WENCK File #3053-0069
October 2017

Sampling and Analyses Plan for Coal Combustion Residual (CCR) Requirements

WCI Austin Landfill, LLC - SW-514
Mower County, MN

Prepared for:

WCI Austin Landfill, LLC

1251 Starkey Street
Saint Paul, MN 55107 4

WENCK
Responsive partner.
Exceptional outcomes.

Prepared by:

WENCK Associates, Inc.
1800 Pioneer Creek Center
Maple Plain, MN 55359
Phone: 763-479-4200
Fax: 763-479-4242

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1.0 Introduction

The SKB Lansing Landfill (the Landfill) operates under Minnesota Pollution Control Agency (MPCA) solid waste facility permit SW-514. The Landfill has intermittently undergone re-permitting as required by MPCA solid waste facility rules. The Landfill's solid waste permit ("Permit") was originally issued to Richard Wehner in June 1996. Ownership was transferred to SKB (Austin) Environmental LLC (SKB) April 2002, which was merged with WCI Austin Landfill, LLC in 2017. Operations have continued under SKB ownership since that time, with intermittent permit renewals as required by the MPCA solid waste rules including December 12, 2011. Re-permitting documents were submitted to the MPCA in 2016 as required for permit renewal; reissuance of the solid waste permit is anticipated from the MPCA in late 2017.

The Landfill accepts coal combustion residuals (CCR) in addition to other MPCA permit approved solid wastes and the water quality monitoring program has been established to account for both the MPCA solid waste permit and CCR requirements. This document describes the CCR sampling plan initiated in 2017 to comply with CCR disposal site monitoring requirements of CFR Part 257.

The monitoring program is implemented under the direction of the Landfill by Groundwater & Environmental Services, Inc. (GES) and TestAmerica Laboratories, Inc. (TestAmerica). GES provides the field water sample collection portion of the monitoring program. They also provide a review of laboratory results and prepare for the Landfill monitoring reports for the Landfill. TestAmerica is a Minnesota Department of Health (MDH) approved laboratory with operating and quality assurance/quality control protocols on file with the MDH and provides the laboratory analytical services on collected samples.

2.0 Facility Location and Hydrogeologic Setting

2.1 FACILITY LOCATION

The Landfill is located on approximately 40-acre property in Section 21, Township 103 North, Range 18 West, Lansing Township, in the western portion of Mower County, Minnesota. Interstate Highway 90 is approximately two miles south of the site and access to the Landfill is from US Highway 218, and then approximately one-quarter mile west on Township Road T-378 (243rd Street). The Landfill location is shown on Figure 1. The surrounding land use is a primarily agricultural.

2.2 HYDROGEOLOGIC SETTING

The hydrogeologic setting of the Landfill has been evaluated in detail during numerous phases of investigation, reporting and permitting all completed in accordance with MPCA solid waste facility requirements. The ensuing discussion briefly summarizes the regional and local conditions as presented in previous submittals to the MPCA. Surficial geology consists of a series of unconsolidated Quaternary glacial deposits associated with the Des Moines Lobe glacial advance. The glacial deposits are characterized by glacial till with intermittent outwash sand and gravel lenses. The uppermost bedrock is encountered more than 100 feet below grade and consists of dolomite and dolomitic limestone associated with the Cedar Valley Limestone formation. A bedrock valley is located to the northwest of the Landfill where the depth to bedrock if found at greater depth.

The water table is encountered in the unconsolidated glacial deposits at depths that are typically 10 feet or less at most locations, but may extend to over 20 feet at some locations depending on ground surface elevation. The groundwater flow direction was determined by the hydrogeologic investigations and confirmed through ongoing monitoring events is toward the southwest.

The Landfill is in the Cedar River watershed, in an area with a rolling topography. Surface water in the vicinity includes an unnamed ditch on the southern property boundary and Judicial Ditch 26 (Murphy Creek) that is approximately one-half mile south of the Landfill. Murphey Creek flows east-southeast to the Cedar River that is approximately 2 miles east of the Landfill. There are no wetlands on the Landfill property.

3.0 Groundwater Monitoring System

The existing monitoring system was established through the MPCA solid waste facility permitting process that included site specific hydrogeologic investigations. The groundwater monitoring network has eight monitoring wells used for water quality monitoring and other selected piezometers that may be used for water elevation monitoring. The water quality monitoring network includes two upgradient and six downgradient monitoring wells with nested wells at some locations that provide groundwater data from different depths at a single location.

Each of the wells included in the MPCA approved water quality monitoring network can yield usable water quality samples from the targeted groundwater zone and area adequately situated at the Landfill to provide for the early detection of potential releases from the Landfill. The monitoring network exceeds the minimum requirement of the CCR rule for a detection monitoring program which specifies at least one upgradient and three downgradient monitoring wells.

Consistent with MPCA solid waste permitting, modification of the groundwater monitoring network may be required if new disposal areas are developed or if significant groundwater flow regime changes are observed. The monitoring wells are listed on Table 1 and their locations are shown on Figure 2.

3.1 SAMPLE COLLECTION AND LABORATORY ANALYSES

Field services associated with the Landfill monitoring program are completed by Groundwater & Environmental Services, Inc. (GES) of Eagan, Minnesota. Field services have consistently been completed by GES using standardized sampling procedures specified by the United States Environmental Protection Agency (EPA) and following MPCA guidance. GES's monitoring program includes sampling procedures that provide for well stabilization and collection of appropriate well stabilization parameters prior to sample collection. Sample collection may include dedicated and non-dedicated equipment as appropriate for specific tasks and monitoring locations.

Collected samples are prepared in laboratory prepared containers with appropriate preservation for specified analyses. Collected samples are delivered to the analytical laboratory under chain-of-custody protocol via direct delivery and/or overnight courier. CCR monitoring requirements state that samples shall not be field filtered prior to analyses. Thus, metals results for CCR monitoring purposes will be representative of total recoverable metals.

TestAmerica of Buffalo, New York provides the laboratory analytical services for the collected samples. Analytical methods used by TestAmerica follow standard EPA and MDH approved methodologies as outlined within the TestAmerica standard operating procedures manual that has have been submitted to, reviewed by, and is on file with the MPCA.

3.2 MONITORING SCHEDULE

The CCR Detection monitoring parameters are those listed in Appendix III of CFR Part 257 and include the following:

- boron, calcium, chloride fluoride, pH, sulfate and total dissolved solids (TDS)

A minimum of eight sets of data for the above listed detection parameters shall be collected by October 17, 2017 to establish background levels for the Detection parameters. After the collection of the background data, the Detection monitoring program shall have, at a minimum, a semi-annual monitoring frequency.

A statistical monitoring program is selected and used to provide evaluate analytical data for potential statically significant increases over background data. If statistical exceedances are attributed to a release from the Landfill, Assessment monitoring is to be initiated. Assessment monitoring parameters are those listed in Appendix IV of CFR Part 257 and include the following:

- antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, and radium 226 and 228 combined.

Sample collection and preparation for analyses for both Detection and Assessment parameters is of non-field -filtered samples such that the laboratory results are representative of total recoverable metals.

3.3 DATA REVIEW & REPORTING

Prior to issuing the final report of water quality results, the laboratory completes their internal quality assurance and quality control (QQ/QC) data review. Any anomalies or QQ/QC issues are addressed in the laboratory report narrative; re-analyses of targeted samples and/or analytes may be conducted as part of a data quality review process. QA/QC issues are addressed in the laboratory report narrative.

Upon receipt of groundwater monitoring results from the laboratory, the Landfill and/or their representatives review the results and address any questions with the laboratory. Confirmatory resampling may be conducted for initial exceedances or anomalous data. The validated data is then subjected to the statistical analyses to determine if there are any statistically significant increase (SSIs) attributed to a release, rather than to sampling, testing or reporting errors, natural groundwater quality variation, or some other non-landfill related source.

If a statistically significant increase (SSI) is confirmed as being attributed to a release from the landfill, Assessment monitoring shall be initiated within 90 days and conducted at least annually thereafter. However, an alternative monitoring frequency for repeated sampling and analyses may be proposed based on site specific characteristics listed in CFR 257.95. Assessment monitoring parameters are those listed in Appendix IV of CFR Part 257 and include the following:

- antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, and radium 226 and 228 combined.

Review of the analytical data will dictate the potential need to initiate assessment of corrective actions, and the potential need to modify the groundwater monitoring network and monitoring schedule according to Part 257.95. If it is subsequently demonstrated that

the SSIs are not attributed to the Landfill the monitoring program may return to Detection monitoring.

An annual CCR groundwater monitoring and corrective action report is required per 257.90.e. The initial annual report for the CCR rules is due no later than January 31, 2018, and annually thereafter no later than January 31 of each following year. The annual reports shall document the monitoring completed the previous year, describe any changes made to the monitoring network, provide the laboratory data and results of statistical analyses, and discussion of the status of the monitoring program with regard to Detection and Assessment monitoring requirements.

4.0 References

Conestoga-Rovers & Associates – *Phase I Hydrogeologic Evaluation and Phase II Work Plan for a Hydrogeologic Investigation. SKB Lansing Landfill, SW-514*. December 2013.

Conestoga-Rovers & Associates – *Phase II Report for a Hydrogeologic Investigation and Phase III Proposed Monitoring Well Network, SKB Lansing Landfill, SW-514*. October 2014.

Groundwater & Environmental Services, Inc. *SKB Lansing Landfill [SW-514] Annual Monitoring Report(s)*. Various dates.

Tables

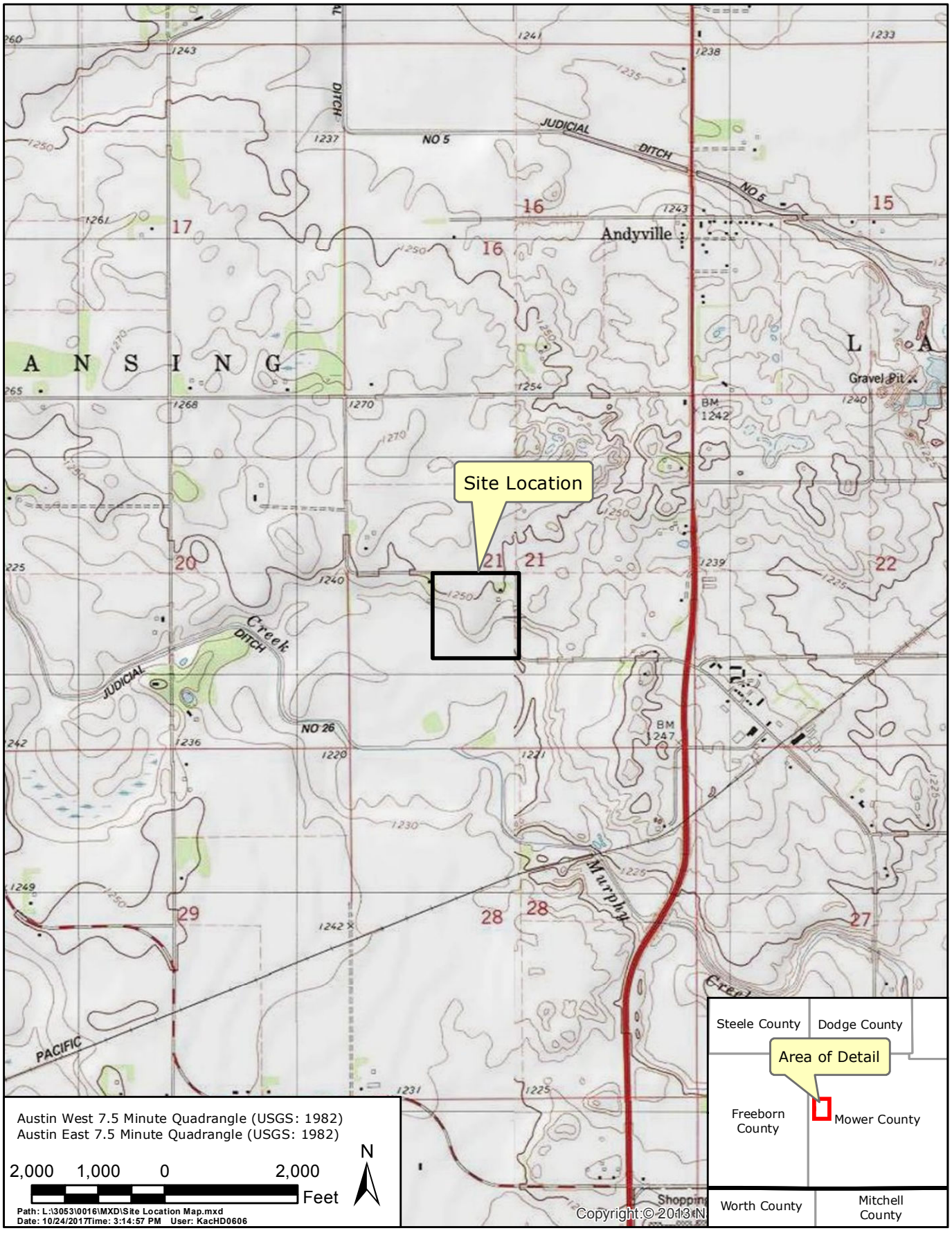
Table 1
Groundwater Monitoring Wells
CCR Detection Monitoring Parameters
WCI Austin Landfill, LLC
(SW-514)

Well Identification Number	Position	Status	Current Use	Dedicated Bladder Pump (Yes/No)	Approximate Depth (ft)
MW-1	Upgradient	existing	WQ	Yes	25.6
MW-1RD	Upgradient	existing	WQ	Yes	75.5
MW-2	Downgradient	sealed	sealed	--	--
MW-2R	Downgradient	existing	WQ	Yes	18.4
MW-2RD	Downgradient	existing	WL	Yes	35.0
MW-3	Downgradient	existing	WL	Yes	19.7
MW-3R	Downgradient	existing	WQ	Yes	27.5
MW-3RD	Downgradient	existing	WQ	Yes	46.3
MW-4	Downgradient	existing	WQ	Yes	18.3

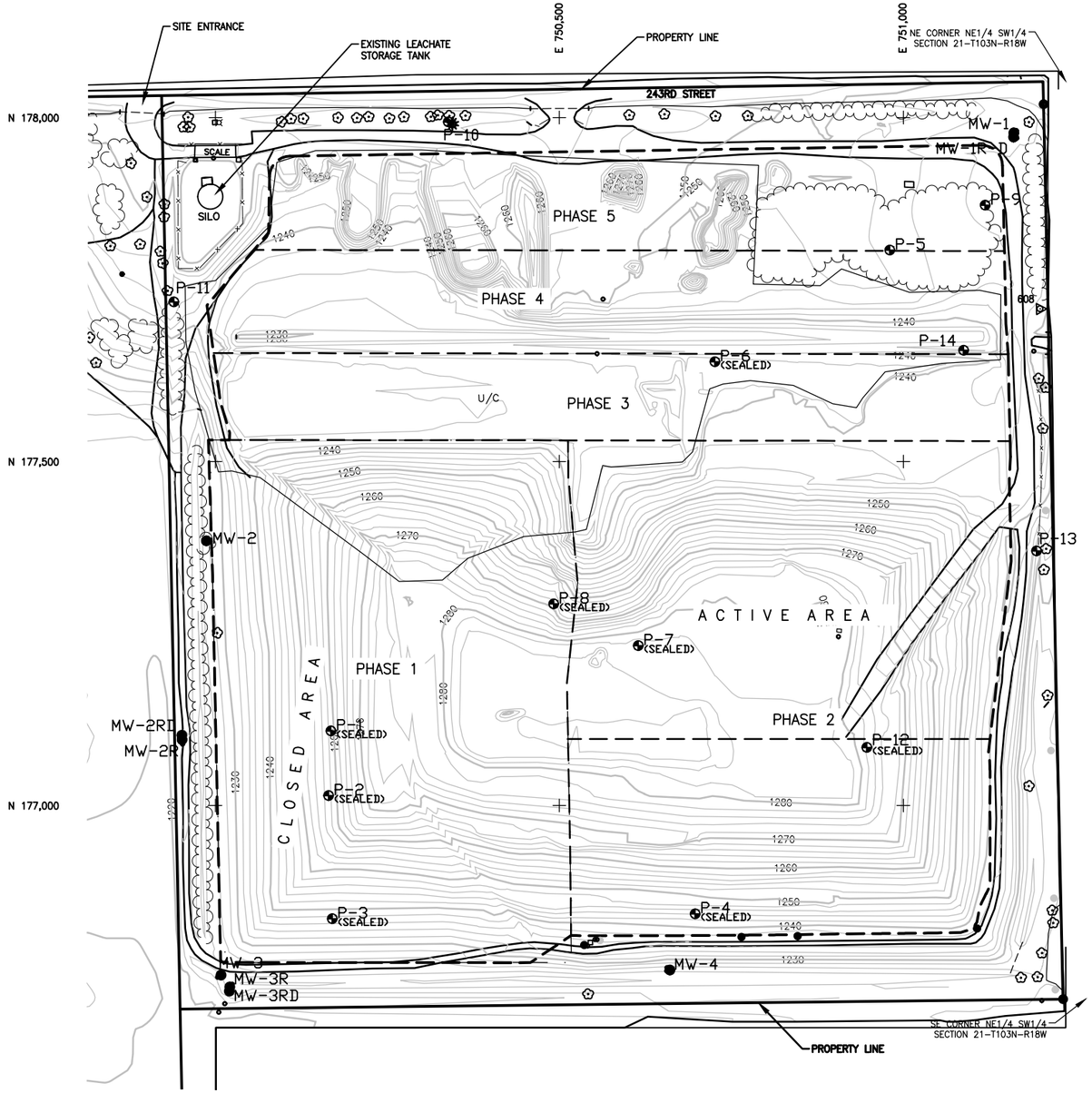
CCR = Coal Combustion Residual requirements per CFR Part 257

Detection parameters per Appendix III to Part 257**:**
boron, calcium, chloride, fluoride, pH, sulfate & total dissolved solids (TDS)
total concentrations (unfiltered samples)

Figures



WCI AUSTIN LANDFILL, INC.	WENCK Responsive partner. Exceptional outcomes.	OCT 2017
Site Location Map		Figure 1



N

0 100 200

GRAPHIC SCALE IN FEET

MAPPING NOTE:
PHOTOGRAMMETRY MAPPING COMPILED BY CONTINENTAL MAPPING CONSULTANTS, INC. NOVEMBER 2016.
HORIZONTAL COORDINATE SYSTEM MOWER COUNTY.
VERTICAL DATUM NAVD 88

LEGEND

- EXISTING CONTOURS
- EXISTING GROUNDWATER CONTOURS (APRIL 2015)
- EXISTING GRAVEL ROAD
- EXISTING FENCE
- EXISTING TREE LINE
- EXISTING TREE
- EXISTING CULVERT
- MW-1 EXISTING MONITORING WELL
- P-9 EXISTING PIEZOMETER
- EXISTING BOLLARD
- WASTE LIMITS OF ACTIVE FILL AREA
- PROPERTY LINE
- RIGHT OF WAY
- SECTION LINE
- EXISTING FORCEMAIN

REV	REVISION DESCRIPTION	DWN	APP	REV DATE

SEAL

SUB CONSULTANT

PRIME CONSULTANT

WENCK ASSOCIATES

Responsive partner. Exceptional outcomes.

1800 PIONEER CREEK CENTER 763-479-4200
MAPLE PLAIN, MINNESOTA 763-479-4242

PROJECT TITLE
SAMPLING AND ANALYSIS PLAN

WCI AUSTIN LANDFILL, LLC
AUSTIN, MINNESOTA

SHEET TITLE
EXISTING CONDITION AND MONITORING LOCATIONS

DWN BY	CHK'D	APP'D	DWG DATE
JVB	JCL	TJS	OCTOBER 2017

SCALE AS NOTED

PROJECT NO.	SHEET NO.	REV NO.
3053-0069	FIGURE 2	0

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Toll Free: 800-472-2232 **Email: wenckmp@wenck.com** **Web: wenck.com**