2004 SUPPLEMENTAL ASSESSMENT

LANDFILLS IN THE VICINITY OF AUSTIN, TEXAS

Austin, Texas

Prepared for:

City of Austin Public Works Department
One Texas Center, Suite 900
505 Barton Springs Road
Austin, Texas 78704

March 2005

Project 10069

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EXECUTIVE SUMMARY

In 1984, the City of Austin (COA) retained Underground Resource Management (URM) to identify and locate waste disposal sites (i.e. landfills and dumps) in and around the City. As part of that effort, the COA also requested that URM gather available information to characterize environmental conditions or potential conditions, and provide recommendations, as appropriate. In October 2004, as part of the City's continuing efforts to monitor conditions associated with the vicinity landfills, the COA retained Geomatrix Consultants, Inc. (Geomatrix) to perform this Supplemental Assessment. The primary objective of this project was to update the current understanding of environmental conditions at each of the URM prioritized sites as well as others identified since the 1984 assessment and, where appropriate, provide recommendations regarding any additional actions that may be warranted to address identified environmental conditions that, in our opinion, may pose a material threat to human health or the environment or represent a regulatory violation.

To perform the Supplemental Assessment, Geomatrix reviewed readily available state and City file documents for 29 waste sites. Other documentation, including the data base of Closed or Abandoned Municipal Solid Waste Sites for Travis County prepared by SW Texas State University, were available but beyond the scope of this project. Site visits were conducted at 28 of the sites. Landfill #1, Airport was not visited because Geomatrix was already familiar with the site due to our recent work and experience at this site. Of the 29 sites assessed, 27 are inactive sites identified as priority sites in the URM report and two are new sites that were identified and added during the course of the Supplemental Assessment, at the request of the COA. The waste sites that were the subject of this assessment include both City-owned/operated and non-City-owned/operated sites.

Based on the information gathered and/or reviewed during this Supplemental Assessment, we have concluded that environmental conditions that may pose a material concern to human health or the environment, or conditions that may represent a regulatory violation, are present at several waste sites. For many of these sites, the owners are already addressing the identified concerns. For 13 of these sites, however, we have identified conditions that are not currently being addressed. For these sites, recommendations for additional investigation and/or

corrective actions are provided herein. At the remaining 16 sites, either environmental concerns have not been identified, are considered to have been adequately addressed, or are being addressed and, therefore, no new or additional investigation or corrective actions have been recommended. Recommendations for each individual site are tabulated in Section 4 of this report.

If the owner of property containing a landfill has not already done so, notice should be filed in the real property records of the existence of the landfill per 30 TAC 330, Subchapter T. Owners should also be advised to review the requirements for notification to buyers, lessees, and occupants as well as lease restrictions provided in 30 TAC 330, Subchapter T.

Five of the sites may have structures over the landfill which might require either registration or permitting in accordance with 30TAC Chapter 330, Subchapter T as follows:

- Enclosed structures developed prior to September 1, 1993, over deposited waste are required to obtain a registration following the requirements in 30 TAC §330.959.
- Enclosed structures developed after September 1, 1993, over deposited waste are required to obtain a permit for development following the requirements in 30 TAC §330.956.

These regulations apply to persons owning, leasing, or developing property or structures overlying a closed municipal solid waste landfill. Structures which are subject to these rules include any permanent enclosed structure intended for the use or occupation of people. The only structures excluded from these requirements are single-family homes or duplexes, unless they are part of a subdivision. A closed municipal solid waste facility includes permitted municipal solid waste landfills that are no longer in post-closure care, closed landfills that were developed before permitting requirements, and closed, unauthorized landfills.

Although many of the findings presented herein are considered material from an environmental perspective, within the limitations of this assessment, none of our findings indicate an obvious and imminent threat to public safety. We also report, however, that in response to the preliminary findings of this SA, the property owner of one of the landfill sites (Webberville-Govalle) has already expedited investigative actions and has discovered the presence of elevated levels of methane gas in the subsurface and is communicating findings with the appropriate regulatory agencies. These proactive measures taken by the property owner, illustrate the types of conditions that can exist undetected in the vicinity of closed landfill sites, and the importance of additional assessment, where warranted. Because most of the landfills

are not owned by the COA, we note that implementation of certain of our recommendations may be beyond the COA's control.

2004 SUPPLEMENTAL ASSESSMENT
LANDFILLS IN THE VICINITY OF AUSTIN, TEXAS

1.0 INTRODUCTION

In 1984, the City of Austin (COA) retained Underground Resource Management (URM) to identify and locate active and inactive waste sites (landfills and dumps) in and around Austin. As part of that effort, the COA also requested that URM gather available information (e.g. waste types, geologic setting, etc.) to characterize environmental conditions or potential conditions, and provide recommendations accordingly. URM's assessment targeted all known or suspected waste sites in the area, including City-owned/operated and non-City owned/operated sites. URM's assessment resulted in the identification of 66 waste sites, 39 active and 27 inactive. Active and inactive landfill locations in the vicinity of Austin are shown on Figure A. The sites ranged in significance from large landfills or those with known hazardous contents, to small recreational area trash dumps. Based on their perceived environmental significance and accessibility, URM prioritized 31 (27 inactive and 4 active) of the 66 sites for field inspections, including environmental sampling and analyses being conducted at three of the sites. URM's assessment, including recommendations for further investigation and/or monitoring actions, as appropriate, was documented in their report titled *Landfills in the Vicinity of Austin, Texas, November 1984*.

Since the URM report, the COA has conducted a variety of assessment, remediation, and/or monitoring activities associated with certain of the identified landfills. In October 2004, as part of their continuing efforts to monitor conditions associated with the vicinity waste sites, the COA retained Geomatrix Consultants, Inc. (Geomatrix) to update the current information. As detailed herein, this Supplemental Assessment (SA) focused primarily on the 27 inactive priority sites identified by URM. During the course of our assessment, however, 2 new sites (i.e. sites not addressed in the URM report) were added at the request of the COA. The updated information provided by this SA will be used by the COA to evaluate the need for, and prioritize, further assessment or monitoring actions, and will also be useful in future decision making regarding land use planning.

Section 2 of this report discusses the SA objectives and scope of work. Section 3 provides a summary description of the conditions observed at each of the landfills, as well as a discussion of any pertinent information obtained from our file reviews. Section 4 of this report provides recommended actions for each landfill based on the results of our assessment. Section 5

presents the SA limitations. Supporting information and documents are provided in the attached Tables, Figures, and Appendices.

2.0 OBJECTIVES & SCOPE

This 2004 SA was designed to supplement the information contained in the 1984 URM report, with a particular focus toward assessing the waste sites for changed conditions that could represent a material environmental concern or regulatory violation. Where such conditions were identified, recommendations regarding additional actions have been developed. It is noted that this SA did not attempt to re-assess such waste site factors that would not have changed since the URM report, such as the waste site operational history, the types of wastes disposed, or the geologic/hydrogeologic setting or suitability.

The waste sites that were the focus of this Supplemental Assessment are listed with their respective URM reference numbers in Table 1. A summary of the pertinent landfill data is provided in Table 2. Landfill locations are shown on Figure A. The SA activities are described as follows:

- A review of pertinent city and state records, including aerial photographs, to aid in identifying possible past, current, or planned activities of potential interest (e.g. development, environmental monitoring, etc.) at or near the site. A summary of the records reviewed is provided as Table 3.
- Site inspections to assess for evidence of adverse environmental conditions (e.g. the presence of leachate, odors, excessive erosion, visible wastes, etc.), including the presence of structures built on or adjacent to the site and evidence of ongoing dumping.
- Photographic documentation of environmental conditions that were considered to represent, or potentially represent, a material environmental concern.
- Informal interviews with property owners, when available, to obtain site-specific information not otherwise available.

With regard to the site inspections, where permission to access the waste site property was granted by the current property owner, the inspections were made by walking the readily accessible portions of the properties. Where the property owner(s) were either unreachable, or did not grant access, however, the properties were viewed to the extent practicable from adjacent public properties, or adjacent private properties where access was granted.

The site inspections were designed to observe for conditions that could indicate an environmental concern or potential concern with regard to human health or the environment, or those conditions that could represent a regulatory violation (e.g. ongoing illegal dumping). These indicators included, but were not limited to:

- Site accessibility
- Cap/cover integrity, adequacy, and drainage
- Evidence of ongoing or recent illegal dumping
- Development on and around the site
- Observed presence of visible waste materials and/or leachate
- Evidence of vegetative stress
- Presence of near-by sensitive receptors

To provide consistency in the documentation of the observed site conditions, a detailed standardized Site Visit Form (SVF) was completed in the field at the time of each inspection. The information presented in the field SVFs were then transposed into a MS Word™ document for inclusion in this report in Appendix A. In addition, where environmental concerns were observed during the site inspections, photographs were taken. The photographs are referenced within the text of this report where applicable, and are included in Appendix B.

3.0 IDENTIFIED CONDITIONS

The following sections highlight the results of our site inspections and any pertinent information obtained from our record reviews and property owner interviews. For additional site-specific details regarding the results of the SA inspections, the reader is directed to the individual SVFs, which are provided in Appendix A. We again note that, because this report is designed to supplement the 1984 URM report, the following discussions do not attempt to re-present the information contained in the URM report in its entirety. For information regarding unchanged conditions or conditions that were not the focus of this assessment (e.g. site geologic/hydrogeologic setting), the reader is referred to the URM report, a copy of which is provided in Appendix C.

3.1 #1, AIRPORT

The City of Austin (COA) operated Robert Mueller Municipal Airport (RMMA) as a civil and military aviation facility continuously from 1929 until 1999. With the opening of the new Austin-Bergstrom International Airport in 1999, the COA terminated aviation operations at RMMA. As part of the RMMA closure process, the COA has performed environmental assessment and remediation of the property under the Texas Commission on Environmental Quality's (TCEQ's) Voluntary Cleanup Program (VCP). The goal of this assessment and remediation is to achieve regulatory environmental closure to facilitate the redevelopment of the property for both residential and commercial use. The current plans for redevelopment of the airport property include a multi-use neighborhood including single-family residential areas as well as commercial areas and a hospital.

During the extensive assessment and remediation activities performed at RMMA, three waste disposal areas were identified in addition to Landfill #1, the Airport Dump that is identified in the URM report. The RMMA investigation report identified these disposal areas as; WD1 (Landfill #1) and WD4, WD5, and WD7 (see Figures 1a and 1b). According to TCEQ records, three of the waste disposal areas were completely removed from the property in 2001 and 2002, and the fourth, WD7, is currently being investigated further. These waste disposal areas are further described in the following paragraphs.

#1a, Environmental Site WD1, Waste Disposal Area

WD1 is located on the southeast portion of RMMA near Manor Road and adjacent to the Long Term Parking Area (see Figures 1a and 1b). The landfill area is a mounded area located on an undulating grass-covered surface adjacent to the RMMA Perimeter Road. Although the exact

location and extent of WD1 as determined during remediation (see below) was slightly different from the Landfill #1 described in the URM report, WD1 does appear to be the same landfill as Landfill #1 based on other factors.

WD1 was reportedly used for the disposal of general wastes and demolition debris until 1964. Historical records indicate that waste was disposed in the WD1 area without current standard landfill construction and controls. There is minimal information regarding the types and amounts of waste disposed in this area. Assessment activities performed in the late 1990's by the COA indicated that buried waste materials were present between approximately 7 and 12 feet below ground surface, with approximately 4 feet of soil as a cap. Groundwater was encountered during the installation of soil borings at depths of 16 to 26 feet below ground surface.

Response actions performed by COA or its consultants at WD1 consisted primarily of the excavation and off-site disposal of soil and buried waste materials (see photos #1 and #2 for this landfill). Buried wastes were excavated from an elliptical area measuring approximately 300 feet long and 135 feet wide to a maximum depth of 10 feet. Analysis of final remedial confirmation samples indicated no detectable concentrations of BTEX, SVOCs, TPH, and inorganic constituents (i.e. metals) were not present at concentrations greater than the cleanup levels. Groundwater was not encountered in this area during response action activities. Remedial activities were completed at WD1 in February of 2002. Risk Reduction Standard No. 1 Closure criteria were met.

Based on the information reviewed during this SA, current conditions associated with this site do not appear to pose a material concern to human health or the environment, or represent a regulatory violation.

#1b, Environmental Site WD4, COA Interdepartmental Fill Area

WD4 is located on the northeastern perimeter of RMMA near the National Guard Facility; adjacent to the intersection of Old Manor Road and 51st Street (see Figures 1a and 1b). The area was, until approximately 2000, utilized by the COA's Solid Waste Services as a staging area for street sweeper waste. Reportedly, the street sweepers would unload debris at this location for eventual transfer into trucks and transport to the municipal solid waste landfill. Buried waste materials were encountered in a circular area approximately 150 feet in diameter, and extending to a depth of approximately 3 feet below the present surface. The waste

materials at this location consisted of plastic, paper, and scrap metal, similar to the materials observed in the street sweeper waste piles.

The shallow soils and fill materials overlie the Taylor Formation at this location. No groundwater was encountered during the installation of soil borings or during remedial activities.

At the request of the COA, the response action was expedited at this site to allow immediate redevelopment by the COA as an Emergency Communication Center. Response actions performed at WD4 consisted primarily of the excavation and off-site disposal of soil and buried waste materials (see photo #3 for this landfill). Analysis of remedial confirmation samples indicated the presence of mercury and selenium in the excavation floor and sidewalls at concentrations slightly greater than the site-specific background concentrations. However, there are no other corresponding chemical or visual indications of environmental impact, and these exceedances were considered to be a localized variation in background levels. No organic compounds were detected in the confirmation samples. Risk Reduction Standard No. 1 Closure criteria were met.

Based on the information reviewed during this SA, current conditions associated with this site do not appear to pose a material concern to human health or the environment, or represent a regulatory violation.

#1c, Environmental Site WD5, Former Asphalt Plant Tailings / Ash Disposal Pit

WD5 is located on the eastern portion of RMMA near the northwestern end of the former Remote Parking Area (see Figures 1a and 1b). WD5 is located on an undulating grass-covered surface adjacent to the RMMA Perimeter Road.

The landfill area was reportedly used for the disposal of tailings and ash generated by an on-property asphalt plant until the early 1970s. Historical records indicate that waste was disposed in this area without current standard landfill construction and controls. Waste materials consist of wood, asphalt, vegetation, concrete rubble, rubber, and small quantities of other materials. Assessment activities indicated that buried waste materials were present in a roughly circular area approximately 150 feet in diameter, and extending to a depth of approximately 10 feet.

During the assessment phase, monitoring well WD5-MW-03 was installed adjacent to WD5. Toluene was detected in a soil sample collected at a depth of 15 feet during well installation.

The installed monitoring well was located in the area of a local bedrock high, and groundwater was not present.

Response actions by COA or its consultants consisted primarily of the excavation and disposal of soil and buried waste materials (see photos #4 through #6 for this landfill). Analysis of final confirmation samples indicated that constituents of concern were not present at concentrations greater than the cleanup levels. In conjunction with the WD5 response action, WD5-MW-03 was plugged and abandoned, and the soil around the well was excavated and disposed.

Groundwater was not encountered in this area during response action activities. Remedial activities were completed at WD1 in February of 2002. Risk Reduction Standard No. 1 Closure criteria were met.

Based on the information reviewed during this SA, current conditions associated with this site do not appear to pose a material concern to human health or the environment, or represent a regulatory violation.

#1d, Environmental Site WD7, Waste Disposal Area

WD7 is located on the northern portion of RMMA near East 51st Street and extends below pavement and Buildings 2662, 2494, and 2498 (see Figures 1a and 1b and photos #7 through #9 for this landfill). The full aerial extent and depth of this landfill has yet to be determined. WD7 is located within the Tannehill Branch watershed. The exact dates the landfill was in use are not known. Based on available historical information, the former landfill consists of a gravel borrow pit excavated during airport construction in the 1940s and 1950s. The pit was apparently used for disposal of general "household" trash and construction debris starting in the 1950s, and was then covered over with fill soil in the early to mid 1960s.

Landfill gas (primarily methane) is present in this area, and is currently being monitored. A plume of impacted groundwater is present at and immediately downgradient of the disposal area.

Seven groundwater monitoring wells were installed and tested and groundwater in this area was determined to contain elevated levels of metals and organics. All groundwater constituents present at levels above background are below residential Medium-Specific Concentrations (MSCs), except arsenic, which exceeds residential and industrial MSCs.

Long-term engineering controls are proposed to be implemented for site WD7, following completion of a Conceptual Exposure Assessment Model and development of a Remedial Action Plan. The COA is currently preparing an application for registration with the TCEQ of the buildings above the landfill, pursuant to the requirements specified in 30 TAC §§330.951 – 330.963 (Chapter 330, Subchapter T: Use of Land Over Closed Municipal Solid Waste Landfills). The Subchapter T registration application addresses monitoring and venting of landfill gases and site operating requirements to meet TCEQ standards for municipal solid waste landfills with enclosed structures located above the buried waste.

Based on the information reviewed during this SA, beyond those conditions already being addressed by the COA, current conditions associated with this site do not appear to pose a material concern to human health or the environment, or represent a regulatory violation.

3.2 #2, BALCONES RESEARCH CENTER

The Balcones Research Center landfill is owned by the University of Texas and is located in northwest Austin, at 10,000 Burnet Road. The acid neutralization waste site and the radioactive waste disposal area remain essentially as they are described in the URM report, with the exception that the acid neutralization waste site (aka lime slurry disposal area) is no longer active. The University of Texas's Balcones Research Center Staff have indicated that, although attempts have been made by staff to locate the buried research monkey waste that is reported in the 1984 URM report, they have been unable to do so. The locations of the two known disposal areas are shown on Figure 2a.

The radioactive waste disposal area (site #2a) is a grassy, level area enclosed by a chain link fence. Inside the fenced area are three small storage buildings (see photos #1 and #2 for this landfill). Two of the storage buildings are used to store miscellaneous equipment and materials. No chemicals or hazardous materials are stored in these buildings. The third (largest) building is used to store low level radioactive waste prior to its shipment and disposal off site at an authorized facility. In August 2001, (Reference # 34), the TCEQ determined that the radioactive waste disposal area is in compliance with the requirements of 30 TAC 336, subchapter G (relating to the licensing requirements and decommissioning standards for inactive radioactive waste disposal sites), and that the disposal area meets the decommissioning standards for Unrestricted Use, and that no further cleanup is required.

The acid neutralization waste area (site #2b) is partially covered with grass and weeds, with large areas of white chalky-appearing material with little or no plant growth (see photo #3 for

this landfill). The acid neutralization waste area In July 2004, the TCEQ accepted the acid neutralization waste site into the Voluntary Cleanup Program (VCP). Balcones Research Center is moving through the closure process within the VCP program and is currently in the process of evaluating what approach would be most appropriate for this site.

Based on the information reviewed during this SA, beyond those conditions already being addressed by the UT Balcones Research Center, current conditions associated with this site do not appear to pose a material concern to human health, or the environment, or represent a regulatory violation.

3.3 #3, BERGSTROM AIR FORCE BASE

The Bergstrom Air Force Base landfills are on property owned by the Austin and are located in southwest Austin, at the Austin-Begstrom International Airport. Bergstrom Air Force Base was closed in 1984. As part of the base closure, numerous waste areas were investigated and remediated. Post-closure care for these landfills includes soil gas venting and groundwater monitoring. Following closure of the air force base, the property was purchased by the City of Austin for the construction of the airport present there today.

Landfill # 3 includes five landfilling areas identified as Landfills 03, 04, 05, 06, and 07 by the Air Force. Each of these landfills was investigated in 1994 as part of the base closure, and was closed under the Installation Restoration Program. These landfills are located in close proximity to each other on the eastern portion of the property, near FM 973 (Figures 3a and 3b). The landfills, their approximate size, and period of operation are:

Landfill	Acres	Period of Operation
03	10	1952 – 1957
04	10	1957 – 1965
05	12	1965 – 1971
06	12	1971 – 1976
07	7	1976 – 1980

Following the completion of remediation activities and base closure, the property was sold to the COA. The COA has since redeveloped the property as a municipal airport. The landfills are located within Airport property and, therefore, are not accessible by the general public.

Landfills 03, 04, 05, 06, and 07 received primarily domestic solid waste, but also construction debris and possibly empty pesticide containers, paint cans, and incidental quantities of waste paints, thinners, and other materials from the industrial shops area. The wastes were burned and then buried in trenches. Reportedly, two asphalt storage tanks also had been located at Landfill 05. No staining, vegetative stress, or other indicators that these tanks had leaked were observed during the investigations performed as part of the Base closure in 1994 (Reference #36). Seven abandoned 55-gallon drums of DDT were reportedly found at and removed from Landfill 06 in the early 1970's. Four additional abandoned drums were reported found and removed in 1983. A small quantity of antifreeze also was reportedly poured into Landfill 07 in 1978.

At the time of the site visit conducted for this SA, the landfills were capped, well graded and grass covered. The grass appeared to be mowed regularly. No trees or shrubs were growing on the landfill caps. Landfills 03 and 04 are bound on the west by the Bergstrom Municipal Golf Course, on the north by a correctional facility, and on the south by Landfill 05 and undeveloped property containing a pond. The east side is bound by FM 973 with agricultural land across FM 973. Landfills 05, 06, and 07 are separated by large grass covered drainage channels (see photos #1 and #2 for this landfill). Landfills 05, 06, and 07 are bound on the west by airport runways, on the east by FM 973 and undeveloped land, and on the south by undeveloped land. The nearest structure to the landfills is an FAA Tower constructed immediately north of Landfill 05. The FAA tower was constructed as part of the conversion of the Air Force Base into a municipal airport facility. Extensive soil and soil gas sampling were performed at the proposed tower site prior to its construction to evaluate potential safety issues as a result of landfill gas. The investigations concluded that landfill gas was not present in concentrations that presented a safety issue at this location.

Based on the information reviewed during this SA, beyond those conditions already addressed by the Air Force and/or known by the COA, current conditions associated with this site do not appear to pose a material concern to human health or the environment, or represent a regulatory violation.

3.4 #4, BERGSTROM AIR FORCE BASE

The Bergstrom Air Force Base landfills are on property owned by the Austin and are located in southwest Austin, at the Austin-Begstrom International Airport. Bergstrom Air Force Base was closed in 1984. As part of the base closure, numerous waste areas were investigated and

remediated. Post-closure care for these landfills includes groundwater monitoring. Following closure of the air force base, the property was purchased by the City of Austin for the construction of the airport present there today.

As indicated previously, as part of the Base closure, numerous waste areas were investigated and remediated. Landfill # 4 includes two landfilling areas identified as Landfills 01 and 02 by the Air Force (Figure 4a and 4b). Both of these landfills were investigated in 1994 as part of the Base closure, and were closed under the Installation Restoration Program. Following the completion of remediation activities and Base closure, the property was sold to the COA. The COA has since redeveloped the property as a municipal airport. The landfills are located within Airport property, and therefore are not accessible by the general public.

Landfill 01 was reported to have been operated from 1943 to 1946 and is approximately 2 acres in size. The landfill reportedly received empty pesticide containers, paint cans, and incidental quantities of waste paints, thinners, solvents, and oils from the industrial shops area. The material was reportedly burned and then placed in trenches and buried. Landfill 01 is located on the western end of the cargo hangers, and is adjacent to parking areas and a taxiway. The landfill has been graded smooth, and has been capped with asphalt. There are no structures on this landfill (see photo #2 for this landfill).

Landfill 02 was reported to have been operated from 1946 to 1952 and was approximately 16 acres in size. The landfill reportedly received primarily domestic waste, but also received other materials that may have included empty pesticide containers, paint cans, and incidental quantities of waste paints, thinners, solvents, and oils from the industrial shops area. Landfill 02 is located on the north end of the runway that parallels Hwy 183. A taxi-way crosses the southern end of the landfill. The landfill has been graded smooth, and the portions not covered by the concrete taxi-way have been capped with asphalt (see photo #1 for this landfill). With the exception of the runway portions, there are no structures on or near this landfill.

Based on the information reviewed during this SA, current conditions associated with this site do not appear to pose a material concern to human health or the environment, or represent a regulatory violation.

3.5 #5, BLUFF SPRINGS/KNUCKLES CROSSING

The Bluff Springs/Knuckles Crossing landfill is owned by a private entity and is located in south Austin, at 9000 Knuckles Crossing. This site remains essentially unchanged from the

conditions described in the 1984 URM report with the exception that the property owner is using the property to store various equipment and materials (see photos #1 through #4 for this landfill). No residences or permanent structures are present at the site (Figures 5a and 5b). The site is overgrown with weeds and brush. The remote site is fenced and gated, restricting public access.

Based on the information reviewed during this SA, current conditions associated with this site do not appear to pose a material concern to human health or the environment, or represent a regulatory violation.

3.6 #6, BRINKLEY-ANDERSON

The Brinkley-Anderson landfill has been subdivided and is owned by several private entities. The landfill is located in northeast Austin just west of Hwy 183, at 21,000 Anderson Lane. Reportedly, the City of Austin operated one portion of the landfill and Travis County operated another. Although there is some uncertainty about which portion was operated by the City or County, the 1984 URM report indicates that landfilling on the west side of the creek was operated by the COA, and the landfilling on the east side of the creek was operated by Travis County. The area around the Brinkley-Anderson landfill (aka the Little Walnut Creek Landfill) has been developed extensively since 1984. Additional studies performed since 1984 indicate that the landfill extends further north of that shown in the1984 URM report (see Figure 6a and 6b). The surface of the portion of the landfill at Exchange Drive and Centre Plaza is elevated approximately 10 feet above the surrounding ground surface. The material above the surrounding natural grade is reported to be spoil material placed at this location by the developer of surrounding properties. Borings advanced indicate that landfill materials do lie below the natural grade at this location.

Portions of the landfill along the east side of Walnut Creek and north of Salado at Walnut Creek (previously named Watersbend) Apartments are hummocky, indicative of differential settlement typical of landfills. Seeps, as are described in the 1984 URM report, are still present along the embankments of Walnut Creek (see photo #4 for this landfill). Erosion along the embankment of Walnut Creek has exposed landfill materials in several places (see photos #1 and #2 for this landfill). There are also areas of minor erosion occurring along the western slope of the spoil material. Other than landfill materials exposed by erosion along the creek banks, no landfill wastes were observed and there was no evidence that illegal dumping is occurring.

Several large office complexes have been developed along the west and north sides of the landfill. A day care center is located immediately north of the landfill along Exchange Drive. A semi-active soil venting system has recently been installed at the day care center along the property line shared by the landfill. The Salado at Walnut Creek Apartments are located adjacent to and above portions of the landfill. This apartment complex is registered under 30 TAC 330, Subchapter T as a structure over a landfill (Reference #19). The Salado at Walnut Creek apartment complex includes a site-wide semi-active soil venting system, as well as active gas monitors and alarm system within each ground-floor apartment.

Various investigations and studies (References # 12, 13, 14, and 15) have been performed since 1984. The most recent was performed in 2004. Investigation activities performed included placing borings through the landfill, groundwater sampling, leachate sampling, and soil gas sampling. Investigations detected the presence of benzene, aldrin, PCBs, TPH, and metals in the groundwater at concentrations that exceed the Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Protective Concentration Levels (PCLs). Leachate (seep) and surface water sampling indicated that the concentrations of metals, VOCs, pesticides and PCBS are similar to those detected in the groundwater samples collected, but are not at levels hazardous to human health. Soil gas sampling indicated elevated concentrations of methane typical for landfills, primarily in the central and eastern portions of the landfill.

Based on the information reviewed during this SA, it is our opinion that current conditions associated with this site may pose a current or future material concern to human health or the environment, based on the following factors:

- proximity of structures adjacent to the landfill,
- exposed landfill materials due to erosion at the stream bank,
- presence of Walnut Creek within the landfill,
- presence of seeps/ leachate from the landfill, and
- unrestricted public access.

Although certain actions are being, and have been, implemented to address certain of the cited concerns, as described in Section 4 of this report, based on the SA findings, additional actions may be warranted at this site.

3.7 #7, BUTLER

The Butler landfill is owned by the City of Austin and is located in south Austin along the shore of Town Lake and the MoPac bridge. The Butler landfill remains essentially as described by URM in 1984. The portion of the landfill east of the MoPac Bridge appears to have had some grading improvements, but ponding still occurs at the eastern end where the hike and bike trail approaches Lou Neff Road (see photos #1, 2, and #13 for this landfill). The area west of the bridge exhibits erosion along the banks of Eanes Creek and Town Lake which has resulted in the exposure of landfill materials (Figures 7a and 7b). Stockpiles of fill material and four 55-gallon drums of what appeared to be monitoring well purge water were stored in the area west of the bridge (see photos #11 and #12 for this landfill). No evidence of illegal dumping was evident.

Since 1984, the COA has conducted field investigations and a risk assessment for groundwater. Three monitoring wells have been installed; 2 east of the MoPac bridge, 1 west of the MoPac bridge. Design of erosion control improvements and remediation of the exposed landfill waste at Eanes Creek is currently in progress, with construction scheduled to begin in 2005 (see photos #4, 5, and #10 for this landfill).

Based on the information reviewed during this SA, it is our opinion that current conditions associated with this site may pose a current or future concern to human health or the environment, based on the following factors:

- proximity of recreational uses to landfill,
- exposed landfill materials due to erosion at the stream and river banks,
- unrestricted public access.

Based on the actions already being undertaken by the COA at this site, as described in Section 4 of this report, no additional actions have been recommended.

3.8 #8, GROVE

The Grove landfill is owned by a non-profit agency, and is located in south Austin, at 500 Kemp Street. The site is relatively unchanged from the description provided by URM in 1984 (Figures 8a and 8b). The landfill surface is hummocky, indicative of differential settlement typical of landfills. The landfill surface is grass covered with a few small trees (see photos #1, 2, and #8 for this landfill). The land immediately surrounding the landfill is heavily wooded.

Depressions that would tend to retain rainfall runoff are located on the landfill surface. The land on the east side of the landfill slopes steeply upward, 15 to 20 feet, to residential properties. This slope between the residences and the landfill is covered with construction debris, tires, appliance, house hold trash, etc. that appear to be long term and on-going illegal dumping (see photos #10 through #13 for this landfill). Apparent illegal dumping is most severe at locations where dead end roads terminate above the landfill. A seep was present during the site visit on the slope above the landfill (see photos #16 and #17 for this landfill). The land on the west side of the landfill slopes steeply downward to Country Club Creek (see photos #5, 6, and #9 for this landfill). The slopes and heavily wooded nature of the creek channel make the creek bottom inaccessible to vehicles. A large shallow pond is present in the creek bed of Country Club Creek. A rusted 55-gallon drum is present within the pond. The creek bottom is littered with cans, plastic bottles and drink cups that appear to have been washed down from upstream areas during rain events. Large blocks of concrete rubble lie half buried in the creek bottom below the landfill (see photos #3 and #4 for this landfill). Large sections of concrete pipe lie half buried in the southwestern end of the landfill (see photo #14 for this landfill).

Since 1984 several groundwater and soil investigations have been conducted in regard to this site (References # 8, 9, 10, and 20). Soil borings advanced in 1984 indicated the depth of landfill material to be as much as 16.5 feet, and groundwater ranged in depth from 6 feet to approximately 25 feet below ground surface. Three monitoring wells installed in 2001 detected 1,4 dichlorobenzene, chlorobenzene, naphthalene, and barium in the groundwater at concentrations less than the TRRP Residential Tier 1 Groundwater PCLs.

The Grove Landfill site was entered in the VCP program as VCP site Number G020. Correspondence from the TCEQ to the COA dated July 19, 2001 indicates that the site was eligible for a Certificate of Completion under the VCP program following removal of the drum in the creek area, and removal and disposal of the appliances, tires, and miscellaneous construction-like debris (apparently inert) in the southeastern portion of the property. Based on observations made during the site visit conducted for this report, however, it does not appear that the actions required for a Certificate of Completion have been completed.

Based on the information reviewed during this SA, it is our opinion that current conditions associated with this site may pose a current or future material concern to human health or the environment, based on the following factors:

- proximity of structures adjacent to the landfill,
- presence of surface water bodies within the landfill,
- presence of exposed landfill materials in streambed below the landfill,
- presence of seeps/ leachate from the landfill, and
- unrestricted public access.

In addition, based on the apparently on-going illegal dumping, this site may represent a regulatory violation. As described in Section 4 of this report, based on these findings, additional actions may be warranted at this site.

3.9 #9, HIGHWAY 71, PRECINCT 3

The Highway 71 landfill is owned by a private entity, and is located west of Austin, on Hwy 71 approximately 1.5 miles west of Hamilton Pool Road. The Precinct 3 landfill appears today essentially as described in the 1984 URM report (see Figures 9a and 9b). The rural site is grass covered with scattered small trees (see photos #1 through #4 for this landfill). The site is fenced to restrict public access. There is very limited exposed landfill waste, the site has been roughly graded but still has low areas that could collect rainfall runoff. The COA map (see Figure 9a) indicates the head waters of Limekiln Branch Creek begins just upstream of the site, and crosses through the site. During the site visit, no stream flow was observed across the site, and there was no well defined stream channel. No significant erosion or leachate was observed. Travis County Parks and Natural Resources Department is currently requesting funding from the County to perform cap and drainage improvements at this landfill.

Based on the information reviewed during this SA, current conditions associated with this site do not appear to pose a material threat to human health or the environment, or represent a regulatory violation.

3.10 #10, HOG HILL/HANDY'S

The Hog Hill landfill is owned by a private entity, and is located in east Austin, at 6410 Harold Court, just west of Hwy 183. Hog Hill/Handy's appears today essentially as described in the 1984 URM report, however, significant amounts of on-going illegal dumping is apparent. The landfill is located on one or both of two adjacent land tracts owned by Mr. Emmitt Jones; lot #52 (Travis County Account Number 0207240229), and lot #53 (Travis County Account Number 0207240230). Access to the tracts is through lot #52, identified as 3110 Harold Court

by a sign on the entrance gate. There is a single residence and a storage shed located on lot #52 (see Photos 7 and 8). It is not clear from observations of the site whether this residence has been constructed over landfill material or not. Recent trash and debris (generally inert) have been dumped in significant quantities down a slope on the west side of the two properties (see photos #1 through #6 for this landfill). This slope leads to an unnamed tributary to Fort Branch Creek. Evidence of the recent nature of the dumping include tree limbs and brush freshly broken or pushed over by debris with leaves still green (see photo # 2 for this landfill). See Figures 10a and 10b.

The East MLK Neighborhood Plan (Reference # 30) lists conditions at this landfill as a limiting constraint to development in the area. The plan proposes to allow mixed use development in the vicinity of the site, and mixed residential to the west and commercial use to the south and east.

Based on the information reviewed during this SA, it is our opinion that current conditions associated with this site may pose a current or future material concern to human health or the environment, based on the following factors:

- proximity of structures adjacent to and possibly over the landfill,
- significant amounts of illegal dumping,
- proximity of drainage way to on-going illegal dumping.

In addition to the environmental concerns, the illegal dumping that is on-going at this site may represent a regulatory violation. As described in Section 4 of this report, based on the SA findings, additional actions may be warranted at this site.

3.11 #11, INDUSTRIAL WASTE MATERIALS MANAGEMENT

The Industrial Waste Materials Management landfill is owned by a commercial entity, and is located in northeast Austin, at Hwy 290 and Giles Road. The Industrial Waste Materials Management landfill appears today essentially as described in the 1984 URM report. The closed landfill site is situated within an active landfill and near several other active and closed commercial landfills (See Figures 11a and 11b). The landfill is evident as a raised cap and is well graded with a grass cover (see photos #1 and #3 for this landfill). No trees or brush are growing on the landfill surface. The site is fenced to restrict public access.

This closed site is monitored by Waste Management Inc. under an agreement with the City of Austin that requires groundwater monitoring and periodic inspection of the adjacent creek bank for seeps and erosion. The surrounding active landfill (WMI, Austin Community Disposal Landfill) operates a leachate collection system and a soil gas venting system.

Based on the information reviewed during this SA, beyond those conditions already being addressed by Waste Management Inc., current conditions associated with this site do not appear to pose a material concern to human health or the environment, or represent a regulatory violation.

3.12 #12, JONESTOWN, PRECINCT 2

The Jonestown landfill is owned by a private entity, and is located northwest of Austin, at FM 1431 and Williamson Road. The Precinct 2 landfill is much as described by URM in 1984, except the 10-foot quarry wall visible on the southwest side in 1984 was not observed during the site visit conducted for this report. The owner reports the area of landfill to be approximately six acres (Figure 12a). The site is fenced and has a locking gate. The landfill is evident as a raised grass-covered mound with a few scattered trees (see photos #1 through #6 for this landfill). The landfill surface is gently undulating as a result of subsidence. Travis County Parks and Natural Resources Department is currently requesting funding from the County to perform cap and drainage improvements at this landfill.

Based on the information reviewed during this SA, current conditions associated with this site do not appear to pose a material concern to human health or the environment, or represent a regulatory violation.

3.13 #14, MABEL DAVIS

Mabel Davis landfill is located in south Austin along Parker Lane. The portion of Mabel Davis landfill east of Parker Lane is owned by the City of Austin, and is located at 3,500 Parker Lane. The portion of Mabel Davis landfill west of Parker Lane has been subdivided and developed and is owned by private entities. The location map for this landfill in the 1984 URM report shows the area of the landfill as undeveloped. Today the portion of the landfill east of Parker Lane has been developed as a neighborhood park and the portion of the landfill west of Parker Lane is now densely developed with apartment complexes. Another apartment complex has been constructed immediately adjacent to the landfill on the northern side of the landfill east of Parker Lane (see Figures 14a and 14b). COA inspection findings in 1992 (Reference #4)

indicate that the apartments north of the landfill were checked for methane by the Fire Department and no methane was detected. The apartments west of Parker Lane have been evaluated and a soil gas venting system has been installed.

As in 1984, the far eastern park property is bordered by residential properties. The southwestern end of the park property is developed with a paved parking lot, baseball field, swimming pool, picnic areas and a basketball court. The remainder of the park property is heavily wooded with a north-south gravel walk path along West Country Club Creek, which passes through the park. An unnamed tributary to West Country Club Creek flows from Parker Lane eastward through the park property and landfill to join West Country Club Creek in the northeastern portion of the park property. Stream flow increased across the site indicating that leachate was likely contributing to the creek flow. There is a pond on park property downstream of the confluence of the creeks (see photo #4 for this landfill).

At the time of the SA inspection, the park had been enclosed by a chain link fence to prevent access except for the parking lot and swimming pool. However, it was observed that the fence at the creek crossings, and a long section of fence between the park and the apartments to the north, was down. Also, landfill wastes were observed along the unnamed tributary, both on the land surface and in erosional areas located along the stream banks (see photos #1 through #3 for this landfill). Elongated ridges were observed in an open field north of the park basketball court, indicating the presence of landfill trench cells. Several groundwater monitoring wells, and clusters of wells were observed in various portions of the park property.

Investigations performed by the COA in 1999 and 2000 indicated the presence of elevated concentrations of lead and pesticides in a number of areas of the park. As a result of these findings, the park, except for the pool, was closed to the public. The site was accepted into the VCP program, and an Affected Property Assessment Report (APAR) was submitted to the TCEQ for review in 2002. The COA is moving forward with remediation designs, and remediation is expected to begin in the fall of 2004.

Based on the information reviewed during this SA, it is our opinion that current conditions associated with this site may pose a current or future material concern to human health or the environment, based on the following factors:

- proximity of structures adjacent to and possibly over the landfill,
- unknown extent of landfill below structures west of Parker Lane,

- exposed landfill materials due to erosion at the stream banks,
- presence of West Country Club Creek within the landfill,
- presence of seeps/ leachate from the landfill, and
- compromised security fence.

The COA has initiated substantial investigation and corrective action efforts to address the identified concerns within the park boundaries. Therefore, the environmental concerns within the park boundaries are considered to have been adequately addressed and no new or additional investigation or corrective actions have been recommended. However, if the apartments west of Parker Lane, are located over the landfill, they should be registered or permitted under Subchapter T, TAC 330. As described in Section 4 of this report, based on the SA findings, additional actions may be warranted at this site.

3.14 #15, MCGUIRE

The McGuire landfill is owned by the University of Texas, and is located in south Austin, at 4500 Freidrich Lane. The location map for this landfill in the 1984 URM report shows the area of the landfill and surrounding properties as undeveloped. Today commercial developments are located adjacent to the north, east, and west, of the site. In addition, immediately south of the site is an apartment complex and a church (see Figures 15a and 15b). A water quality pond is currently under construction on COA property immediately north of the site at Freidrich Lane and the easement for Sponberg Road (see photo #6 for this landfill). Reportedly, some landfill waste was excavated and disposed of from this location in 1992 to accommodate the construction of a building and this water quality pond. Soil gas sampling performed prior to the removal of the waste and construction of the building and pond indicated a 4 to 6-foot layer of landfill waste with approximately 4 feet of cover across this approximately ½ acre area (References #32 and #33).

The 1984 URM report indicated that the landfill surface contained undulating ridges 6 to 10 feet high spaced 50 to 80 feet apart. Reportedly, in 1988 clean fill from the SEMATECH and Wal-Mart construction projects was placed to level the site. Today, the site appears to be roughly graded, although there is still some evidence of ridges (see photos #1 and #2 for this landfill). There are some medium sized trees and brush along a drainage way near the center of the site (see photos #3 through #5 for this landfill).

The URM report estimated the size of the landfill to be approximately 13 acres. Several investigations have been performed at this property and adjacent properties to delineate the extent of the landfill. Partial copies of these reports (primarily figures and data tables) were provided to Geomatrix by the property owner at the time of the site visit (Reference Items 24 through 27). The investigations indicated that the depth of trash extends from approximately 5 to 20 feet below ground surface and covers an area of approximately 7 acres, as shown on Figures 15a and 15b. Shallow groundwater is reported at depths of 3 to 17 feet below the ground surface.

Based on the information reviewed during this SA, it is our opinion that current conditions associated with this site may pose a current or future material concern to human health or the environment, based on the following factors:

- proximity of structures adjacent to the landfill,
- presence of surface water bodies within the boundary of the landfill,
- unrestricted public access.

As described in Section 4 of this report, based on the SA findings, additional actions may be warranted at this site.

3.15 #16, M. E. RUBY

The M.E. Ruby landfill is owned by a private entity, and is located in north Austin, at 4,400 Braker Lane. Attempts to contact the property owner were unsuccessful and, therefore, field observations were made from the publicly accessible areas of the property. The location map for this landfill in the 1984 URM report shows the area of the landfill and surrounding properties as undeveloped. Today the landfill property, located in the northeastern corner of the intersection of Braker Lane and Seton Center Drive, is completely developed (Figures 16a and 16b). A large office building has been constructed on the landfill site, including a stormwater detention and filtration pond (see photos #1 through #3 for this landfill). An apartment complex has been constructed immediately north of the site, and commercial properties are located west and southwest of the site. Immediately east of the site is a large pond with a jogging trail around the perimeter. The pond, with its tall limestone bluffs, appears to be located in the portion of the quarry not filled with waste materials (see photo #5 for this landfill). There are several ridges of soil and trees in the open grassy area between an office building constructed on the landfill property and the quarry pond (see photos #1 and #2 for this

landfill). It is not clear whether these are due to landfill settlement or landscaping. There was no evidence of exposed landfill materials or illegal dumping. Anecdotal evidence suggests that all or a portion of the landfill may have been excavated and disposed off site at the time the office building was constructed, however, the property owner could not be reached for confirmation.

Based on the information reviewed during this SA, it is our opinion that current conditions associated with this site may pose a current or future material concern to human health or the environment, based on the following factors:

- proximity of structures adjacent to and possibly over the landfill,
- presence of surface water body adjacent to the landfill used for recreational purposes,
- unrestricted public access.

In addition, if the building is located over the landfill, it should be registered or permitted under Subchapter T, TAC 330. As described in Section 4 of this report, based on the SA findings, additional actions may be warranted at this site.

3.16 #17, MONTOPOLIS BRIDGE

The Montopolis Bridge landfill is located in southeast Austin, along the north bank of the Colorado River just west of the Montopolis Bridge. Since 1984, the property was purchased by the COA and has been designated as the Colorado River Preserve. The property is much as described by URM in 1984. The URM report indicates that the site was an area of illegal surface dumping rather than an operated landfill where materials were buried below grade. Although the URM report indicates that the property was cleaned up by the property owner, there are still large pieces of concrete and other debris scattered and partially buried across the site. Because materials were reportedly dumped on the surface, it isn't anticipated that the depth of trash and debris is very deep, and that burial is the result of natural processes. The site is a low lying area adjacent to the river and appears to be periodically inundated (Figures 17a and 17b). The site is heavily wooded with areas of marshy soil. A couple of large underground cavities were noted during the site walk (see photos #3, 4, 5, and #10 for this landfill). An abandoned car was partially submerged in the large river inlet into the preserve. Several piles of trash and debris were present on the property near the Montopolis Bridge that appear to be more recent illegal dumping (see photo #8 for this landfill).

Based on the information reviewed during this SA, it is our opinion that current conditions associated with this site may pose a current or future material concern to human health or the environment, based on the following factors:

- proximity of structures adjacent to the landfill,
- exposed waste materials,
- presence of surface water and groundwater in contact with the landfill,
- presence of seeps from the landfill that may be in contact with buried waste material if present, and
- unrestricted public access.

Based on the apparently on-going illegal dumping, this site may also represent a regulatory violation. As described in Section 4 of this report, based on these findings, additional actions may be warranted at this site.

3.17 #18, MOSES GUERRERO

The Moses Guerrero landfill is owned by a private entity, and is located in southeast Austin, at 6,000 Hwy 183 South. Attempts to contact the property owner for permission to access the site were unsuccessful and, therefore, field observations were made from Hillmore Drive. At the time of the site visit the site appeared to be graded and grass covered, with some shallow depressions that could collect runoff (see photos #1 and #2 for this landfill). The site had been recently mown. Some clumps of small trees and bushes are growing on the site. The area is still rural with scattered residences (Figures 18a and 18b). Several residences are present north of the site across Hillmore Drive. No evidence of landfill wastes or illegal dumping was observed.

Based on the information reviewed during this SA, current conditions associated with this site do not appear to pose a material concern to human health or the environment, or represent a regulatory violation.

3.18 #19, OLD 290 LANDFILL

The Old 290 landfill is owned by Travis County, and is located in northeast Austin, on Hwy 290 at Giles Road. The Old 290 landfill (see Figures 19a and 19b) is essentially as described by URM in 1984. The landfill today appears as an elevated fairly well graded cap. As

described by URM, a flea market complex is located and still in operation on a portion of the landfill surface (see Figure 19b). The undulating roof and floor line of the flea market structures and parking lots indicate subsidence has occurred (see photos #1, 3, and #4 for this landfill). Two low spots, one in the middle of the flea market complex and one in the parking lot, collect rainfall. Inside the flea market complex, near the low spot, an area of exposed landfill debris is present (see photo #2 for this landfill).

The closed landfill is managed by Travis County. Post-closure care activities include on-going groundwater monitoring and leachate collection. Collected leachate is disposed of at the COA's wastewater collection system. The county has indicated that drainage improvements to the site are planned. These drainage improvements will include a French drain system designed to collect shallow groundwater that will be pumped to the leachate collection system. Major improvements to repair subsidence problems are planned for fiscal year 2004.

Based on the information reviewed during this SA, beyond those conditions currently being addressed by Travis County, current conditions associated with this site do not appear to pose a material threat to human health or the environment, or represent a regulatory violation.

3.19 #20, SPRINKLE

The Sprinkle landfill is owned by a private entity, and is located northeast Austin, at 11015 Sprinkle Cutoff Road. The site is essentially as described by URM in 1984. The properties surrounding the landfill remain rural and undeveloped (Figures 20a and 20b). The site is fenced and has a locking gate. At the time of the SA inspection, the site was grass covered with ridges caused by subsidence evident across much of the landfill (see photos #1 and #2 for this landfill). Two large radio antennae and a small portable storage/maintenance building have been erected on the site (see photo #5 for this landfill). The only evidence of landfill debris was some small piles of broken concrete block and other construction debris on the southeastern portion of the site and a few scattered cans and bottles along the northwestern edge of the landfill at the tree line (see photos #3, 4, and #8 through #10 for this landfill). Walnut Creek is located on the western side of the landfill, and an unnamed tributary is located on the eastern side of the landfill. The landfill does not appear to extend to the bank of either creek, and no landfill materials were observed on or in the creek banks.

Based on the information reviewed during this SA, current conditions associated with this site do not appear to pose a material concern to human health or the environment, or represent a regulatory violation.

3.20 #21, ST. STEPHEN'S

The St. Stephen's landfill is owned by the Protestant Episcopal Schools, and is located west Austin, at 2900 Bunny Run. The landfill is essentially as described in the 1984 URM report. At the time of the SA inspection, the landfill was grass covered and well graded, except for an approximately 25-foot diameter area around a small grove of large trees near the center of the landfill (see photos #1 through #3 for this landfill). The ground surface in this area is approximately 2 feet lower than the surrounding capped area. There are no structures on or in the vicinity of the landfill. See Figures 21a and 21b.

Based on the information reviewed during this SA, current conditions associated with this site do not appear to pose a material concern to human health or the environment, or represent a regulatory violation.

3.21 #25, TEXACO CHEMICAL COMPANY

The Texaco Chemical Co. landfill is owned by a private entity, and is located north Austin, at 7114 N. Lamar Blvd. The location map for this landfill in the 1984 URM report shows the area of this landfill to be a roughly triangular area in an open field adjacent to the railroad tracks. At the time of the SA inspection, the Texaco staff indicated that they believed the landfill area might be significantly larger. Texaco staff indicated that the landfill includes the area identified by URM but also might extend further east and south and below several buildings (Figures 25a and 25b and photos #3 and #5 for this landfill). No borings or other investigations have been performed to determine the extent of the landfill. The area reported by URM to be landfill area is level with a good cover of grass (see photos #1 and #4 for this landfill). To the east, in the extended area identified by Texaco staff, there also is an emergency Firewater holding pond (see photo #2 for this landfill).

A portion of the landfill, if not all, achieved final closure in March 2002 under Risk Reduction Standard No. 2 in accordance with 30 TAC 335. Cleanup under Risk Reduction Standard No. 2 relieves the property owner from post-closure care and engineering control measures (Reference #28).

Based on the information reviewed during this SA, current conditions associated with this site do not appear to pose a material concern to human health or the environment, or represent a regulatory violation.

3.22 #26, TURNER

The Turner landfill is owned by a private entity, and is located northeast Austin, at 7000 Hwy 183 and Turner Lane. The location map for this landfill in the 1984 URM report shows the area of the landfill and surrounding properties as predominantly undeveloped. Today, a commercial development exists immediately north of the site and a residential development is adjacent to the west, and apartment complexes have been constructed to the south (Figures 26a and 26b). A Phase I Environmental Site Assessment prepared in 2000 (Reference #6) indicates that these nearby developments were constructed in the 1970s and 1980s. The site is bounded on the east side by Hwy 183. At the time of the SA inspection, the landfill was covered with dense brush and trees. There is a single residence on the landfill property at the end of Turner lane although it isn't clear if the house is constructed over the landfill. There is a large quantity of household trash dumped behind the residence (see photos #1, 2, and #10 for this landfill). There were also large piles of trash in around the creek channel near the house. The ground surface of the landfill is hummocky, with numerous areas of exposed landfill trash, including concrete rubble, brick, and tires (see photos #3 through #6, photos #8, 9, 11, 12, and #13 for this landfill). There is a dry creek bed that drains the landfill area to a small pond located within the landfill (see photo #7 for this landfill). Surface water ultimately flows south off the site to Little Walnut Creek located approximately 1,000 feet west.

A Phase II Environmental Site Assessment performed in 2000 indicated that no TPH, VOCs, or SVOCs were detected in the soil or groundwater at the site. Metals were detected, but not at concentrations greater than TRRP Tier 1 PCLs. An additional soil and groundwater investigation, conducted in 2001 (Reference # 7), indicated groundwater at the site meets the criteria for a Class 3 groundwater, and that lead and benzo(a)pyrene concentrations in soils at a tire pile exceeded the residential Tier 1 PCLs.

The site was entered into the VCP as site G049, and achieved a Certificate of Completion (COC) under this program in August 2002. The COC, however, was conditioned on the requirement that two feet of soil cover remains on the closed landfill, and that tires, empty drums, and other obvious debris that were dumped must be removed and disposed (Reference #15).

Based on the information reviewed during this SA, it is our opinion that current conditions associated with this site may pose a current or future material concern to human health or the environment, based on the following factors:

- proximity of structures adjacent to and possibly over the landfill,
- exposed landfill materials,
- presence of surface water bodies within the landfill,
- unrestricted public access.

In addition, based on the apparently on-going illegal dumping, this site may also represent a regulatory violation. As described in Section 4 of this report, based on the SA findings, additional actions may be warranted at this site.

3.23 #27, WEBBERVILLE-GOVALLE

The Webberville-Govalle landfill is owned by Austin Community College, and is located in east Austin, northeast of the intersection of Webberville Road and Govalle Ave. COA inspection findings in 1992 (Reference #4) indicate that structures around the landfill were checked for methane by the Fire Department and no methane was detected. In the late 1990's, ACC built several large buildings, a parking lot, and stormwater retention pond in the northeastern corner of the intersection of Webberville Road and Govalle Road. This development covers approximately one-third of the area identified by URM as the landfill (Figures 27a and 27b). ACC also recently constructed buildings in the southeastern corner of this same intersection. ACC reportedly encountered some landfill waste during the construction of this building across the road from the reported landfill location. Residences, a church, and a retail store also are located adjacent to the landfill on Goodwin Street and at the northern end of the landfill on Webberville Road. The landfill is not fenced and is accessible to the public.

During the SA inspection, exposed landfill trash, including battery cases and a car chassis, were observed in numerous locations within the landfill (see photos #2 through #8, and #10 and #11 for this landfill). Landfill debris was also observed in the area behind the homes near the intersection of Goodwin and Webberville Road, indicating the landfill may have extended farther north than indicated in URM's map. Household trash was observed dumped behind the homes north of the landfill on Goodwin Street. There are two stream channels on the property. One flows from the north to the south along the eastern portion of the landfill (see photos #12 and #13 for this landfill). The second flows from the retention pond at Webberville Road and Bedford Street and flows eastward to join the stream flowing southward (see photo #1 for this landfill). ACC is currently surveying and installing silt fence along this creek in preparation for

construction of a parking area on the southern portion of the landfill at Govalle Road (see photos #9 and #16 for this landfill). Landfill debris was evident in the side walls of an excavation recently dug on the property of a landscaping business (Ted's Trees, 1116 Tillery Street) adjacent to the end of Linden Street (see photos #14 and #15 for this landfill), indicating the landfill may extend farther east than indicated in URM's map.

Based on the information reviewed during this SA, it is our opinion that current conditions associated with this site may pose a current or future material concern to human health or the environment, based on the following factors:

- proximity of structures adjacent to and possibly over the landfill,
- exposed landfill materials,
- presence of unnamed stream within the landfill, and
- unrestricted public access,

In addition, based on the apparently on-going illegal dumping, this site may also represent a regulatory violation. If non-residential buildings are located over the landfill, they should be registered or permitted under Subchapter T, TAC 330. As described in Section 4 of this report, based on the SA findings, additional actions may be warranted at this site. As a result of the preliminary findings of this SA, ACC has hired a consultant to assess environmental conditions associated with this property.

3.24 #28, WHISENHUT

The Whisenhut landfill is owned by a private entity, and is located southeast Austin, at 8922 Lane. Attempts to contact the property owner for permission to access the site were unsuccessful and, therefore, field observations were made from Hergotz Lane. At the time of the SA inspection, the site was mostly obscured by a privacy fence located approximately 150 feet back from the roadway. There appears to be a residence within the fenced area (see photo #2 for this landfill). Some concrete debris and piles of mixed soil and waste were present on the 150 feet of property outside the fence (see photos #1 and #2 for this landfill). The area in the vicinity of the site is dominated by quarries (Figures 28a and 28b). The property to the north consists of commercial storage buildings and semi-tractors. The URM report indicates that municipal, industrial, as well as inert wastes were received at the site. A survey of closed landfills performed by the Texas Water Commission in 1992 (Reference # 3) notes that "white

goods" were also received, and that the site was not covered, and there was possible contamination of the groundwater.

Based on the information reviewed during this SA, it is our opinion that current conditions associated with this site may pose a current or future material concern to human health or the environment, based on the following factors:

- proximity of structures adjacent to and possibly over the landfill,
- unauthorized interment of potentially hazardous materials,
- reported lack of adequate cover,
- presence of shallow groundwater.

As described in Section 4 of this report, based on these findings, additional actions may be warranted at this site.

3.25 #29, WILD BASIN

The Wild Basin landfill is owned by the Committee for Wild Basin, and is located on the east side of Loop 360, at 1000 Loop 360. The landfill area is essentially as described in the 1984 URM report. The landfill is located along the northern side of the entrance road to the park, beginning at the edge of the Hwy 360 right-of-way and extending approximately 600 feet along the entrance road (Figures 29a and 29b). In this area there was broken glass and several glass bottles. An area covered with small pieces of broken glass was observed on the south side of the entrance road, closer to the park headquarters (see photos #3 through #12 for this landfill). The park staff reports that this area of broken glass is hand cleaned on a regular basis, but more glass appears following each rain event (see photo #2 for this landfill). No streams or ponds were observed on or adjacent to the landfill area. However, runoff from the landfill area will flow northward approximately 300 feet to an unnamed tributary of Bee Creek. A single corroded drum was observed in the woods along Hwy 360 (see photo #1 for this landfill).

Based on the information reviewed during this SA, current conditions associated with this site do not appear to pose a material concern to human health or the environment, or represent a regulatory violation.

3.26 #30, WINGFIELD AND # 33, HARMON

The Wingfield landfill and Harmon landfill are each owned by a private entity, and are located adjacent to each other in south Austin, just northeast of the interchange at Hwy 71 and Hwy 183. The Wingfield and Harmon landfills are landfills operated by different entities on two different (but abutting) tracts of land. It appears that both operations were placing waste in the same quarry that extended across both properties (Figures 30a and 30b). The Wingfield landfill is described in the 1984 URM report. The Harmon landfill was not identified in that report.

URM describes the Wingfield landfill as being behind a wrecking yard business on 20 acres of land. The 1984 URM reports that both domestic and commercial wastes were accepted at the Wingfield site. COA's 1992 Inspection Summary indicated that exposed construction debris, metal auto parts, and wood filled about one half of the quarry, with illegal dumping into the quarry still occurring. An inspection by the TCEQ in 1992 reported observing non-inert construction debris in the water and some current illegal dumping. The TCEQ cited this landfill as needing significant and/or prompt attention (Reference # 3).

A review of TCEQ files revealed a landfill permit application for "Harmon", MSW# 1569. No records were available at the TCEQ for the Wingfield landfill. However, the Harmon application included a 1980 tax appraisal map which showed the SB Wingfield tract to be a 19.2-acre tract located behind a 4.2 acre tract of land (currently occupied by AAAuto Salvage) and immediately adjacent to the northern side of the Harmon tract. The Harmon tract is shown as a 22.3-acre tract identified as owned by Harmon Properties, Inc. Current tax appraisal maps indicate that the Wingfield property has been subdivided into two approximately 10 acre tracts and sold to Edward Martin and East Travis Inc. The Harmon property remains undivided but was also sold, to Willard and Patricia Polston. These records would appear to indicate that there were two side-by-side landfills at this location being operated independently.

The road frontage along Hwy 183 in front of the landfill sites is occupied by commercial buildings and a church.

The Edward Martin tract is currently occupied by VeeDub Auto Junk Yard, the East Travis Inc., and the Polston properties are undeveloped (see photos #4 and #5 for landfill #30). The back portion of the East Travis and Polston properties are covered by a single large pond that appears to be the location of the old quarry. Mr. Martin, East Travis, Inc. and the Polstons were each contacted by the COA to request access to the properties. The East Travis Inc. and the Polston property owners denied the COA's request to access the properties, but each told

the COA representative that they were not aware of any landfill on their property. Mr. Martin did grant access for a site visit. The Martin property is almost totally occupied by the auto salvage business. No evidence of a landfill was observable in this area. A close inspection was made of the creek that bisects the Polston tract and separates the Martin and East Travis tracts (see photo #1 for landfill #30). Dense brush prevented adequate viewing of the Polston and East Travis tracts from the Martin tract. Inspection of the creek showed a deep channelized creek, landfill trash was visible in the embankments on both side of the creek between the Martin and East Travis tracts (see photos #2 and #3 for landfill #30). Some debris was observed on the land surface of both the Polston and the East Travis tracts adjacent to the Martin property line (see photos #1 through #6 for landfill #33).

Following the site visit to the Martin property, a nearby business on Dalton road whose rear property line backs up to the Polston property and over looks the pond was visited. The business had several aerial photos of their property displayed in their office lobby that showed portions of the Polston property. The aerial photographs showed clear evidence of landfilling activities on the Polston property.

Based on the information reviewed during this SA, it is our opinion that current conditions associated with this site may pose a current or future material concern to human health or the environment, based on the following factors:

- proximity of structures adjacent to the landfills,
- exposed landfill materials due to erosion at the stream bank,
- presence of surface water bodies within the landfills,
- reported use of the pond by nearby residents for fishing and swimming, and
- presence of seeps/leachate from the landfills.

As described in Section 4 of this report, based on these findings, additional actions may be warranted at this site.

3.27 #31, WINN-COOK

The Winn-Cook landfill is owned by the Austin Independent School District, and is located northeast Austin, at 3500 Susquehanna Lane. The landfill remains essentially as described in the 1984 URM report. However, continued development around Winn-Cook School has

resulted in additional residences having been constructed over the reported location of the landfill on Val Drive, Lynridge Drive, and Susquehanna Drive (Figures 31a and 31b).

Subsidence continues to be a problem in the school parking lot, sidewalks and buildings (see photos #1, 2, 3, and #6 for this landfill). In the COA's FY 00-001 Annual Report it was noted that the Teacher's parking lot on the north side of the school was uneven, with 1 to 2 inch cracks running north-south, and that a landfill cell was very visible with 1 to 2 foot of relief (Reference #16). Repairs were made during the summer of 2004 to the school parking lot and sidewalks. Long, parallel depressions are still evident across the school play ground (see photos #2, 3, and #6 for this landfill). Soil cavities were observed at the base of the school building (see photo #7 this landfill).

An investigation of the subsurface in Rockhurst Street, one block south of the school, was conducted in July 2004 for the COA in preparation for wastewater line repairs. The investigation determined that landfill waste was present below Rockhurst Street between Tulane and Dubuque. This indicates that the landfill extends further south than previously thought. COA inspection findings in 1992 (References #4 and #31) indicate that the school and adjacent homes were checked for methane by the Fire Department and no methane was detected. An additional seven to 12 homes were constructed in the late 1990s over portions of the landfill.

Based on the information reviewed during this SA, it is our opinion that current conditions associated with this site may pose a current or future material concern to human health or the environment, based on the following factors:

- proximity of school buildings and residences adjacent to and possibly over the landfill,
- significant subsidence.

As described in Section 4 of this report, based on these findings, additional actions may be warranted at this site. If the permanent school buildings are located over the landfill, they should be registered or permitted under Subchapter T, TAC 330.

3.28 #32, LOOP 360

The Sprinkle landfill is owned by the City of Austin, and is located southwest Austin, in the Barton Creek Greenbelt behind the Brodie Oaks Shopping Center, at 4000 Loop 360. The

Loop 360 site was not included in the 1984 URM report, but was included in this report at the COA's request. The Loop 360 site is a historic illegal dump site located in the Barton Creek Greenbelt, immediately behind the ToysRUs store in the Brodie Oaks Shopping Center (Figures 32a and 32b). City staff estimate the waste to be spread over a three to four acre area. The area consists of steep, heavily wooded ground sloping down to Barton Creek. The wastes appear to never have been capped. However, over the years much of it has been buried by a shallow cover of soil and leaves through natural processes. Waste observed included construction debris, roofing material (potentially containing asbestos), and many glass bottles (see photos #1, 5, and #6 for this landfill). More recently, illegal dumping appears to be occurring over the retaining wall behind ToysRUs.

The area contains moderate to sever erosion, apparently aggravated by people digging for and collecting bottles (see photos #2, 3, and #4 for this landfill). The extent of the landfill material to the south is unknown, and could possibly extend under ToysRUs and parking areas.

Based on the information reviewed during this SA, it is our opinion that current conditions associated with this site may pose a current or future material concern to human health or the environment, based on the following factors:

- proximity of structures adjacent to and possibly over the landfill,
- exposed landfill materials due to erosion,
- proximity to Barton Creek, and use of area for recreation,
- unrestricted public access.

If buildings are located over the landfill, they should be registered or permitted under Subchapter T, TAC 330. In addition, based on the apparent on-going illegal dumping, this site may represent a regulatory violation. As described in Section 4 of this report, based on these findings, additional actions may be warranted at this site.

4.0 RECOMMENDATIONS

As described in Section 3, certain environmental conditions, or possible regulatory violations, have been identified at several of the vicinity waste sites and, accordingly, we have developed recommendations for certain additional actions. Although many of the findings presented herein are considered material from an environmental perspective, within the limitations of this assessment, none of our findings indicate an obvious and imminent threat to public safety. We also report, however, that in response to the preliminary findings of this SA, the property owner of one of the landfill sites (Webberville-Govalle) has already expedited investigative actions and has discovered the presence of elevated levels of methane gas in the subsurface and is communicating findings with the appropriate regulatory agencies. These proactive measures taken by the property owner, illustrate the types of conditions that can exist undetected in the vicinity of closed landfill sites, and the importance of additional assessment, where warranted. Because most of the landfills are not owned by the COA, we note that implementation of certain of our recommendations may be beyond the COA's control.

We recommend that the owners of all landfills included in this study should be advised that if the owner has not already done so, notice should be filed in the real property records of the existence of the landfill per 30 TAC 330, Subchapter T. Owners should also be advised to review the requirements for notification to buyers, lessees, and occupants as well as lease restrictions provided in 30 TAC 330, Subchapter T.

A summary of our recommendations for each of the subject waste sites is presented as follows:

Site #	Landfill Name	Recommendation
1a	Airport Dump, RMMA WD1, Waste Disposal Area	• No Further Action, Area Remediated To Risk Reduction Std 1.
1b	RMMA WD4, Interdepartmental Fill Area	• No Further Action, Area Remediated To Risk Reduction Std 1.
1c	RMMA WD5, Former Asphalt Plant Tailings / Ash Disposal Area	• No Further Action, Area Remediated To Risk Reduction Std 1.

Site #	Landfill Name	Recommendation
1d	RMMA WD7, Waste Disposal Area	• Continue With Current Monitoring And Investigation Program Being Implemented By COA. • Buildings Over The Landfill Should Be Registered/Permitted As Required by 30 TAC 330, Subchapter T As A Structure Over A Landfill.
2a	Balcones Research Center, Radioactive Waste Site	• No Further Action, Identified By TCEQ As Requiring No Further Action.
2b	Balcones Research Center, Acid Neutralization Waste Site	• Continue Pursuit Of VCP Closure.
2c	Balcones Research Center, Research Monkey Waste Site	• No Further Action, Location Unknown.
3	Bergstrom AFB (ABIA) BAFB Landfills 03, 04, 05, 06, 07	• Conduct Periodic Site Inspections. • Continue Groundwater Monitoring And Post-Closure Care.
4	Bergstrom AFB (ABIA) BAFB Landfills 01 and 02	• Conduct Periodic Site Inspections. • Continue Groundwater Monitoring And Post-Closure Care.
5	Bluff Springs/Knuckles Crossing	• Conduct Periodic Site Inspections.
6	Brinkley-Anderson	• Conduct Periodic Site Inspections. • Continue Periodic Analysis Of Leachate Seeps At Walnut Creek. • Perform Corrective Action To Creek Embankments To Prevent Erosion And Exposure Of Landfill Materials. • Conduct Sampling At Adjacent Properties To Evaluate Presence of Methane In The Soil Gas And In Structures.
7	Butler	• Conduct Periodic Site Inspections. • Continue Groundwater Monitoring, Corrective Action To Creek Embankments To Prevent Erosion And Exposure Of Landfill Materials.
8	Grove	• Conduct Periodic Site Inspections. • Remove Illegal Dumped Materials To Achieve Certificate Of Completion Under VCP Program. • Conduct Sampling At Landfill And Adjacent Properties To Evaluate Presence Of Methane In The Soil Gas And In Structures.

Site #	Landfill Name	Recommendation
9	Highway 71, Precinct 3	• No Further Action.
10	Hog Hill/Handy's Dump	• Conduct Periodic Site Inspections. • Terminate Illegal Dumping By Property Owner. • Conduct Soil Gas Sampling At Adjacent Properties To Evaluate Presence of Methane In The Soil Gas And In Structures.
11	Industrial Waste Materials Management	• Conduct Periodic Site Inspections. • Continue Current Monitored Program.
12	Jonestown, Precinct 2	• No Further Action.
14	Mabel Davis	• Conduct Periodic Site Inspections. • Complete On-Going Investigation/Remediation Activities. • Conduct Sampling At Landfill And Adjacent Properties To Evaluate Presence Of Methane In The Soil Gas And In Structures. • If Buildings Are Over The Landfill They Should Be Registered/Permitted As Required by 30 TAC 330, Subchapter T As A Structure Over A Landfill.
15	McGuire	• Conduct Periodic Site Inspections. • Sample Surface Water In Stream. • Conduct Sampling At Adjacent Properties To Evaluate Presence Of Methane In The Soil Gas And In Structures.
16	M. E. Ruby	• Conduct Sampling At Landfill And Adjacent Properties To Evaluate Presence Of Methane In The Soil Gas And In Structures. • If Buildings Are Over The Landfill They Should Be Registered/Permitted As Required by 30 TAC 330, Subchapter T As A Structure Over A Landfill. • Continue Sampling Of Groundwater By Owners.
17	Montopolis Bridge	• Conduct Periodic Site Inspections. • Conduct Sampling At Landfill And Adjacent Properties To Evaluate Presence Of Methane In The Soil Gas And In Structures. • Remove Illegally Dumped Materials.
18	Moses Guerrero	• No Further Action.
19	Old 290, Precinct 1	• No Further Action.

Site #	Landfill Name	Recommendation
20	Sprinkle	• No Further Action.
21	St. Stephen's	• No Further Action.
25	Texaco Chemical	• No Further Action.
26	Turner	• Conduct Periodic Inspections And Continued Monitoring Of Actions Stipulated In VCP Certificate Of Completion. • Owner Should Take Measures To Prevent Continued Illegal Dumping Near Residence. • Remove Recent Illegally Dumped Materials. • Conduct Sampling At Landfill And Adjacent Properties To Evaluate Presence Of Methane In The Soil Gas And In Structures..
27	Webberville-Govalle	• Conduct Periodic Inspections. • Perform Further Investigations To Determine If The Landfill Extends Either Northward Or Eastward Under Residences. • Perform Investigations To Determine If Hazardous Materials Are Present In The Landfill. • Sample Surface Water In Stream. • Conduct Soil Gas Survey To Determine If A Methane Plume Is Impinging On Developments. • Conduct Sampling At Landfill And Adjacent Properties To Evaluate Presence Of Methane In The Soil Gas And In Structures. • If Non-Residential Buildings Are Located Over The Landfill They Should Be Registered/Permitted As Required by 30 TAC 330, Subchapter T As A Structure Over A Landfill.
28	Whisenhut	• Conduct Periodic Inspections. • Conduct Soil And Groundwater Sampling To Determine If Hazardous Wastes Are Present In Landfill. • Conduct Sampling At Landfill And Adjacent Properties To Evaluate Presence Of Methane In The Soil Gas And In Structures.
29	Wild Basin	• Conduct Periodic Inspections.

Site #	Landfill Name	Recommendation
30	Wingfield	• Conduct Periodic Inspections. • Sample Surface Water In Stream And Pond. • Conduct Sampling At Landfill And Adjacent Properties To Evaluate Presence Of Methane In The Soil Gas And In Structures.
31	Winn-Cook	• Conduct Periodic Inspections. • Conduct Subsurface Investigation To Determine Extent Of Landfill. • Conduct Sampling At Landfill And Adjacent Properties To Evaluate Presence Of Methane In The Soil Gas And In Structures. • Notification And Methane Sampling In Residences Potentially Located Over Landfill. • Permanent School Buildings Over The Landfill Should Be Registered/Permitted As Required by 30 TAC 330, Subchapter T As A Structure Over A Landfill.
32	Loop 360 (ToysRUs)	• Conduct Periodic Inspections. • Install Fencing On Retaining Wall Behind Shopping Center And Between Hiking Trail And Waste, To Prevent Continued Dumping And To Limit Access To Bottle Collectors. • Grade Surface To Repair And Deter Erosion. • Remove And Dispose Of Visible Wastes. • Conduct Sampling At Landfill And Adjacent Properties To Evaluate Presence Of Methane In The Soil Gas And In Structures. • If Buildings Are Over The Landfill They Should Be Registered/Permitted As Required by 30 TAC 330, Subchapter T As A Structure Over A Landfill.
33	Harmon	• Conduct Periodic Inspections. • Sample Surface Water In Stream And Pond. • Conduct Sampling At Landfill And Adjacent Properties To Evaluate Presence Of Methane In The Soil Gas And In Structures.

5.0 ASSESSMENT LIMITATIONS

The following limitations apply to the information in and findings of this report:

This report provides information and findings obtained by Geomatrix from the sources identified herein. Although the information sources identified and utilized are consistent with industry standards for assessment performance, this report is not intended to provide any warranty that other sources of environmental information are not available for these properties.

In the formation of our opinions, Geomatrix has relied on information provided by third parties. Beyond the course of normal communications and information gathering procedures, Geomatrix has not independently verified the information provided.

The findings of this report should be considered a technical opinion, based on the available information and the experience of Geomatrix personnel with comparable properties and operations. It should also be recognized that other parties may render alternate opinions based on the same information, and that additional information may become available in the future that would alter this opinion.

This SA, consistent with industry standards for such assessments, did not include any intrusive investigation or sampling of site media. Environmental concerns or liabilities that were not documented in one of the information sources utilized, were not visibly apparent in a field reconnaissance (e.g. subsurface methane gas), or could not be readily measured, will not have been identified.

This report and all associated information and documentation generated by Geomatrix as a part of this project is for the sole use of COA and may not be relied upon by any other party without the express written permission of Geomatrix Consultants, Inc. (Geomatrix).

Table 1

List of Landfill Sites Included in 2004 Supplemental Assessment

COA / URM Ref #		Landfill Name	COA / URM Ref #	Landfill Name
1	1a*	Airport (RMMA WD1)	16	M. E. Ruby
	1b*	RMMA WD4	17	Montopolis Bridge
	1c*	RMMA WD5	18	Moses Guerrero
	1d*	RMMA WD7	19	Old 290 Landfill
2		Balcones Research Center	20	Sprinkle
	2a*	Radioactive Waste Site	21	St. Stephens
	2b*	Acid Neutralization Waste Site	25	Texaco Chemical Co.
	2c*	Research Monkey Waste Site	26	Turner
3		Bergstrom Air Force Base	27	Webberville-Govalle
4		Bergstrom Air Force Base	28	Whisenhut
5		Bluff Springs/Knuckles Crossing	29	Wild Basin
6		Brinkley-Anderson	30	Wingfield
7		Butler	31	Winn-Cook
8		Grove	32	Loop 360
9		Highway 71, Precinct 3	33	Harmon
10		Hog Hill/Handy's		
11		Industrial Waste Materials Management		
12		Jonestown, Precinct 2		
14		Mabel Davis		
15		McGuire		

* Additional reference numbers to differentiate multiple non-contiguous landfills at same property.

TABLE 2
LANDFILL DATA

Map #	Site Name	TCEQ MSW # Landfill Type	Estimated Acreage	Site Address / Location	Property Owner / Contact	Landfill Operator
1	Airport	Municipal Solid Waste	~7	4500 Manor Rd. (Long Term Parking)	City of Austin, Chris Calvery, 974-7094	City of Austin
2	Balcones Research Center	Industrial, 3 sites; low level radioactive, liquid chemical, animal research waste	8	10,000 Burnet Road	UT Austin, Chip Rogers, 471-3511 (or Earl Jansen, Abe Yebara)	UT Austin, Balcones Research Center
3	Bergstrom AFB (7 landfills)	Domestic / Industrial Solid, Liquid, Hazardous	58	2,500 Hwy 71 East, ABIA	City of Austin, Dale Thompson, 530-5544	USAF / US DOD
4	Bergstrom AFB (7 landfills)	Domestic / Industrial Solid, Liquid, Hazardous	12	2,500 Hwy 71 East, ABIA	City of Austin, Dale Thompson, 530-5544	USAF / US DOD
5	Bluff Springs/Knuckles Crossing	Vegetative Debris	2.5	9000 Knuckles Crossing	Charles & Yvonne Spradling (1 lot), Thompson Family Ltd (2nd lot), Charles Spradling 736-0147	City of Austin Parks & Recreation
6	Brinkley-Anderson (aka Little Walnut Creek Landfill)	Municipal Solid Waste	23.98 acre 7-8 acres (COA)	2100 Anderson Ln (east of Hwy 183, both sides of Walnut Creek)	Private / Bank Foreclosure on undeveloped portion. Multiple Properties: Rio Vista Apts, MV Walnut Creek Ltd, Whitehall Ltd., Hardin Interest Inc.	West Side - City of Austin East Side - Travis County
7	Butler	Municipal Solid Waste	18	Zilker Park @ Stratford Drive (near Mopac Bridge)	City of Austin, Hani Michel, 974-1962	City of Austin
8	Grove	Municipal Solid Waste	3.6 acre landfill 9.8 acre site	500 Kemp Street	Rizome Collective, Scott Kellogg, 294-9580 (best number) or 385-3695.	City of Austin
9	Highway 71, Precinct 3	MSW # 686 Municipal Solid Waste	9.8 as per COA table 19 as per URM	1.5 mi west of Hw 71 & Hamilton Pool Rd.	Grumbles Family, 263-2508. Richard Grumbles, 636-6201.	Travis County

Map #	Site Name	TCEQ MSW # Landfill Type	Estimated Acreage	Site Address / Location	Property Owner / Contact	Landfill Operator
10	Hog Hill/Handy's Dump	Unknown, Illegal Dumping (construction, clean fill material, reports of glue & unknown chemicals)	3	2 lots: 6410 Harold Court 6110 Harold Court	Mr. Emmit Jones Jr., 670-3269	NA, Illegal Dump
11	Industrial Waste Materials Management	Industrial(liquid, solvents, acids, hydrocarbons)	16	Hwy 290 East (near flea market)	Waste Management Inc. Bubba Smith, 748-4235	Industrial Waste Management
12	Jonestown, Precinct 2	Municipal/Private (used by Universal Disposal, Cen-Tex Disposal, TX Highway Dept., Austin State Hospital, Jonestown)	8	FM 1431 & Williamson Rd.	Marion Shipman, 921-4163	Travis County
14	Mabel Davis (aka St. Edward's Landfill)	Municipal / Industrial (solid, liquid chemical, illegal unknown)	30	3500 Parker Lane	City of Austin, Hani Michel, 974-1962	City of Austin
15	McGuire	Municipal Solid Waste	7	4500 Freidrich Lane 1600 Spongberg Dr.[1]	University of Texas Kathy Libersat Real Estate Office 499-4336 Klibersat@Utsystem.Edu	City of Austin
16	M. E. Ruby	solid, liquid, hazardous	5	4400 Braker Ln [1] 11000 Hwy 183	HUB Properties Trust [1]	Private - M. E. Ruby
17	Montopolis Bridge	Domestic/Construction Illegal Dumping	<16	Colorado River & Montopolis Rd.	City of Austin, Street and Bridge, Ed Poppitt , P.E., 974-8768	Centex Corporation
18	Moses Guerrero	Vegetative/Construction	5	6000 Hwy 183 South	Southview Hills Investments [1]	Private - Moses Guerroro
19	Old 290, Precinct 1	MSW # 684 Municipal / Industrial solid, liquid, hazardous	140	Hwy 290 East (near flea market)	Travis County, Keith Coburn, 854-5866	Travis County
20	Sprinkle	Municipal Solid Waste (City Only)	100	11015 Sprinkle Cutoff Rd.	Fiestas Patrias of Austin [1] Julius Velasquez, julius.velasquez@capmetro.org	City of Austin

Map #	Site Name	TCEQ MSW # Landfill Type	Estimated Acreage	Site Address / Location	Property Owner / Contact	Landfill Operator
21	St. Stephen's	MSW # 1124School Waste	2	2900 Bunny Run	Protestant Episcopal School[1] 2900 Bunny Run, Roger Bowen (School Head) Brad Powell 801-0402	Private - St. Stephens School
25	Texaco Chemical	Industrial (solid, liquid)	11	7114 N. Lamar Blvd @ Airport Rd.	Huntsman Petrochemical Corp / Texaco Chemical Ravi Joseph, 483-0178	Private - Jefferson Chemical Company
26	Turner	Municipal (solid)	10.369 acres as per phase II ESA 27 acres as per COA table	Turner Lane[1] 7000 Hwy 183 East	Balcones JV[1] David Huff 255-7056 (home), 663-9339 (cell)	Private - Landowner
27	Webberville-Govalle	Unknown Waste Type	20	Webberville Rd. & Govalle Ave. (NE Corner)	Austin Community College, Bronson Dorsey, 223-1009 (cell: 657-9760)	Unknown
28	Whisenhut	Type V (solid, liquid)	5 acres as per COA table	8922 Hergotz[1] NE of Dalton Ln. & Hergotz	Chase Manhattan Bank as Trustee, Sarkadi Charly	Private - Otis Whisenhut
29	Wild Basin (aka Davenport Ranch)	Municipal Solid Waste	3 - 6	1000 Loop 360	Committee for Wild Basin Georgian Foster, 327-7622	Travis County
30	Wingfield	MSW # 1390 Municipal Solid Waste (solid, liquid)	10 - 20	1000 Bastrop Hwy Address is 829 Bastrop Hwy	East-Travis Inc. Latius R. Prikryl, 476-9990 Edward G. Martin, (Austin VeeDub/Austin Auto), 264-1524, 385-2464	Private - Landowner
31	Winn-Cook	Municipal Solid Waste	13	3500 Susquehanna Ln. Winn Elementary	AISD, Mary Alvirez, 414-2390 (School Principal), Dan Robertson, 414-3632, Winn Elementary School 3500 Susquehanna Ln.	City of Austin

Map #	Site Name	TCEQ MSW # Landfill Type	Estimated Acreage	Site Address / Location	Property Owner / Contact	Landfill Operator
32	Loop 360 (not in URM report, see 9-1-92 Inspection Summary Table)	Illegal Dump	3-4 acre	4000 Loop 360 Brodie Oaks Shopping Center (behind ToysRUs. Within Barton Creek Greenbelt)	COA Parks Department, Ray Navarez, 478-0905 John Cook, 472-4914	NA, Illegal Dump
33	Harmon	MSW # 1569 Unknown	16.5 acre	1111 Old Bastrop Hwy	Willard C & Patricia Polston, 444-1364	Private – Landowner

TABLE 3
REFERENCES

Reference #	Landfill #	Title	Author	Date
1	Multiple	Landfills in the Vicinity of Austin, Texas	Underground Resource Management, Inc.	November 1984
2	Multiple	Summary, Visual Inspection Report of Former Landfills in the Austin Area	City of Austin, Environmental and Conservation Services Department	September 1, 1992
3	Multiple	Letter to Joe Word Re Survey of Closed Landfills, Austin and Travis County	Nancy R. Frank, Municipal Solid Waste Division, Texas Water Commission	September 4, 1992
4	Multiple	Inspection of Former Landfills	Becky Gadell, Joe Word, Solid Waste Services, City of Austin	September 4, 1992
5	26	Report of Phase II Environmental Site Assessment, Turner Site, Austin, Texas	LawGibb Group for COA Solid Waste Services Department	December 2000
6	26	Report of Phase I Environmental Site Assessment, Turner Site, Austin, Texas	LawGibb Group for COA Solid Waste Services Department	April 2000
7	26	Balcones Joint Venture 301 (Former Turner Landfill) Sampling Results	Daniel B Stephens & Assoc. for TNRCC VCP Section	June 11, 2001
8	8	Report of Phase I Environmental Site Assessment, Grove Site, Austin, Texas	LawGibb Group for COA Solid Waste Services Department	March 2000
9	8	Grove Landfill Data 2001 Tables and Figures	IT Group for TNRCC VCP Section	July 9, 2001

Reference #	Landfill #	Title	Author	Date
10	8	Grove Landfill, VCP BSA G14, Phase II Site Assessment	IT Group for TNRCC VCP Section	October 18, 2000
11	6	Data Assessment Report, Brinkley-Anderson Landfill Site	Tetra Tech NUS, Inc. for US Army Corps of Engineers	April 2004
12	6	Site Investigation Report, Phase II Brownfields Investigation, Brinkley-Anderson Site	Tetra Tech NUS, Inc. for US Army Corps of Engineers	Mach 2003
13	6	Brinkley-Anderson Landfill, VCP GSA G051, Soil Vapor Survey	IT Group for TNRCC VCP Section	August 31, 2001
14	6	Report of Phase I Environmental Site Assessment, Brinkley-Anderson Site	LawGibb Group for COA Solid Waste Services Department	December 2000
15	26	Re: TNRCC review of Brownfields Site Assessment Reports, includes Certificate of Completion	Letter, TNRCC to City of Austin WPDR	September 24, 2001
16	Multiple	Electronic File "Inactive Landfill.doc"	Provided by COA, includes Annual Reports/Inspections for 98-2003	file date 9-27-04
17	Multiple	Electronic File "landfill-bufferdevelopment.xls"		file date 9/28/2004
18	Multiple	Electronic File "May 1983.pdf"	5-14-1983 Austin American Statesman article re 18 dump sites to be examined	file date 9/14/2004

Reference #	Landfill #	Title	Author	Date
19	6	Watersbend: A Brownfield Redevelopment Case Study *electronic file "Brinkley-Anderson AVCarticle2001apr.pdf"*	Rudy Robinson, Scott Lucas et al	April 1, 2001
20	8	Preliminary Geotechnical Investigation, Bill Greif and Larry Yount Property	Frank Bryant & Assoc	November 30, 1984
21	Multiple	COA Landfill Inspection Summaries included in the last 5 NPDES MS4 Annual Reports	City of Austin, delivered electronically via e-mail 9-15-04	FY 02-03 FY 01-02 FY 00-01 FY 99-00 FY 98-99
22	Multiple	TCEQ Central Registry Query: Regulated Entities in Travis County under "Municipal Solid Waste Disposal"		see print outs dated 9/29/2002
23	1	Response Action Completion Report, Robert Mueller Municipal Airport (RMMA)	Geomatrix Consultants	May 1, 2003
24	15	Teri Road Housing, LTD. (Figures and Data Tables only)	Engineering Consulting Service, LTD.	October 1, 2002
25	15	Phase II Environmental Site Investigation, 11.82 Acres Vacant Land, IH-35 Service Road and Teri Road	GZA GeoEnvironmental, Inc. for Altman, Kritzer & Levick, P.C.	August 14, 1998
26	15	Letter Report Re: 19.9357 Acre Tract, IH-35 and Teri Road	Jack Holt Ph.D. & Assoc. Inc. for UT System	July 10, 1987
27	15	Background Information Review, UT Tract - Teri Road	HBC Engineering for JW Capital Corp.	May 11, 2000

Reference #	Landfill #	Title	Author	Date
28	25	Approval of Closure Final Closure Report - Risk Reduction Std 2	TCEQ	March 22, 2002
29	31	Rockhurst Street Investigation and Work Plan	RMT Inc.	July 22, 2004
30	10	East MLK Neighborhood Plan, Ed Bluestein Area	Unknown	November 1, 2002
31	31	Winn-Cook Landfill	Unknown	July 1, 1998
32	15	Assessment of Methane Gas in Landfill, St. Elmo Maintenance Facility	Raba-Kistner-Brytest Consultants, Inc.	October 18, 1990
33	15	Assessment of Buried Refuse, St. Elmo Maintenance Facility	Raba-Kistner-Brytest Consultants, Inc.	May 2, 1991
34	2	Unrestricted Use Demonstration	Letter, TCEQ to UT JJ Pickle Research Campus	August 6, 2001
35	3, 4	Bergstrom Environmental Remediation, Status of Environmental Sites as of August 17, 1995	New Airport Project Team and Maxim Technologies, Inc.	August 17, 1995
36	3, 4	Basewide Environmental Baseline Survey	Department of the Air Force	September 1, 1993
37	9, 11, 12 and other	Closed County Landfills – Annual Status Report, 2003	Susan Spataro, Travis County Auditor	October 30, 2003