers, as well as at its three transfer stations. On April 13, 2011, the WGSL and all City refuse facilities resumed normal operations and were opened to the public. See Dec. Steinberger, ¶ 25.

By 2012, when H-POWER's third boiler is expected to be fully operational, the City anticipates that about eighty percent (80%) of the island's waste stream will be diverted from landfill disposal. See 2009 Planning Commission Decision, ¶ 101, pg. 20. Twenty percent (20%), however, of O'ahu's waste will still need to be landfilled at WGSL, as certain wastes cannot be recycled or combusted. Id., see also ¶¶ 92, 97, pgs. 18-19. Further, the expanded H-POWER facility will still require the continued availability of WGSL as a permit condition to operate, to ensure proper disposal of MSW that is diverted from H-POWER

due to routine maintenance, unanticipated closures or if the amount of waste exceeds the capacity of the facility. Id. at ¶ 92, pg. 18; Dec. Steinberger, ¶ 24.

2. Transshipment of solid waste off-island is no longer a viable alternative.

The off-island shipment of O'ahu's solid waste is no longer a viable alternative, not even for the short term. The City did attempt to ship waste to the mainland but only as an interim solid waste disposal alternative until the H-POWER facility was expanded with the addition of a third boiler. See Planning Commission Transcript dated 07/01/09 at 198:23-199:4; see also Dec. Steinberger, ¶ 26. However, this attempt was not successful and shipping is now precluded by a court imposed injunction on the shipping of waste from Hawai'i to Washington and Oregon via the Columbia River. Dec. Steinberger, ¶ 26.

In January 2008, the City issued an Invitation for Bids ("IFB") for the baling, shipping, offloading, transporting and disposing (transshipment) of City-provided MSW to a U.S. Mainland landfill for a term of at least 36 months. The City received and opened three bids on June 17, 2008. Following the bid opening, the two highest bidders filed a total of four procurement protests, disputing for various reasons the adequacy of the apparent low bid. These protests were resolved after several months, with all the protests ultimately being denied, and no appeals being taken of those denials. See Dec. Steinberger, ¶ 27.

Pursuant to the requirements of the State Procurement Code, the City was prohibited from taking any actions toward the award of a contract during the pendency of the protests. With the protests resolved, the City reviewed the apparent low bid submitted by Hawaiian Waste Systems, LLC ("HWS"), and eventually the City's Chief Procurement Officer issued a determination that the low bid was not responsive to the requirements of the IFB. Pursuant to the State Procurement Code, HWS appealed this determination to the Office of Administrative Hearings at the Department of Commerce and Consumer Affairs ("DCCA"). See Dec. Steinberger, ¶ 28.

Following a hearing at DCCA, and prior to the deadline for the Hearings Officer to issue a decision on the appeal, the City and HWS agreed to settle the procurement protest. The settlement was confirmed in an Order approved by the Hearings Officer. Id. Pursuant to the Settlement and Order, the contract for interim shipment of MSW was awarded to HWS on August 27, 2009. The commencement of services under the contract was to begin by the end of September 2009. The City issued a Notice to Proceed to HWS for September 25, 2009. Both parties agreed that delivery of MSW would start on September 28, 2009. See Dec. Steinberger, ¶ 29.

HWS asked the City to cease delivering waste on April 1, 2010. At that point, approximately 20,000 tons of MSW had been delivered to HWS, which baled, wrapped and stockpiled the MSW at three locations, and no waste had been shipped due to HWS' inability to obtain required permits for the contracted services. See Dec. Steinberger, ¶ 30.

The environmental assessment for HWS' revised plan to ship the baled waste to different ports (Longview, WA; Rainier, OR; and Portland, OR)[7] was posted on the Federal Register on January 19, 2010 and the closing date for comments was February 18, 2010. On May, 27, 2010 the United States Department of Agriculture ("USDA") concluded their responses to public comments and published a Finding of No Significant Impact ("FONSI"). The required Compliance Agreements were issued in June 2010. See Dec. Steinberger, ¶ 31.

On July 8, 2010, the USDA issued a Notification of Suspension of Operations Pursuant to Compliance Agreement No. Oahu RGOO2 to HWS. Dec. Steinberger, ¶ 32. On August 30, 2010, the United States District Court, Eastern District of Washington issued an injunction enjoining the shipment of waste from Hawaii to Washington or Oregon ports on the Columbia River and/or to the Roosevelt Landfill in Washington in Confederated Tribes and Bands of the Yakama Nation, et al., v. United States Department of Agriculture, et al., No. CV-10-3050-EFS, attached hereto and incorporated herein as Exhibit "P." The USDA has canceled the Compliance Agreement permits of all Hawaii shippers that might otherwise have enabled the shipment of waste to the mainland. As of the filing of this Application, the Yakama Nation lawsuit remains active and the injunction continues in effect. See Dec. Steinberger, ¶ 32.

Accordingly, no waste was ever shipped to the mainland due to various problems encountered by HWS. In order to properly dispose of the approximately 20,000 tons of baled MSW, HWS agreed to disassemble the bales, sort the waste and take the burnable waste to H-POWER and the non-burnable waste to the Waimanalo Gulch Landfill. As of January 2011, approximately 11,000 tons had been taken to H-POWER and 140 tons had been taken to WGSL. See Dec. Steinberger, ¶ 33.

On January 6, 2011, there was a fire at the HWS facility that damaged the building in which the waste bales were disassembled. Because HWS' solid waste permit requires the waste to be processed under cover, without the use of the building, HWS' breaking apart and sorting of the waste for disposal at H-POWER and WGSL had to be suspended. Thereafter, the City and HWS continued to work together, in collaboration with DOH, to dispose of the remaining tons of baled waste. On May 12, 2011, the last bale of waste at the HWS facility

[7] The original environmental assessment reviewed HWS' originally proposed port located in Roosevelt, WA. Dec. Steinberger, ¶ 31.

was removed and delivered to a City waste disposal facility. Of the original 20,000 tons in its possession, HWS delivered 14,779 tons to H-POWER (76%) and 4,565 (24%) tons to WGSL. HWS was able to extract and recycle 1,525 tons of metal. See Dec. Steinberger, ¶ 34.

Accordingly, because WGSL is the only currently permitted landfill available to serve O'ahu's municipal solid waste needs, it is also the City's best and only viable option for disposal of certain wastes. See 2009 Planning Commission Decision, ¶¶ 92, 94, 97, pgs. 18-19. Requiring the landfill to stop accepting MSW on July 31, 2012, will have immediate and dire consequences for all of O'ahu. 2009 Planning Commission Decision, ¶ 93, pg. 18; see also 2008 FEIS at Section 9.3., No Action Alternative at pgs. 9-6 to 9-8.

C. Additional Time Is Needed To Identify One or More New Landfill Sites That Shall Either Replace Or Supplement WGSL.

Condition No. 1 of the 2009 Planning Commission Decision, which was adopted in most part by the LUC as Condition No. 4 of the 2009 LUC Decision,[8] provides:

> On or before November 1, 2010, the Applicant shall begin to identify and develop one or more new landfill sites that shall either replace or supplement the WGSL. The Applicant's effort to identify and develop such sites shall be performed with reasonable diligence, and the Honolulu City Council is encouraged to work cooperatively with the Applicant's efforts to select a new landfill site on Oahu. Upon the selection of a new landfill site or sites on Oahu, the Applicant shall provide written notice to the Planning Commission. After receipt of such written notice, the Planning Commission shall hold a pubic hearing to reevaluate 2008/SUP-2 (SP09-403) and shall determine whether modification or revocation of 2008/SUP-2 (SP09-403) is appropriate at that time.

2009 Planning Commission Decision, pg. 25.

Funding for the new landfill site selection process was appropriated in the City's Fiscal Year (FY) 2010 budget with additional funds appropriated in FY 2011. In November 2009, the Department of Environmental Services began the process to allot appropriated funds for a procurement to contract a consultant to facilitate the landfill site selection process. On June 25, 2010, the City contracted with the R.M. Towill Corporation,

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[8] Condition No. 1 of the 2009 Planning Commission Decision is identical to Condition No. 4 of the 2009 LUC Decision except that Condition No. 4 included the added requirement that the "Planning Commission shall make a recommendation to the Land Use Commission." 2009 LUC Decision,
pg. 6.

specifically to assist the Mayor's Landfill Site Selection Advisory Committee ("Landfill Advisory Committee"). The Landfill Advisory Committee is charged by the Mayor to provide advisory recommendations to the City concerning the selection of a future site or sites for a landfill to accept MSW, ash and residue from the City's H-POWER waste-to-energy facility, and construction and demolition debris waste. The procedure involving the use of an advisory committee to assist in landfill site selection was set forth in the City's Integrated Solid Waste Management Plan (October 2008). The Mayor chose 12 members to serve on the Landfill Advisory Committee based upon numerous criteria including technical expertise and experience, community involvement, and availability to serve. See Dec. Steinberger, ¶¶ 35, 36.

The members of the Landfill Advisory Committee are: Bruce Anderson, David Arakawa, Thomas Arizumi, David Cooper, John DeSoto, John Goody, Joe Lapilio, Tesha H. Malama, Janice Marsters, Richard Poirier, Chuck Prentiss, and George West. Due to various personal reasons, however, Bruce Anderson, David Cooper and John DeSoto have since resigned from the committee. See Dec. Steinberger, ¶ 36.

The first meeting of the Landfill Advisory Committee was held on January 20, 2011, and subsequent meetings were held on February 10, March 10, March 31, and May 12, 2011. The next tentatively scheduled meetings are June 23 and July 19, 2011. Additional meetings may be scheduled as needed by the Landfill Advisory Committee. Barring unforeseen delays, the Landfill Advisory Committee's final report is expected to be completed and sent to the Mayor by October 2011. All Committee meetings are open to the public and to public comment. Handouts provided to the Landfill Advisory Committee as well as the Group Memory of each meeting are posted online at opala.org. See Dec. Steinberger, ¶ 37.

Once a site or sites are identified by the Landfill Advisory Committee, as acknowledged in both the 2009 Planning Commission Decision and the 2009 LUC Decision, it will take more than seven years to acquire, permit, design and construct the new landfill site(s). See 2009 Planning Commission Decision, ¶¶ 33, 34; see also 2009 LUC Decision at pgs. 4-5. As noted, the work of the Landfill Advisory Committee is anticipated to be concluded within the third quarter of 2011; the Department of Environmental Services must then continue on with various additional steps, anticipated to require a number of years to complete. Dec. Steinberger, ¶ 38. These tasks include, but are not limited to, the following:

1. Hawai'i Revised Statutes ("HRS") Chapter 343, Environmental Impact Statement ("EIS")

The preparation and processing of an EIS in full compliance with HRS Chapter 343 and related administrative rules for O'ahu's next landfill site or sites to replace or supplement WGSL must satisfy all necessary requirements, including but not limited to conducting site surveys and investigations, analyzing alternatives including alternative sites and technologies, obtaining public and governmental agency input, analyzing direct, secondary, and cumulative impacts, developing appropriate mitigation measures, and ensuring the opportunity for public participation and comments. Dec. Steinberger, ¶ 39.

The EIS process will include among other things the filing of three principal documents with the Office of Environmental Quality Control, State of Hawaii ("OEQC"): (1) a Final Environmental Assessment/EIS Preparation Notice ("FEA/EISPN"), which upon publication will invoke a mandatory thirty (30) day public comment period; (2) a Draft EIS that will incorporate and address all relevant public comments that are received in response to the FEA/EISPN; the publication of the Draft EIS, which will invoke a mandatory forty-five (45) day public comment period; and (3) the acceptance of the Final EIS that will incorporate and address all relevant public comments received in response to the Draft EIS. Id.

The Department of Environmental Services fully expects that because of the inherent difficulty in identifying a new landfill site or sites for O'ahu, extensive environmental documentation will likely be required before the Final EIS for said site(s) can be completed. For example, the 2008 FEIS for WGSL was delayed by approximately one year in order to complete the requisite environmental documentation mandated by HRS Chapter 343.[9]

Based upon the prior experience with the 2008 FEIS, the Department of Environmental Services estimates that the time needed to complete an EIS for the new landfill site(s) is between one and two years, provided that there are no legal challenges. Id. Any legal challenges will only lengthen the time needed to complete an EIS. Id.

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[9] Examples of additional environmental disclosure documentation that was required for the 2008 FEIS included: (1) the discovery of three stone uprights that required archaeological investigation and coordination with the State Historic Preservation Division and cultural informants; and (2) the commissioning of an Invertebrate Survey for the 2008 FEIS. Dec. Steinberger, ¶ 39; see also 2007 Application.

2. Acquisition of the Selected Landfill Site(s)

This task is dependent upon the alternative landfill site(s) that is selected. If the site(s) is not presently owned by the City, the land acquisition process could be lengthy. If the City must acquire new land, a summary of the process is as follows: an appraisal of the land value; a determination by the City regarding the funding source for the acquisition; and approval for the expenditure of public funds by the Honolulu City Council. See Dec. Steinberger, ¶ 40.

Moreover, if the City does not own the property and the landowner is unwilling to sell the property to the City, a condemnation process could ensue. This process is expected to be lengthy and would likely involve litigation. Id.

For these reasons, it is difficult for the Department of Environmental Services to estimate the length of time required to acquire a new landfill site(s). For the purposes of this Application, however, an approximate estimate of time is one to three years. Id.

3. Detailed Engineering Studies, Construction and Bid Documents, and Other Approvals

Following the completion of the EIS process and the acquisition of the site(s), detailed engineering studies will need to be completed to support the landfill design. These studies will include, but are not limited to: land surveys; geotechnical soils and structural investigations; hydrology and hydrogeological investigations. The completion of these studies is required so that the landfill construction drawings can incorporate civil design requirements, such as the provision of drainage, access roadways, and infrastructure, to support the use of the site. Coordination with governmental agencies, utilities, and adjoining landowners, consistent with mitigation measures identified in the EIS, will also be required to minimize disturbance to nearby property owners and utilities. See Dec. Steinberger, ¶ 41.

The length of time required for the completion of detailed engineering studies, construction drawings and bid documents, and the processing of procurements for the design and construction contractors (which could include the selection of a qualified landfill operator), as well as the acquisition of building permits, land use approvals such as a SUP or district boundary amendment, depending on where the site(s) is located, and other necessary approvals, is estimated to be between one and three years. Id.

Based on the foregoing, no new landfill site or sites intended to replace or supplement WGSL will be operational as of the July 31, 2012, deadline to cease accepting

MSW at WGSL as imposed by Condition No. 14 of the 2009 LUC Decision. See 2009 Planning Commission Decision, ¶ 34, pg. 8; see also Dec. Steinberger, ¶ 42.

III. CONCLUSION

In accordance with the foregoing, the Applicant requests that the Planning Commission modify SUP No. 2008/SUP-2 by deleting Condition No. 14 of the 2009 LUC Decision to enable WGSL to continue accepting MSW until the Landfill reaches its permitted capacity as provided in the 2009 Planning Commission Decision.

For all the foregoing reasons, the Department of Environmental Services respectfully requests that the Planning Commission grant this application.

Sincerely,

Timothy E. Steinberger, P.E.
Director

Attachments

VERIFICATION

TIMOTHY E. STEINBERGER, P.E., being duly sworn, on oath, deposes and says that he is the Director of the Department of Environmental Services, City and County of Honolulu, and as such is authorized to make this verification on behalf of the Department of Environmental Services; that he has read the foregoing Application and knows the contents thereof; and that the same are true to the best of his knowledge, information and belief.

DATED: Honolulu, Hawaii, June 28, 2011.

TIMOTHY E. STEINBERGER, P.E.

Subscribed and sworn to me
this 28th day of June, 2011.

Name: MICHELLE N.I. LAU
Notary Public, State of Hawaii
My commission expires: 9-21-2014

Date: 6-28-11 #Pages: -37-
Name: MICHELLE N.I. LAU 1st Circuit
Doc. Description: SUP No. 2008/SUP-2
App. to Modify 2008/SUP-2
Notary Signature
NOTARY CERTIFICATION

DECLARATION OF TIMOTHY E. STEINBERGER

I, TIMOTHY E. STEINBERGER, hereby declare as follows:

1. I am the Director for the Department of Environmental Services.

2. I make this declaration based upon personal knowledge in support the Application to Modify State Special Use Permit ("SUP") No. 2008/SUP-2 by modifying the State of Hawaii Land Use Commission's (the "LUC's") Order Adopting the City and County of Honolulu Planning Commission's Findings of Fact, Conclusions of Law, and Decision and Order with Modifications, dated October 22, 2009, by deleting the July 31, 2012, deadline to cease disposal of municipal solid waste ("MSW") at the Waimanalo Gulch Sanitary Landfill ("WGSL" or "Landfill"), as set forth in Condition No. 14 of said Order.

3. Attached hereto as Exhibit "A" is a true and correct copy of relevant portions of Appellee State of Hawaii Land Use Commission's Answering Brief to the Circuit Court of the First Circuit, filed on April 12, 2010, In the Matter of Department of Environmental Services, City and County of Honolulu vs. Land Use Commission, State of Hawaii, et al., Civil No. 09-1-2719-11.

4. Attached hereto as Exhibit "B" is a true and correct CD copy of the *Final Environmental Impact Statement, Waimanalo Gulch Sanitary Landfill Lateral Expansion, Waimanalo Gulch, Oahu, Hawaii, TMKs: (1) 9-2-003: 072 and 073*, dated October 2008.

5. Attached hereto as Exhibit "C" is a true and correct copy of the LUC's Findings of Fact, Conclusions of Law and Decision and Order issued April 20, 1987.

6. Attached hereto as Exhibit "D" is a true and correct copy of the LUC's Findings of Fact, Conclusions of Law and Decision and Order issued on October 31, 1989.

7. Attached hereto as Exhibit "E" is a true and correct copy of the Planning Commission's Findings of Fact, Conclusions and Decision dated March 13, 2003 (the "2003 Planning Commission Decision").

8. Attached hereto as Exhibit "F" is a true and correct copy of the LUC's Decision and Order Approving Amendment to Special Use Permit issued June 9, 2003 (the "2003 LUC Decision").

9. Attached hereto as Exhibit "G" is a true and correct copy of Resolution No. 04-348, CD 1, FD 1, adopted by the Honolulu City Council on December 1, 2004.

10. Attached hereto as Exhibit "H" is a true and correct copy of State Special Use Permit (SUP) No. 86/SUP-5, In re Department of Environmental Services, City and County of Honolulu (FKA Department of Public Works, City and County of Honolulu); Application to Modify (1) the Findings of Fact, Conclusions and Decision dated March 13, 2003, and (2) the Decision and Order Approving Amendment to Special Use Permit Issued June 9, 2003, filed with the Department of Planning and Permitting on July 6, 2007, without accompanying exhibits ("2007 Application").

11. Attached hereto as Exhibit "I" is a true and correct copy of the Planning Commission's Findings of Fact, Conclusions of Law, and Decision and Order dated January 16, 2008 (the "2008 Planning Commission Decision").

12. Attached hereto as Exhibit "J" is a true and correct copy of the LUC's Findings of Fact, Conclusions of Law, and Decision and Order adopting with

Modifications, the City and County of Honolulu Planning Commission's Recommendation to Approve Amendment to Special Use Permit, dated March 14, 2008 (the "2008 LUC Decision").

13. Attached hereto as Exhibit "K" is a true and correct copy of the Planning Commission's Findings of Fact, Conclusions of Law, and Decision and Order dated August 4, 2009 ("2009 Planning Commission Decision").

14. Attached hereto as Exhibit "L" is a true and correct copy of relevant portions of the transcript of the July 31, 2009, decision-making hearing of the Planning Commission.

15. Attached hereto as Exhibit "M" is a true and correct copy of the LUC's Order Adopting the City and County of Honolulu Planning Commission's Findings of Fact, Conclusions of Law, and Decision and Order with Modifications, dated October 22, 2009 ("2009 LUC Decision").

16. Attached hereto as Exhibit "N" is a true and correct copy of the Circuit Court of the First Circuit's Order Affirming Land Use Commission's Order Adopting the City and County of Honolulu Planning Commission's Findings of Fact, Conclusions of Law and Decision and Order Dated October 22, 2009 with Modifications, dated September 21, 2010 ("Circuit Court Order").

17. Attached hereto as Exhibit "O" is the State of Hawai'i, Department of Health Solid Waste Management Permit No. LF-0182-09, issued on June 4, 2010

18. Attached hereto as Exhibit "P" is a true and correct copy of the United States District Court, Eastern District of Washington's order granting an injunction to enjoin the shipment of waste from Hawaii to Washington or Oregon ports on the

Columbia River and/or to the Roosevelt Landfill in Washington in Confederated Tribes and Bands of the Yakama Nation, et al., v. United States Department of Agriculture, et al., No. CV-10-3050-EFS, dated August 30, 2010.

19. On June 4, 2010, the State of Hawai'i, Department of Health ("DOH") issued Solid Waste Management Permit No. LF-0182-09, which encompasses the Landfill's current footprint, which consists of approximately 200 acres. That DOH permit states that WGSL "may accept MSW and ash for disposal until the date specified in the associated Special Use Permit or until the landfill/monofill reaches its permitted capacity, whichever comes first."

20. On November 19, 2009, in relation to the 2009 LUC Decision, the Department of Environmental Services filed its Notice of Appeal; Statement of the Case; Designation of Record on Appeal; Order for Certification and Transmission of Record; Exhibits "A" and "B" to the Circuit Court of the First Circuit ("Circuit Court"). Specifically, the Department of Environmental Services appealed the LUC's imposition of a July 31, 2012, deadline to cease the disposal of MSW at WGSL, as set forth in Condition No. 14 of the 2009 LUC Decision, as arbitrary and capricious, characterized by abuse of discretion and a clearly unwarranted exercise of discretion in light of the record developed before the Planning Commission. The Department of Environmental Services further appealed the LUC's imposition of reporting requirements, as set forth in Condition Nos. 15 and 16 of the 2009 LUC Decision, as in excess of the statutory authority and jurisdiction of the LUC. Oral arguments were held before the Honorable Judge Rhonda A. Nishimura of the Circuit Court on July 14, 2010. On September 21, 2010, the Circuit Court issued its Order Affirming Land Use Commission's Order

Adopting the City and County of Honolulu Planning Commission's Findings of Fact, Conclusions of Law and Decision and Order Dated October 22, 2009 with Modifications. Said Order modified Conditions No. 15 and 16 of the 2009 LUC Decision by deleting the references to the Honolulu City Council and the City administration, and substituting the same with the Department of Environmental Services. The Order also erroneously affirmed Condition No. 14 of the 2009 LUC Decision. Final Judgment was filed on October 19, 2010, and the Notice of Entry of Judgment was filed on October 21, 2010.

21. On November 12, 2010, the Department of Environmental Services timely filed its Notice of Appeal and Civil Appeals Docketing Statement to the Intermediate Court of Appeals ("ICA") relating to that portion of the Circuit Court's Order which wrongly affirmed the LUC's arbitrary and unsupported deadline of July 31, 2012, to cease acceptance of MSW at WGSL. The Department of Environmental Services filed its Opening Brief to the ICA on February 15, 2011. Briefing is not yet concluded and the case remains pending before the ICA.

22. The current permitted area of the Landfill, which is approximately 200 acres, has the capacity to continue to accept MSW well beyond the July 31, 2012, deadline to cease accepting MSW at WGSL imposed by the 2009 LUC decision. Based upon typical rates of disposal at WGSL, the remaining capacity in the permitted area is estimated to be approximately fifteen years. The remaining capacity of WGSL is an estimate only as rates of disposal fluctuate based upon numerous factors, e.g., the economy, waste diversion programs, such as the implementation of island-wide recycling, possible disaster events, etc.

23. The Department of Environmental Services has been actively reducing waste volumes that are directed to WGSL through its various waste diversion programs. For example, the Department of Environmental Services is expanding its H-POWER plant with a third boiler, which is expected to increase the facility's capacity by an additional 300,000 tons of MSW per year by late 2011 or early 2012. The Department of Environmental Services also completed full implementation of its island-wide, curbside recycling program in May 2010, which is in addition to its program of community recycling bins. A facility at the City's Sand Island Wastewater Treatment Plant turns bio-solids into fertilizer pellets, so that such material may be reused as a soil amendment product. The Department of Environmental Services' other initiatives include awarding a contract for a new recycling facility that will accept green waste, food waste and sewage sludge. The City remains committed to adopting and implementing waste handling programs that will reduce O'ahu's dependency on landfilling.

24. If SUP No. 2008/SUP-2 is not amended by deleting Condition No. 14 of the 2009 LUC Decision, the Landfill will be forced to stop accepting MSW as of July 31, 2012, and special wastes, bulky wastes and waste material that cannot be combusted, recycled, reused, or shipped, will have nowhere to go for proper disposal. This stoppage will have an adverse, island-wide impact on all of the communities on O'ahu because the City will no longer have the ability to dispose of certain wastes in a sanitary manner. The City would also no longer be permitted to operate H-POWER, as that facility must have a MSW landfill disposal option as required by its DOH solid waste permit. Furthermore, in the event of a disaster such as a hurricane or a tsunami, the City would have no permitted site to dispose of the ensuing debris. In other words, not

only would there be no sanitary or secure means of disposing of special wastes and bulky wastes, H-POWER would no longer be permitted to accept any MSW and there would be no facility to properly dispose of disaster debris. Further, even when the H-POWER facility is expanded, it will still require the continued availability of WGSL as a permit condition to operate, to ensure proper disposal of MSW that is diverted from H-POWER due to routine maintenance, unanticipated closures or if the amount of waste exceeds the capacity of the facility.

25. The recent closure of WGSL from January 12 to January 28, 2011, due to unprecedented storms in December 2010 and in January 2011, has served to highlight the need for a landfill. During that seventeen-day closure period, there were delays in the disposal of H-POWER residue, bulky item waste, and wastewater sludge. All such wastes cannot be disposed of at H-POWER and must be disposed of in the Landfill. The closure of WGSL greatly impacted the disposal of H-POWER residue, bulky item waste, and wastewater sludge, all of which cannot be disposed of at H-POWER and must be disposed of at WGSL, the only permitted facility on O'ahu to accept these types of waste. The closure of WGSL also hampered H-POWER's ability to accept MSW because of the backlog of residue that accumulated at the facility. City refuse transfer stations that depend on H-POWER for waste disposal were also adversely impacted and experienced heavy buildups of trash. City wastewater treatment facilities resorted to temporary on-site storage of sewage sludge to cope with the situation. Further, the Department of Environmental Services ceased collection of bulky item wastes, resulting in unsightly piles of waste in many neighborhoods across the island. Generators of other special wastes that are normally disposed of at WGSL had to make their own

arrangements to store or otherwise dispose of their waste until the Landfill could be reopened. The closure of WGSL had far reaching impacts upon the City's ability to dispose of solid waste, with restrictions imposed at all six of the City's convenience centers, as well as at its three transfer stations. On April 13, 2011, the WGSL and all City refuse facilities resumed normal operations and were opened to the public.

26. The off-island shipment of O'ahu's solid waste is no longer a viable alternative, not even for the short term. The City did attempt to ship waste to the mainland but only as an interim solid waste disposal alternative until the H-POWER facility was expanded with the addition of a third boiler. However, this attempt was not successful and shipping is now precluded by a court imposed injunction on the shipping of waste from Hawai'i to Washington and Oregon via the Columbia River.

27. In January 2008, the City issued an Invitation for Bids ("IFB") for the baling, shipping, offloading, transporting and disposing (transshipment) of City-provided MSW to a U.S. Mainland landfill for a term of at least 36 months. The City received and opened three bids on June 17, 2008. Following the bid opening, the two highest bidders filed a total of four procurement protests, disputing for various reasons the adequacy of the apparent low bid. These protests were resolved after several months, with all the protests ultimately being denied, and no appeals being taken of those denials.

28. Pursuant to the requirements of the State Procurement Code, the City was prohibited from taking any actions toward the award of a contract during the pendency of the protests. With the protests resolved, the City reviewed the apparent low bid submitted by Hawaiian Waste Systems, LLC ("HWS"), and eventually the City's Chief

Procurement Officer issued a determination that the low bid was not responsive to the requirements of the IFB. Pursuant to the State Procurement Code, HWS appealed this determination to the Office of Administrative Hearings at the Department of Commerce and Consumer Affairs ("DCCA").

29. Following a hearing at DCCA, and prior to the deadline for the Hearings Officer to issue a decision on the appeal, the City and HWS agreed to settle the procurement protest. The settlement was confirmed in an Order approved by the Hearings Officer. Pursuant to the Settlement and Order, the contract for interim shipment of MSW was awarded to HWS on August 27, 2009. The commencement of services under the contract was to begin by the end of September 2009. The City issued a Notice to Proceed to HWS for September 25, 2009. Both parties agreed that delivery of MSW would start on September 28, 2009.

30. HWS asked the City to cease delivering waste on April 1, 2010. At that point, approximately 20,000 tons of MSW had been delivered to HWS, which baled, wrapped and stockpiled the MSW at three locations, and no waste had been shipped due to HWS' inability to obtain required permits for the contracted services.

31. Originally, HWS' proposed port on the U.S. mainland was located in Roosevelt, WA. HWS submitted a revised plan to ship baled waste to different ports (Longview, WA; Rainier, OR; and Portland, OR) and the environmental assessment for HWS' revised plan was posted on the Federal Register on January 19, 2010, and the closing date for comments was February 18, 2010. On May, 27, 2010 the United States Department of Agriculture ("USDA") concluded their responses to public comments and

published a Finding of No Significant Impact ("FONSI"). The required Compliance Agreements were issued in June 2010.

32. On July 8, 2010, the USDA issued a Notification of Suspension of Operations Pursuant to Compliance Agreement No. Oahu RGOO2 to HWS. On August 30, 2010, the United States District Court, Eastern District of Washington issued an injunction enjoining the shipment of waste from Hawaii to Washington or Oregon ports on the Columbia River and/or to the Roosevelt Landfill in Washington in Confederated Tribes and Bands of the Yakama Nation, et al., v. United States Department of Agriculture, et al., No. CV-10-3050-EFS. The USDA has canceled the Compliance Agreement permits of all Hawaii shippers that might otherwise have enabled the shipment of waste to the mainland. As of the filing of this Application, the Yakama Nation lawsuit remains active and the injunction continues in effect.

33. Accordingly, no waste was ever shipped to the mainland due to various problems encountered by HWS. In order to properly dispose of the approximately 20,000 tons of baled MSW, HWS agreed to disassemble the bales, sort the waste and take the burnable waste to H-POWER and the non-burnable waste to the Waimanalo Gulch Landfill. As of January 2011, approximately 11,000 tons had been taken to H-POWER and 140 tons had been taken to WGSL.

34. On January 6, 2011, there was a fire at the HWS facility that damaged the building in which the waste bales were disassembled. Because HWS' solid waste permit requires the waste to be processed under cover, without the use of the building, HWS' breaking apart and sorting of the waste for disposal at H-POWER and WGSL had to be suspended. Thereafter, the City and HWS continued to work together, in

collaboration with DOH, to dispose of the remaining tons of baled waste. On May 12, 2011, the last bale of waste at the HWS facility was removed and delivered to a City waste disposal facility. Of the original 20,000 tons in its possession, HWS delivered 14,779 tons to H-POWER (76%) and 4,565 (24%) tons to WGSL. HWS was able to extract and recycle 1,525 tons of metal.

35. As required by Condition No. 1 of the 2009 Planning Commission Decision and Condition No. 4 of the 2009 LUC Decision, the Department of Environmental Services is diligently working towards identifying one or more new landfill sites that shall either replace or supplement the WGSL. Funding for the new landfill site selection process was appropriated in the City's Fiscal Year (FY) 2010 budget with additional funds appropriated in FY 2011. In November 2009, the Department of Environmental Services began the process to allot appropriated funds for a procurement to contract a consultant to facilitate the landfill site selection process. On June 25, 2010, the City contracted with the R.M. Towill Corporation, specifically to assist the Mayor's Landfill Site Selection Advisory Committee ("Landfill Advisory Committee").

36. The Landfill Advisory Committee is charged by the Mayor to provide advisory recommendations to the City concerning the selection of a future site or sites for a landfill to accept MSW, ash and residue from the City's H-POWER waste-to-energy facility, and construction and demolition debris waste. The procedure involving the use of an advisory committee to assist in landfill site selection was set forth in the City's Integrated Solid Waste Management Plan (October 2008). The Mayor chose 12 members to serve on the Landfill Advisory Committee based upon numerous criteria including technical expertise and experience, community involvement, and availability to

serve. The members of the Landfill Advisory Committee are: Bruce Anderson, David Arakawa, Thomas Arizumi, David Cooper, John DeSoto, John Goody, Joe Lapilio, Tesha H. Malama, Janice Marsters, Richard Poirier, Chuck Prentiss, and George West. Due to various personal reasons, however, Bruce Anderson, David Cooper and John DeSoto have since resigned from the committee.

37. The first meeting of the Landfill Advisory Committee was held on January 20, 2011, and subsequent meetings were held on February 10, March 10, March 31, and May 12, 2011. The next tentatively scheduled meetings are June 23 and July 19, 2011. Additional meetings may be scheduled as needed by the Landfill Advisory Committee. Barring unforeseen delays, the Landfill Advisory Committee's final report is expected to be completed and sent to the Mayor by October 2011. All Committee meetings are open to the public and to public comment. Handouts provided to the Landfill Advisory Committee as well as the Group Memory of each meeting are posted online at opala.org.

38. Once a site or sites are identified by the Landfill Advisory Committee, it will take more than seven years to acquire, permit, design and construct the new landfill site(s). As noted, the work of the Landfill Advisory Committee is anticipated to be concluded within the third quarter of 2011; the Department of Environmental Services must then undertake various additional steps, anticipated to require a number of years to complete.

39. The preparation and processing of an Environmental Impact Statement ("EIS") in full compliance with Hawai'i Revised Statutes ("HRS") Chapter 343 and related administrative rules for O'ahu's next landfill site or sites to replace or supplement

WGSL must satisfy all necessary requirements, including but not limited to conducting site surveys and investigations, analyzing alternatives including alternative sites and technologies, obtaining public and governmental agency input, analyzing direct, secondary, and cumulative impacts, developing appropriate mitigation measures, and ensuring the opportunity for public participation and comments. The EIS process will include among other things the filing of three principal documents with the Office of Environmental Quality Control, State of Hawaii ("OEQC"): (1) a Final Environmental Assessment/EIS Preparation Notice ("FEA/EISPN"), which upon publication will invoke a mandatory thirty (30) day public comment period; (2) a Draft EIS that will incorporate and address all relevant public comments that are received in response to the FEA/EISPN; the publication of the Draft EIS, which will invoke a mandatory forty-five (45) day public comment period; and (3) the acceptance of the Final EIS that will incorporate and address all relevant public comments received in response to the Draft EIS. The Department of Environmental Services fully expects that because of the inherent difficulty in identifying a new landfill site or sites for O'ahu, extensive environmental documentation will likely be required before the Final EIS for said site(s) can be completed. For example, the 2008 FEIS for WGSL was anticipated to be completed by December 2007, but was delayed by approximately one year in order to complete the requisite environmental documentation mandated by HRS Chapter 343 in relation to the discovery of three stone uprights that required archaeological investigation and coordination with the State Historic Preservation Division and cultural informants as well as to commission an Invertebrate Survey. Based upon the prior experience with the 2008 FEIS, the Department of Environmental Services estimates

that the time needed to complete an EIS for the new landfill site(s) is between one and two years, provided that there are no legal challenges. Any legal challenges will only lengthen the time needed to complete an EIS.

40. The timeline for the acquisition of the landfill site or sites identified by the Landfill Advisory Committee is dependent upon the alternative landfill site(s) that is selected. If the site(s) is not presently owned by the City, the land acquisition process could be lengthy. If the City must acquire new land, a summary of the process is as follows: an appraisal of the land value; a determination by the City regarding the funding source for the acquisition; and approval for the expenditure of public funds by the Honolulu City Council. Moreover, if the City does not own the property and the landowner is unwilling to sell the property to the City, a condemnation process could ensue. This process is expected to be lengthy and would likely involve litigation. For these reasons, it is difficult for the Department of Environmental Services to estimate the length of time required to acquire a new landfill site(s). For the purposes of this Application, however, an approximate estimate of time is one to three years.

41. Following the completion of the EIS process and the acquisition of the site(s), detailed engineering studies will need to be completed to support the landfill design. These studies will include, but are not limited to: land surveys; geotechnical soils and structural investigations; hydrology and hydrogeological investigations. The completion of these studies is required so that the landfill construction drawings can incorporate civil design requirements, such as the provision of drainage, access roadways, and infrastructure, to support the use of the site. Coordination with governmental agencies, utilities, and adjoining landowners, consistent with mitigation

measures identified in the EIS, will also be required to minimize disturbance to nearby property owners and utilities. The length of time required for the completion of detailed engineering studies, construction drawings and bid documents, and the processing of procurements for the design and construction contractors (which could include the selection of a qualified landfill operator), as well as the acquisition of building permits, land use approvals such as a SUP or district boundary amendment, depending on where the site(s) is located, and other necessary approvals, is estimated to be between one and three years.

42. Based on the foregoing, no new landfill site or sites intended to replace or supplement WGSL will be operational as of the July 31, 2012, deadline to cease accepting MSW at WGSL as imposed by Condition No. 14 of the 2009 LUC Decision.

I DECLARE UNDER PENALTY OF LAW THAT THE FOREGOING IS TRUE AND CORRECT.

DATED: Honolulu, Hawai'i, June 28, 2011.

TIMOTHY E. STEINBERGER, P.E.

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IN THE CIRCUIT COURT OF THE FIRST CIRCUIT

STATE OF HAWAI'I

DEPARTMENT OF ENVIRONMENTAL SERVICES, CITY AND COUNTY OF HONOLULU, Appellant, vs. LAND USE COMMISSION, STATE OF HAWAI'I; COLLEEN HANABUSA, MAILE SHIMABUKURO, AND KO OLINA COMMUNITY ASSOCIATION, Appellees.	CIVIL NO. 09-1-2719-11 (Agency Appeal) APPELLEE STATE OF HAWAI'I, LAND USE COMMISSION'S ANSWERING BRIEF; CERTIFICATE OF SERVICE Hearing: July 14, 2010 Time: 8:30 A.M. Judge: The Honorable Rhonda A. Nishimura

> City Council is encouraged to work cooperatively with the Applicant's effort to select a new landfill site on Oahu. Upon the selection of a new landfill site or sites on Oahu, the Applicant shall provide written notice to the Planning Commission. After receipt of such written notice, the Planning Commission shall hold a public hearing to reevaluate 2008/SUP-2(SP09-403) and shall determine whether modification or revocation of 2008/SUP-2(SP09-403 is appropriate at that time. The Planning Commission shall make a recommendation to the Land Use Commission.

(ROA 0166.)

Clearly ENV is required by condition No. 4 to identify and develop a new landfill site or sites.

1. ENV is Not Precluded from Requesting Relief from the Conditions in the Future.

Although ENV may claim that Condition No. 14 does not provide adequate time to identify and develop a new landfill, ENV has been on notice for years in prior special permit proceedings relating to WGSL that it was required to do so. Indeed, the special permit for the existing landfill required closure of WGSL in 2008 and was extended to November 2009. ENV has had years to begin the process of identifying a new landfill site or sites. Further, there is nothing to preclude ENV from requesting an extension of the 2012 date if it is unable, using reasonable diligence as required in Condition No. 4, to identify and develop a new landfill site. In the prior special permit, as noted above, ENV requested and was given extensions of time because the City was unable to identify a new site. Even the Planning Commission and ENV's witness recognized this:

> GAYNOR: I'm not sure if you're gonna be comfortable answering this so if you're not, I'll get it answered later on, but one of the exhibits that we have is the 2005 Planning Commission Findings of Fact and Decision

BEFORE THE PLANNING COMMISSION

OF THE CITY AND COUNTY OF HONOLULU

STATE OF HAWAI'I

In the Matter of the Application of DEPARTMENT OF ENVIRONMENTAL SERVICES, CITY AND COUNTY OF HONOLULU To delete Condition No. 14 of Special Use Permit No. 2008/SUP-2 (also referred to as Land Use Commission Docket No. SP09-403) which states as follows: "14. Municipal solid waste shall be allowed at the WGSL up to July 31, 2012, provided that only ash and residue from H-POWER shall be allowed at the WGSL after July 31, 2012."	FILE NO. 2008/SUP-2 **CERTIFICATE OF SERVICE**

CERTIFICATE OF SERVICE

The undersigned certifies that on this day a copy of the foregoing document was duly served on the following persons:

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