



On this day, February 2, 2005,
the U.S. Environmental Protection Agency (U.S. EPA)
and Department of Toxic Substances Control
Determine that

***MGM Brakes Superfund Site
Is Ready for Commercial Reuse***



Keith Takata
Superfund Director
U.S. EPA Region 9

Barbara Cook, Branch Chief
Northern California Coastal Cleanup Operations Branch
Department of Toxic Substances Control
State of California

This Ready for Reuse (RfR) Determination is for the 5-acre MGM Brakes Superfund site ("Site") owned by Cloverdale Properties, LLC. This RfR Determination provides that U.S. EPA has made a technical determination that the Site, located in Cloverdale, Sonoma County, California, is ready for commercial reuse and the Site's remedy will remain protective of human health and the environment, subject to operation and maintenance of the remedy and the limitations as specified in the Record of Decision (ROD), Explanation of Significant Differences (ESD), and Covenant, which have been summarized in the attached report, Ready for Reuse Determination, MGM Brakes Superfund Site, February 2, 2005. This RfR Determination remains valid only as long as the requirements and use limitations specified in the ROD, ESD, Five-Year Review, and Covenant are met.

The Covenant outlines precautions that property owners are to follow if they conduct excavation in the areas with PCB-contaminated soils, including regulatory notification, sampling, dust control procedures, proper disposal of excavated soils, and backfilling with clean soil. Semi-annual groundwater monitoring will continue until contaminant levels are at or below Maximum Contaminant Levels (MCLs) for three consecutive sampling events followed by annual monitoring for five consecutive years. TBG Services Inc. is responsible for groundwater monitoring activities. U.S. EPA has notified the Sonoma County Department of Health and advised the County not to approve permits for domestic wells in areas where the groundwater contamination plume is still above MCLs. TBG Services Inc. is responsible for the continuing operation and maintenance of the remedy at the Site.

This RfR Determination is an environmental status report and does not have any legally binding effect and does not expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits of any party. U.S. EPA assumes no responsibility for reuse activities and/or for any potential harm that might result from reuse activities. U.S. EPA retains any and all rights and authorities it has, including but not limited to legal, equitable, or administrative rights. U.S. EPA specifically retains any and all rights and authorities it has to conduct, direct, oversee, and/or require environmental response actions in connection with the Site, including but not limited to instances when new or additional information has been discovered regarding the contamination or conditions at the Site that indicate that the remedy and/or the conditions at the Site are no longer protective of human health or the environment for the types of uses identified in the RfR Determination. California Department of Toxic Substances Control (DTSC) is responsible for ensuring that any limitations specified in the Covenant that might be affected by a particular commercial use are complied with during the activity. The types of uses identified as protective in this RfR Determination remain subject to (i) applicable federal, state, and local regulation, and to (ii) title documents, including but not limited to easements, restrictions, and institutional controls.

**READY FOR REUSE DETERMINATION
MGM BRAKES SUPERFUND SITE**

TABLE OF CONTENTS

I. Executive Summary	<u>1</u>
II. Site and Parcel Location	<u>3</u>
III. Site Summary	<u>4</u>
Site and Contaminant History	<u>4</u>
Description of Risks	<u>5</u>
Summary of Cleanup Activities	<u>5</u>
Redevelopment/Reuse History	<u>9</u>
IV. U.S. EPA's Basis for the Ready for Reuse (RfR) Determination	<u>9</u>
V. Ongoing Limitations and Responsibilities Previously Established by U.S. EPA	<u>10</u>
Institutional and Engineering Controls	<u>10</u>
Operation and Maintenance Requirements	<u>10</u>
VI. Provisos	<u>11</u>
APPENDIX A: Abbreviations and Acronyms	<u>A-1</u>
APPENDIX B: Glossary	<u>B-1</u>
APPENDIX C: Covenant and Agreement to Restrict Use of Certain Property	<u>C-1</u>
APPENDIX D: Five-Year Review for the MGM Brakes Site	<u>D-1</u>

LIST OF EXHIBITS

Exhibit 1.	MGM Brakes Aerial Photograph	<u>3</u>
Exhibit 2.	Tax Parcel Map with MGM Brakes Site Overlay	<u>4</u>
Exhibit 3.	Time Line of U.S. EPA Activities Performed to Date at the MGM Brakes Superfund site	<u>6</u>
Exhibit 4.	Map Showing 11 Grid Locations with PCB Contamination 15 Feet Below the Surface	<u>8</u>

I. Executive Summary

This Ready for Reuse (RfR) Determination is for the MGM Brakes Superfund Site (the Site), located on the west side of Highway 101 at the south end of Cloverdale, California. The Site is located at the southwest corner of the intersection of Donovan Road and South Cloverdale Boulevard between Treadway Drive and Sandholm Road in Cloverdale, California.

The conditions summarized in this RfR Determination are based on limitations and requirements established in U.S. EPA decision documents for the Site, including the Record of Decision (ROD), Explanation of Significant Differences (ESD), Five-Year Review, and Covenant and Agreement to Restrict Use of Certain Property (Covenant). U.S. EPA has made a technical determination that the 3 parcels of land at the Site, located in Cloverdale, Sonoma County, California, are ready for commercial use and that the Site's remedy will remain protective of human health and the environment, subject to operation and maintenance of the remedy and the limitations identified below, as specified in the ROD, ESD, Five-Year Review, and Covenant:

1. Property owners are to comply with the following activities if they conduct excavation¹ activities in the areas with PCB-contaminated soils:
 - a. If the property is zoned for residential use at the time of the proposed excavation then soil and bedrock containing PCBs at concentrations greater than 10 ppm must be excavated and disposed according to the following restrictions: regulatory notification, sampling, dust control procedures, proper disposal of excavated soils, and backfilling with clean soil.
 - b. If the property is zoned for commercial, industrial, or agricultural use at the time of the proposed excavation, the owner or occupant of the property must fully comply with clean-up levels and requirements as determined and approved by the Department of Toxic Substances Control (DTSC), that correspond to the existing and potential uses of the property that are consistent with the zoning classifications for the property.
2. Semi-annual groundwater monitoring for VOCs in 11 wells will continue until such time that MCLs (maximum contaminant levels) for each constituent are reached for three consecutive sampling events at all sampling points within the contamination plume and at the Point of Compliance (the leading edge of the contaminated groundwater plume). The wells will then be sampled annually for 5 years to insure that MCLs are maintained. TCE is the only VOC that still exceeds its MCL of 5 ppb. TBG Services Inc. is responsible for groundwater monitoring activities.
3. U.S. EPA has notified the Sonoma County Department of Health and advised the County not to approve permits for domestic wells in areas where the groundwater contamination plume is still above MCLs.

¹ Excavation, as defined in the Covenant, refers to the excavation of more than one cubic yard of earth from a depth greater than 15 feet below ground surface on the Property.

U.S. EPA has assessed the risk to human health and the environment resulting from contamination at the Site. Sampling and analyses compiled in the revised feasibility study completed by the U.S. EPA for the Site in April 1988 indicated the presence of polychlorinated biphenyls (PCBs) in the surface and subsurface soil as well as on the building and equipment within the facility. Sampling and analyses also identified low level concentrations of volatile organic compounds (VOCs) in groundwater at the site. VOCs in groundwater posing risks to human health included benzene, chlorobenzene, cis-1,2-dichloroethylene (cis-1,2-DCE), 1,4-dichlorobenzene (1,4-DCB), 1,1-dichloroethylene (1,1-DCE), 1,1,1-trichloroethane (1,1,1-TCA), trichloroethylene (TCE), and vinyl chloride. In its ROD and ESD, U.S. EPA selected response actions to manage and eliminate these risks. With the completion of the response actions required by the ROD and ESD, U.S. EPA will attain the CERCLA cleanup goals and remedial action objectives for the Site.

As a result, based on information available as of this date, U.S. EPA has determined that the unacceptable levels of risk to current and future users of land at the Site have been abated for commercial users. The Site is ready for commercial use and the Site's remedy will remain protective of human health and the environment, subject to operation and maintenance of the remedy and limitations as specified in the ROD, ESD, Five-Year Review, and Covenant.

U.S. EPA Region 9 and Department of Toxic Substances Control issued this Ready for Reuse Determination, effective February 2, 2005.

By: Keith Takata

Keith Takata
Director
Superfund Division
United States Environmental
Protection Agency
Region 9

By: Barbara Cook

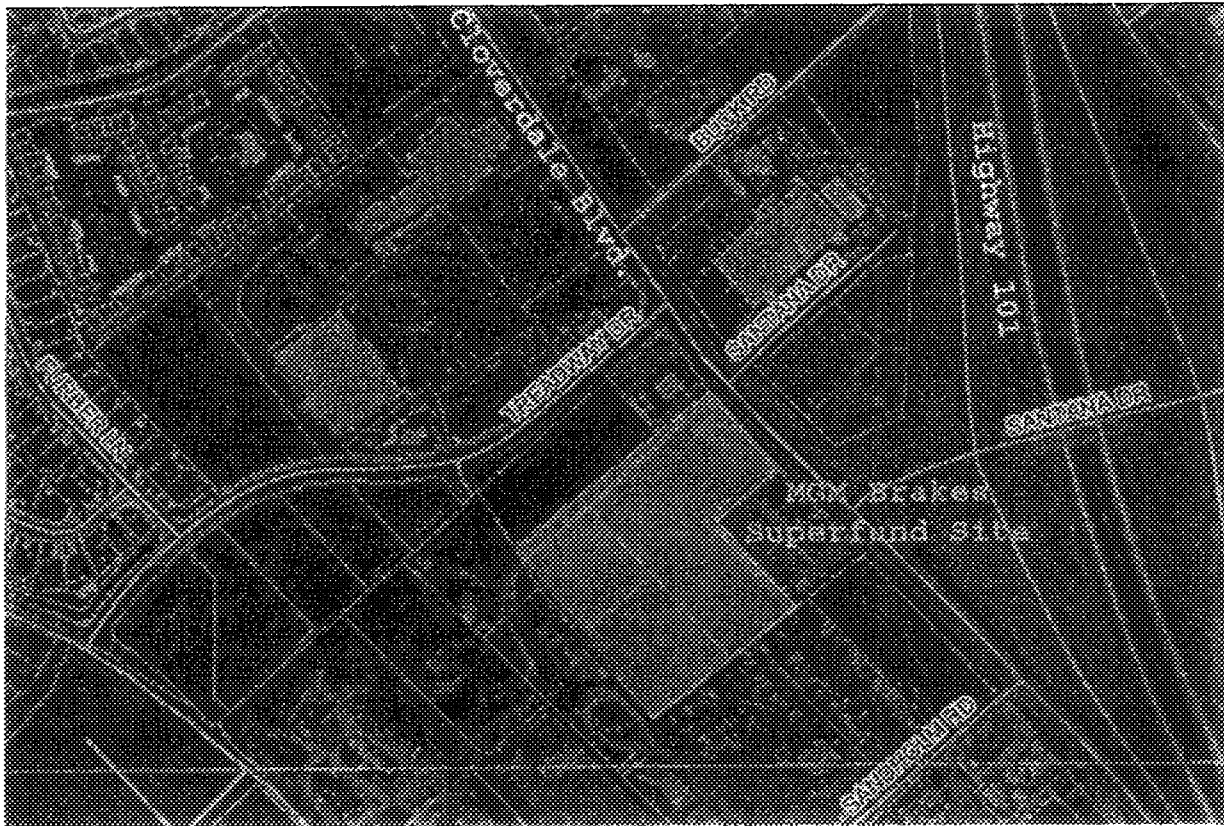
Barbara Cook
Branch Chief
Northern California Coastal Cleanup
Operations Branch
Department of Toxic Substances
Control
State of California

Documents pertaining to the Site and the RfR Determination are part of the Administrative Record for the Site, which is available for review at the Superfund Records Center, 95 Hawthorne Street, Room 403, San Francisco California. Additional information can be obtained from Janet Rosati, the Site's Remedial Project Manager (RPM), who can be reached at 415.972.3165 or rosati.janet@epa.gov.

II. Site and Parcel Location

The MGM Brakes Superfund site is located at the southwest corner of the intersection of Donovan Road and South Cloverdale Boulevard between Treadway Drive and Sandholm Road, as shown in Exhibit 1. The Site is located less than one mile west of the Russian River but is not within the 100-year flood zone. The site is essentially flat, and the only features that currently remain are a fence surrounding the former casting plant and asphalt pavement located in the northeast corner.

Exhibit 1. MGM Brakes Aerial Photograph

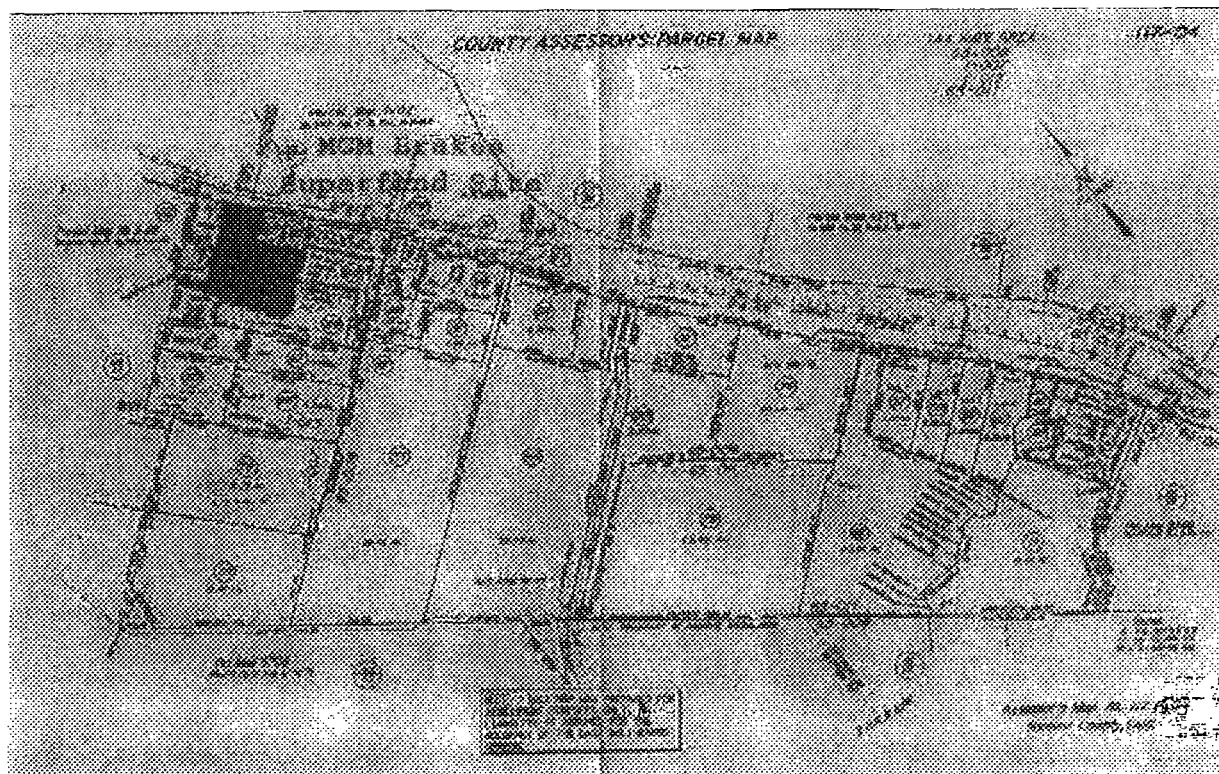


The Site is surrounded by residential houses and commercial buildings. The site comprises three parcels of land on the west side of Highway 101: tax parcels 117040038, 117040039, and 117040045. All three parcels are zoned highway commercial, which allows for uses pertaining to highway amenities, such as gas stations and food service. With conditional permits, this classification also allows for hotels, motels, and inns. A Covenant issued for the benefit of the California Department of Toxic Substances Control (DTSC) places a restriction on any excavation² in restricted areas. The Covenant also requires that DTSC have access to the

² Excavation, as defined in the Covenant, refers to the excavation of more than one cubic yard of earth from a depth greater than 15 feet below ground surface on the Property.

property during any excavation activities for inspection, surveillance, and monitoring and that the current owner or occupant notify DTSC of the name and address of new owners or occupants in the event of a sale or lease.

Exhibit 2. Tax Parcel Map with MGM Brakes Site Overlay



III. Site Summary

Site and Contaminant History

The MGM Brakes Superfund Site is an approximately 5-acre area located in Sonoma County, in the southern portion of the city of Cloverdale, California. Cloverdale is located in the Alexander Valley approximately 80 miles north of San Francisco. The Site was listed on the NPL in 1983. Sampling and analyses identified the presence of polychlorinated biphenyls (PCBs) in the surface and subsurface soil as well as on the building and equipment within the facility. Sampling and analyses also identified low level concentrations of volatile organic compounds (VOCs) in groundwater at the site. VOCs in groundwater posing risks to human health included benzene, chlorobenzene, cis-1,2-dichloroethylene (cis-1,2-DCE), 1,4-dichlorobenzene (1,4- DCB), 1,1-dichloroethylene (1,1-DCE), 1,1,1-trichloroethane (1,1,1-TCA), trichloroethylene (TCE), and vinyl chloride.

From 1962 until operations ceased in 1982, the MGM Brakes facility manufactured and cast aluminum brake components for large motor vehicles. From 1965 to 1972 hydraulic fluids containing PCBs were used in the casting machines. These hydraulic fluids leaked from the casting machines in the normal course of plant operations and were then collected, together with water used to cool the dies between castings, in floor drains. Following gravity separation of oils and grease, the wastewater containing PCBs was discharged, via a drain line, to the ground adjacent to the casting plant. The use of hydraulic fluid containing PCBs was gradually discontinued in 1973, but wastewater containing ethylene glycol (the hydraulic fluid later used in the casting machines) continued to be discharged in the same manner until 1981. The practice of discharging wastewater onto the vacant fields surrounding (mostly to the south) of the casting plant building is believed to be the main cause of contamination at the Site.

Description of Risks

The U.S. EPA Office of Health and Environmental Assessment (OHEA) has developed advisory levels for PCB contaminated soil in a commercial or residential setting. OHEA concluded that a PCB levels of one to six parts per million in soil in a residential or commercial setting corresponds to a one in 100,000 risk of developing cancerous tumors. For risks posed by inhalation, OHEA concluded that two milligrams per kilogram corresponds to a one in one million risk of developing cancerous tumors. PCB concentrations in soil at the MGM Brakes Superfund site before cleanup were in excess of 1,000 parts per million.

On April 2, 1987, U.S. EPA published a National PCB Spill Cleanup Policy (40 CFR 761.120 Subpart G) that was based on the exposure and risk analysis presented in the OHEA document. The Policy establishes a ten part per million clean-up level in residential and commercial areas, when a ten-inch cap of clean soil is placed over soil containing no more than ten parts per million of PCBs. A ten part per million concentration corresponds to a risk of one in 100,000; placing a ten inch cover over residual PCBs reduces the overall risk to one in one million. In April 1988, U.S. EPA issued a revised feasibility study that used established advisory levels to estimate the cancer risk for the Site.

The groundwater beneath the Site had elevated levels of volatile organic compounds (VOCs), including TCE, vinyl chloride, and benzene. At the time of the Record of Decision, concentrations for these contaminants exceeded MCLs. However, since the groundwater beneath the Site is not productive enough to be used for consumptive purposes (flow is less than 20 gallons per minute), it did not pose risks to human health and the environment.

Summary of Cleanup Activities

Exhibit 3 shows a time line of activities to date at the MGM Brakes Superfund site.

U.S. EPA selected a remedy in the Site's 1988 ROD. All of the potential remedies considered for the Site assumed that the likely future reuse of the Site would be for residential purposes, since a 200-unit housing development was being built just north of the Site.

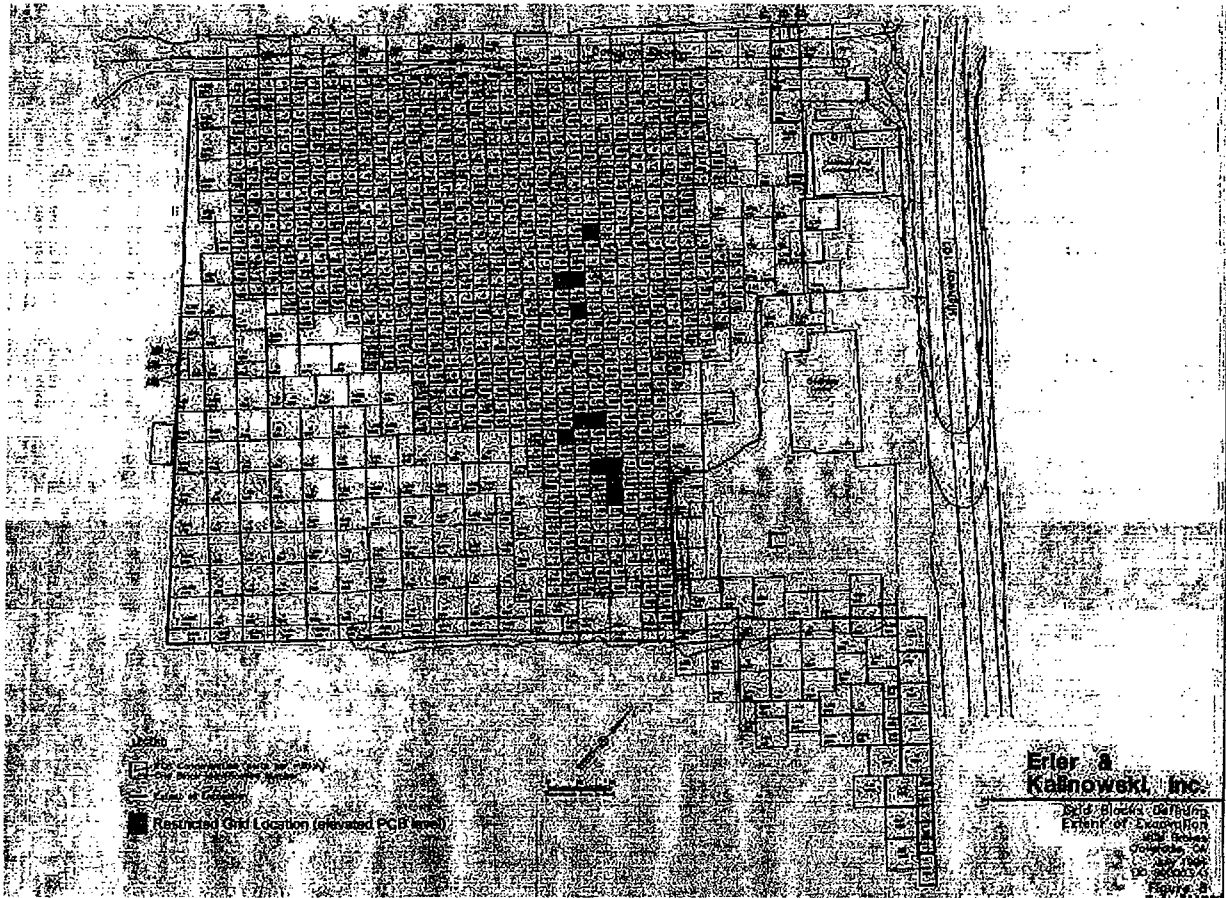
Exhibit 3. Time Line of U.S. EPA Activities Performed to Date at the MGM Brakes Superfund site

Date	Description of Activity
1962–1982	MGM Brakes facility manufactures and casts aluminum brake components for large motor vehicles.
August 1981	NCRWQCB and CDFG inspect MGM Brakes facility and note presence of oil-stained soil.
November 1981–June 1983	Harding Lawson and Associates (HLA) collects soil, surface water, and groundwater samples at MGM Brakes Site and the surrounding property.
September 1983	Site placed on National Priorities List (NPL).
October 1983	Kennedy Jenks prepares draft report: <i>On-site Remedial Action</i>
June 1984	Kennedy Jenks Chilton prepares draft feasibility study (FS) based on previous investigations and submits it to DOHS and U.S. EPA.
November 1984	PRPs decline to prepare revised FS.
1985	U.S. EPA contracts GCA Technology, Inc. (GCA) to prepare an endangerment assessment and FS.
April 1988	Revised FS issued.
May 1988	Proposed plan issued.
September 1988	Record of Decision (ROD) for cleanup of soil and groundwater is issued for the Site.
May 1990	Consent Decree for remedial design/ remedial action (RD/RA) entered by the district court with TBG, Inc. (TBG) and Indian Head Industries, Inc. (IHII) agreeing to conduct the work.
July–November 1991	Installation and sampling of additional groundwater monitoring wells.
April 1992	Casting plant building demolition begins.
February 1993	Soil excavation work begins.
October 1994	TBG and IHII submit <i>Final Prefinal Inspection Report</i> for excavation work to U.S. EPA.
April 1995	<i>Final VOC Groundwater Monitoring Plan</i> prepared by Erler & Kalinowski, Inc. (EKI) and submitted by TBG and IHII to U.S. EPA.
July 1995	Recording of covenant and agreement to restrict use of MGM Brakes property.
August 1995	Explanation of Significant Differences (ESD) modifying the 1988 ROD by leaving certain PCB-contaminated soils in place, imposing land-use restrictions, and identifying natural attenuation as groundwater cleanup option.
Late 1994–Early 1995	U.S. EPA samples surface water runoff from Site to ensure that there is no surficial migration of contamination.

Date	Description of Activity
September 1994–March 1998	Quarterly groundwater monitoring of on-and off-site wells.
March 1998	U.S. EPA issues certificate of completion for demolition and excavation work.
March 1998	U.S. EPA agrees to amend the 1995 Final VOC Groundwater Monitoring Plan to terminate analysis of pesticides and semivolatile organic compounds (SVOCs), to no longer require sampling at Well B-74, and to reduce sampling frequency from quarterly to semi-annual.
March 1998–present	Semi-annual groundwater monitoring of on- and off-site wells.
August 1999	U.S. EPA agrees to allow for termination of analysis for PCBs in groundwater.
July 2000	Monitoring well B-74 plugged and abandoned.
September 2003	Five-Year Review completed by U.S. EPA.

The Site's remedial actions included demolition work to remove PCB-contaminated equipment within the former factory and the facility, excavation work to remove PCB-contaminated soil at the Site, and groundwater monitoring for VOCs. The selected remedies were intended to reduce the present and future on-site risk to human health and the environment to a 1×10^{-5} (1 in 100,000) cancer risk and provide unrestricted future use of the property. This was to be achieved by removing and disposing off-site all soil exceeding a PCB concentration of 10 ppm and backfilling the area with clean, imported fill material. The ROD also included further investigation of the VOC-contaminated groundwater and restoration of groundwater up to the Site boundary to appropriate MCLs. The 1995 ESD slightly altered the soil remedy to allow for some PCB contamination less than 100 ppm and at least 15 feet below ground surface to remain onsite and to impose land-use restrictions for those contaminated soil areas. Exhibit 4, a grid map adapted from Figure 8 of the Five-Year Review, illustrates those areas where PCB contamination was left on site.

Exhibit 4. Map Showing 11 Grid Locations with PCB Contamination 15 Feet Below the Surface



The August 1995 ESD selected natural attenuation as the groundwater remedy. U.S. EPA established federal MCLs as the cleanup levels for the contaminants which must be achieved within the established boundary line, called the Point of Compliance. The MCL for each contaminant must be reached at all sampling points within the contaminant plume and at the Point of Compliance for three consecutive sampling events and then maintained for 5 years before U.S. EPA will consider the groundwater remedy complete.

The demolition work was begun in April 1992, and the excavation work began in February of 1993. All remedial work associated with soil contamination was completed in 1994. In March 1998, U.S. EPA issued a certificate of completion for all demolition and excavation work and the Site was construction complete. Currently, the only contaminant posing risks to human health or the environment is TCE in the groundwater, which is slightly above MCLs in two of the eleven monitoring wells.

Redevelopment/Reuse History

The Site is currently ready for commercial reuse. The Site is fenced with the exception of the southeast corner due to new construction on the adjacent property. The Site is currently vacant and available for sale. A Covenant and Agreement was recorded in Sonoma County on July 12, 1995 to restrict use of those portions of the Site where contaminated soil was left in place. The Covenant is provided in Appendix C of this Ready for Reuse Determination.

IV. U.S. EPA's Basis for the Ready for Reuse (RfR) Determination

The MGM Brakes Superfund site RfR Determination is based on U.S. EPA documents produced during the course of remedial activities at the Site. These documents provide evidence that the Site is ready for commercial use and that the Site's remedy will remain protective of human health and the environment, subject to operation and maintenance of the remedy and limitations as specified in the Five-Year Review and Covenant. The RfR Determination is based primarily on the Five-Year Review, completed in September 2003. Additional documents providing information about the Site's remedy, operation and maintenance requirements, and limitations include: the ROD, ESD, Five-Year Review, and Covenant. These reports can be found in the Superfund Records Center, 95 Hawthorne Street, Room 403, San Francisco California.

The Record of Decision indicates that the risks associated with the Site are caused by inhalation and ingestion of PCBs in the air and soil. The 1988 ROD, which describes the remedy selected for the Site, concluded that "a reasonable future use scenario would be a residential area with unrestricted access." While the site was cleaned to residential levels, current zoning for the Site is highway commercial.

U.S. EPA's Five-Year Review confirms the successful cleanup of the MGM Brakes Superfund site. The Five-Year Review states that the soil remedy is protective of human health and the environment since the exposure pathway for inhalation and ingestion has been removed due to a combination of excavation, offsite disposal and placement of clean fill material. There are eleven areas with some PCB contaminated soil left in place that contain less than 100 parts per million (ppm) of PCBs and are at least 15 feet below ground surface. A Covenant and Agreement was recorded with Sonoma County that restricts excavation of these portions of the property. The groundwater remedy, natural attenuation of VOCs, is expected to be protective upon completion by achieving levels at or below MCLs, and in the interim, exposure pathways that could result in unacceptable risks are being controlled. Concentration of TCE in groundwater continue to decline and it is expected that cleanup goals will be reached within five years of the Five-Year Review, which was finalized in September of 2003.

V. Ongoing Limitations and Responsibilities Previously Established by U.S. EPA

Institutional and Engineering Controls

The remedy as originally selected in the ROD would not require institutional controls or access restrictions, as it intended to remove all waste from the Site. However, during the excavation of PCB-contaminated soils, the parties conducting the work were unable to complete excavation activities in certain areas due to the presence of bedrock encountered at depths greater than 15 feet. Thus, eleven out of more than 900 square grid areas have soils contaminated with less than 100 parts per million of PCBs at depths of 15 feet or greater. U.S. EPA, the State of California, and the property owner have agreed on land use restrictions, contained in a Covenant, applicable to soils 15 feet below ground surface in these eleven grid areas. The Covenant outlines precautions that property owners are to follow if they conduct excavation in the specified areas, including regulatory notification, sampling, dust control procedures, proper disposal of excavated soils, and backfilling with clean soil. DTSC is responsible for ensuring that any limitations specified in the Covenant that might be affected by a particular commercial use are complied with during the activity.

The full text of the Covenant is provided in Appendix C.

Operation and Maintenance Requirements

Operation and maintenance activities are designed to ensure that the remedy is operating and continues to operate properly. The component of the remedy requiring ongoing operation and maintenance activities is the monitoring of groundwater. Annual Operation and Maintenance (O&M) costs are approximately \$21,000 per year. Costs include groundwater monitoring well sampling, analysis, data validation and reporting. According to the ESD, quarterly monitoring was to continue until contaminant levels are at or below MCLs for six consecutive quarters, followed by annual monitoring for five consecutive years to confirm that MCLs have been achieved inside the Point of Compliance. Quarterly groundwater monitoring continued until March 1998, at which point U.S. EPA amended the Final VOC Groundwater Monitoring plan to terminate analysis of pesticides and semi-volatile organic compounds (SVOCs), to no longer require sampling at Well B-74, and to reduce sampling frequency from quarterly to semi-annual. In 1999, U.S. EPA agreed to allow for the termination of analysis for PCBs in groundwater. At the time of the Five Year Review, TCE was the only VOC that still exceeded the MCL; the cleanup standard for TCE is 5 parts per billion. Erler & Kalinowski, consultants for the PRP, collect groundwater samples two times per year at the site.

U.S. EPA has notified the Sonoma County Department of Health and advised the County not to approve permits for domestic wells in areas where the groundwater contamination plume is still above MCLs.

TBG Services Inc. is responsible for continuing operation and maintenance of the remedy at the Site. Specific information relating to ongoing operation and maintenance activities can be found

in the ROD and ESD.

U.S. EPA will conduct the next Five-Year Review for the Site in 2008, at which time all elevated TCE levels remaining in wells on the Site are expected to be at or below MCLs.

VI. Provisos

This RfR Determination is an environmental status report and does not have any legally binding effect and does not expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits of any party. U.S. EPA assumes no responsibility for reuse activities and/or for any potential harm that might result from reuse activities. U.S. EPA retains any and all rights and authorities it has, including, but not limited to legal, equitable, or administrative rights. U.S. EPA specifically retains any and all rights and authorities it has to conduct, direct, oversee, and/or require environmental response actions in connection with the Site, including but not limited to instances when new or additional information has been discovered regarding the contamination or conditions at the Site that indicate that the response and/or the conditions at the Site are no longer protective of human health or the environment for the types of uses identified in the Ready for Reuse Determination.

The types of uses identified as protective in this RfR Determination remain subject to (i) applicable federal, state, and local regulation and to (ii) title documents, including, but not limited to, easements, restrictions, and institutional controls.

This RfR Determination remains valid only as long as the requirements specified in the ROD, the ESD, the Five-Year Review, and the Covenant are met.

APPENDIX A

ABBREVIATIONS AND ACRONYMS

AR - Administrative Record	OU - Operable Unit
CC - Construction Completion	PA - Preliminary Assessment
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund)	PCB - Polychlorinated Biphenyls
CERCLIS - Comprehensive Environmental Response, Compensation, and Liability Information System	PCOR - Preliminary Closeout Report
COC - Contaminant of Concern	PHA - Public Health Assessment
DCB - Dichlorobenzene	PRP - Potentially Responsible Party
DCE - Dichloroethylene	RA - Remedial Action
DTSC - California Department of Toxic Substances Control	RCRA - Resource Conservation and Recovery Act of 1976
ELCR - Excess Lifetime Cancer Risk	RD - Remedial Design
ESD - Explanation of Significant Differences	RfR - Ready for Reuse Determination
ESI - Expanded Site Inspection	RI - Remedial Investigation
FCOR - Final Closeout Report	ROD - Record of Decision
FS - Feasibility Study	RPM - Remedial Project Manager
GIS - Geographic Information System	SARA - Superfund Amendments and Reauthorization Act of 1986
HI - Hazard Index	SI - Site Inspection
HRS - Hazard Ranking System	SNAP - Superfund National Assessment Program Database
IC - Institutional Control	SRI - Superfund Redevelopment Initiative
IHII - Indian Head Industries, Inc.	SVOC - Semi-Volatile Organic Compound
MCL - Maximum Contaminant Level	TBG - TBG Services Inc.
NOID - Notice of Intent to Delete	TCA - Trichloroethane
NOD - Notice of Deletion	TCE - Trichloroethylene
NPL - (N)ational (P)riorities (L)ist of Superfund Hazardous Waste Sites	TEAM - Total Exposure Assessment Methodology
O&M - Operation and Maintenance	TRI - Toxic Release Inventory
OERR - Office of Emergency Response and Remediation	TSDF - Treatment, Storage, and Disposal Facility
OHEA - Office of Health and Environmental Assessment	U.S. EPA - United States Environmental Protection Agency
OSRTI - Office of Superfund Remediation and Technological Innovation	VOC - Volatile Organic Compound
OSWER - Office of Solid Waste and Emergency Response	

APPENDIX B

GLOSSARY

Baseline Risk Assessment (BLRA): A qualitative and quantitative evaluation of the risk posed to human health and/or the environment by the actual or potential presence and/or use of specific pollutants at a site. A risk assessment characterizes the current or potential threat to public health and the environment that may be posed by chemicals originating at or migrating from a contaminated site.

Carcinogenic Risk: Risk that is obtained by an exposure event, condition, or effect that causes cancer.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): CERCLA, commonly referred to as Superfund. The law authorizes the federal government to respond directly to releases, or threatened releases, of hazardous substances that may endanger the public health, welfare, or the environment. CERCLA also enables U.S. EPA to take legal action to force parties responsible for causing the contamination to remediate those sites, or reimburse Superfund for the cost of remediation.

Construction Completion (CC): Construction completion identifies completion of remedial activities. In this stage, the physical construction of all remedial actions at a site is complete, all immediate threats have been addressed, and all long-term threats are under control.

Deed restrictions: Restrictions placed on a property's deed that control the use of the property. Restrictions travel with the deed, and cannot generally be removed by new owners.

Dermal absorption: Absorption through the skin.

Discovery: Process by which a potential hazardous waste site is brought to the attention of U.S. EPA. The process can occur through several mechanisms, such as community contact or referral by another government agency.

Ecological risk assessment: Assessment of the baseline risks posed by a site to ecological receptors.

Engineering controls: Engineering controls eliminate or reduce exposure to a chemical or physical hazard through the use or substitution of engineered machinery or equipment. An example of an engineering control is a fence.

Expanded Site Inspection (ESI): Functions performed to collect additional site data beyond that required for Hazard Ranking System (HRS) scoring, in order to expedite the Remedial Investigation/Feasibility Study (RI/FS) process for National Priorities List (NPL) sites. In addition to an evaluation of pathways and receptors, an ESI includes site and source characterization.

Explanation of Significant Differences (ESD): A significant change to a Record of Decision (ROD) that does not fundamentally alter the remedy. An ESD may be initiated by U.S. EPA or by site PRPs.

Exposure pathways: Exposure pathways are means by which contaminants can reach populations of people, plants, or animals. Exposure pathways include groundwater, surface water, soil exposure, and air migration.

Feasibility Study (FS): A study of a hazardous waste site intended to: (1) evaluate alternative remedial actions from technical, environmental, and cost-effectiveness perspectives; (2) recommend cost-effective remedial actions; and (3) prepare a conceptual design, cost estimate, and preliminary construction schedule.

Fugitive landfill gas: Landfill-generated gas that could reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

Hazard Index (HI): The hazard index (HI) describes whether exposure to non-carcinogenic contaminants at a site poses an unacceptable health risk to humans. Each HI represents the ratio between the estimated exposure dose and a reference dose. An HI greater than one indicates that the estimated exposure dose for that contaminant exceeds acceptable levels for protection against non-carcinogenic health effects. An HI less than one indicates that the contaminants do not pose a risk to human health.

Hazard Ranking System (HRS) Scoring: The HRS is the screening mechanism used to place sites on the NPL. In order for a site to be listed, it must have: 1) contaminants listed on U.S. EPA's Target Compound List of sufficient concentration to warrant concern; 2) a sensitive receptor population that would be negatively impacted by the contaminants; and 3) pathways of exposure that would introduce the contaminant into the sensitive receptor population. Theoretically, a site meeting these conditions would score 28.5 or higher on the HRS, the threshold for NPL listing. The report detailing the findings of a site's scoring is referred to as the "HRS Scoring Package."

Institutional Controls (ICs): ICs are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of a remedy by limiting land or resource use.

Maximum contaminant level: The maximum permissible level of a contaminant in water delivered to any user of a public system. MCLs are enforceable standards.

National Priorities List (NPL): Sites are listed on U.S. EPA's National Priorities List (NPL) upon completion of Hazard Ranking System screening and public solicitation of comments about the proposed site. The identification of a site for the NPL is intended primarily to guide U.S. EPA in: identifying sites that warrant further investigation to assess the nature and extent of human health and environmental risks; identifying potential CERCLA-financed remedial actions; notifying the public about sites determined to warrant further investigation by U.S. EPA; and serving notice to potentially responsible parties that U.S. EPA may initiate CERCLA-financed remedial actions.

Natural attenuation: The process by which a compound is reduced in concentration over time, through absorption, adsorption, degradation, dilution, and/or transformation.

Notice of Deletion (NOD): Notification of a site's deletion from the National Priorities List, published in the *Federal Register*.

Notice of Intent to Delete (NOID): Notification of EPA's intention to delete a site from the National Priorities List (NPL), published in both the *Federal Register* and a newspaper of record.

NPL site deletions: With state concurrence, U.S. EPA determines when no further response is required at a site to protect human health or the environment. U.S. EPA approves a "close-out" report verifying that response actions have been taken or that no action is required. The Agency then publishes a deletion notice in the *Federal Register*.

NPL site listing process: The NPL is a list of the most serious sites identified for possible long-term remediation. A final NPL site is added when U.S. EPA issues a final rule in the *Federal Register*, which enables U.S. EPA to use Trust Fund monies to pay for long-term remedial actions. U.S. EPA issues a proposed rule in the *Federal Register* to solicit comments on proposed NPL sites. U.S. EPA responds to comments and adds sites to the NPL that continue to meet requirements for listing.

Potentially Responsible Parties (PRPs): The Superfund law (CERCLA) allows U.S. EPA to respond to releases or threatened releases of hazardous substances into the environment. Under CERCLA, PRPs are expected to conduct or pay for a site's remediation. The Superfund enforcement program identifies site PRPs; negotiates with PRPs to fund and manage the site's remediation; and recovers U.S. EPA remediation costs from PRPs.

Preliminary Assessment (PA): A PA is an investigation of a site's conditions to ascertain the source, nature, extent, and magnitude of contamination.

Preliminary Close Out Report (PCOR): A precursor to a site's final closeout report, a site's PCOR is a report submitted by the site's Remedial Program Manager (RPM) verifying that the conditions of the site comply with the Record of Decision (ROD)'s findings and design specifications and that activities performed at the site are sufficient to achieve protection of public health and the environment.

Operation and Maintenance (O&M): O&M activities are conducted after remedial actions are complete at a site in order to ensure that remedies remain effective and operational over time.

Remedial Action (RA): The implementation of a permanent resolution to address a release or potential release of a hazardous substance from a site.

APPENDIX C

COVENANT AND AGREEMENT TO RESTRICT USE OF CERTAIN PROPERTY

This Covenant and Agreement To Restrict Use of Certain Property ("Covenant") is made as of the first day of June, 1995 by TBG, Inc., ("Covenantor"), which is the owner of certain real property situated in the City of Cloverdale, County of Sonoma, State of California, as more fully described in Paragraph 1.7 of this Covenant (the "Property") for the benefit of the California Department of Toxic Substances Control, as defined in Paragraph 1.1, ("DTSC"), with reference to the following facts:

RECITALS

A. The Property is a portion of the site of a casting plant which has been in operation from 1965 to the present on which industrial waste was disposed.

B. The Property has been the subject of investigation by the Covenantor, in response to requests of the United States Environmental Protection Agency ("EPA"), DTSC, and the Regional Water Quality Control Board (the "Regional Board") to determine the nature and extent of hazardous substances located on the Property and whether the hazardous substances identified present any significant existing or potential hazard to present or future public health or safety. Polychlorinated biphenyls ("PCBs") have been known to be present in soils on the Property. Certain volatile organic compounds ("VOCs") have been known to be present in soil and groundwater on certain adjacent parcels east of the Property.

C. Covenantor has completed the investigation and has undertaken certain corrective measures to the satisfaction of EPA, EPA has since determined, based on information available to EPA, that the Property does not present any significant existing or potential hazard to present or future public health or safety provided that certain precautions as set forth herein are taken in connection with any excavation.

ARTICLE I

DEFINITIONS

1.1 DTSC "DTSC" shall mean the California Department of Toxic Substances Control and shall include its successor agencies, if any,

1.2 IMPROVEMENTS "Improvements" shall mean all buildings, roads, driveways, landscaping, and paved parking areas, constructed or placed upon any portion of the Property but shall not include any building interior improvements.

1.3 OCCUPANT "Occupant" shall mean any holder of a leasehold interest in all or any portion of land comprising the Property, which entitles the interest holder to the exclusive right to occupy all or any portion of the Property. "Occupant" shall not include a holder of a security interest in the Property.

1.4 OWNER "Owner" shall mean the Covenantor or its successors in interest, including heirs, and assigns, who hold fee title to all or any portion of the Property.

1.5 EXCAVATION "Excavation" shall mean the excavation of more than 1 cubic yard of earth from a depth greater than 15' below ground surface on the Property, except that soil borings performed for purposes of collecting soil data and geophysical information shall not be deemed to constitute "Excavation" so long as regardless of the total number of borings, only one boring is made per Restricted Area, and the volume of soil produced by any one such boring in a Restricted Area does not exceed one cubic yard of earth from a depth greater than 15' below ground surface.

1.6 EXCESS MATERIAL "Excess Material" shall mean any soil and/or bedrock excavated in the course of an Excavation which cannot be used as fill or berm material on the Property.

1.7 PROPERTY The Property consists of the land designated as Assessor's Parcel No. 45 in the Assessor's Map Book No. 117, Page 40, filed in the office of the County Recorder of the County of Sonoma, State of California, but shall not include any buildings now existing on or to be constructed on the land.

1.8 RESTRICTED AREAS "Restricted Areas" shall mean the areas of Parcel No. 45 identified by the following survey coordinates:

California Grid Coordinates

<u>GRID NUMBER</u>	<u>NORTHING</u>	<u>EASTING</u>
52358	1711697	408111
59770	1711832	407998
59835	1711824	408007
59900	1717816	408016
72379	1711806	408008
73028	1711713	408092
77317	1711687	408103
81674	1711681	408147
84987	1711771	408010
85053	1711772	408027
85054	1711781	408036

As so defined, Restricted areas are subject to this Covenant and Agreement to Restrict Use of Certain Property, to be recorded in the Official Records of the County of Sonoma, State of California.

ARTICLE II

EFFECT OF COVENANT

2.1 Restrictions to Run with the Land. This Covenant sets forth, for the mutual benefit of the Property, the Owners and Occupants thereof, the People of the State of California, and DTSC, protective provisions, covenants, restrictions, and conditions (collectively referred to as the "Restrictions"), upon and subject to which the Restricted Areas and every portion thereof shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, and/or conveyed. Each and all of the Restrictions shall run with the land, shall inure to the benefit of, and pass with the Property, and shall apply to and bind the respective successors in interest thereof. Each and all of the Restrictions are imposed upon the Restricted Areas as mutual equitable servitudes in favor of the Property and every portion thereof. Each and all of the Restrictions are imposed pursuant to California Health and Safety Code § 25222.1 and shall be recorded by Covenantor pursuant to California Health and Safety Code § 25230(a)(1). Each and all of the Restrictions shall run with the land pursuant to §§ 25222.1 and 25230(a)(1). Each and all of the Restrictions are enforceable by DTSC.

2.2 Concurrence of Owners Presumed. All Owners and Occupants of all or any portion of the Property shall be deemed by their purchase, lease, or possession of such Property, to have knowledge of, and be in accord with, the foregoing and to agree for and among themselves, their heirs, successors, and assignees, and the agents and employees, of such Owners, Occupants, heirs, successors, and assignees, that the Restrictions as herein set forth must be adhered to for the benefit of future Owners and Occupants and that their interest in the Property shall be subject to the Restrictions contained herein.

2.3 Incorporation Into Deeds and Leases. The Restrictions contained herein, including, but not limited to, the provisions regarding DTSC's authority to enforce the Covenant, shall be incorporated by reference in each and every deed and lease of all or any portion of the Property.

ARTICLE III

DEVELOPMENT, USE AND CONVEYANCE OF THE PROPERTY

3.1 Restrictions on Use. Covenantor promises to restrict the use of the Property as follows:

3.1.1 The Owner or Occupant shall not conduct any Excavation in the Restricted Areas except under the conditions set forth in paragraph 3.1.2

3.1.2 In the event any Excavation is proposed to occur in any one or more of the Restricted Areas, or any portion thereof, the Owner or Occupant of said Property shall:

A. Notify DTSC of such proposed Excavation thirty (30) days prior to the commencement of such Excavation;

B. Direct any contractor or subcontractor engaged in such Excavation activities to comply with applicable requirements of OSHA, Cal/OSHA, this Covenant, the Bay Area Air Quality Management District and the State Water Resources Control Board, including developing a Health and Safety Plan that assumes the existence of PCBs at levels greater than 10 ppm in the Restricted Areas.

C. Utilize appropriate procedures to control dust during any period of such Excavation in the Restricted Areas;

D. Determine, by appropriate testing as approved by DTSC, whether any soil and/or bedrock encountered in the Excavation contains PCBs at concentrations above 10 ppm or VOCs at concentrations greater than 5 ppm TCE, 8 ppm 1,2 DCE, 0.53 ppm Benzene, or 0.03 ppm Vinyl Chloride;

E. If, at the time of the proposed Excavation, the Property is zoned for commercial, industrial or agricultural use, fully comply with clean-up levels and requirements, as determined and approved by DTSC, that correspond to the existing and potential uses of the Property that are consistent with zoning classifications for the Property.

F. If, at the time of the proposed Excavation, the Property is zoned for residential use, then, for soils and/or bedrock containing concentrations of PCBs above 10 ppm, or VOCs at concentrations greater than 5 ppm TCE, 8 ppm 1,2 DCE, 0.53 ppm Benzene, or 0.03 ppm Vinyl Chloride, fully comply with the following:

1. Excavate and remove from the Property soils and/or bedrock containing PCBs at concentrations greater than 10 ppm or VOCs at

concentrations greater than 5 ppm TCE, 8 ppm 1,2 DCE, 0.53 ppm Benzene, or 0.03 ppm Vinyl Chloride at a depth below 15' to a depth that would (i) permit 3 feet of clean soil or (ii) permit installation of a six inch layer of concrete, above any soil and/or bedrock containing such concentration levels throughout the entire Restricted Area involved in such excavation. (For example, if the depth desired for Excavation is 20', and PCB concentrations above 10 ppm are detected at 20 feet, then the excavation shall be completed at 23' and shall be filled with clean soil, or the excavation shall be completed at a depth beneath 20' sufficient to allow for the installation of a 6 inch concrete floor above the exposed PCB concentrations exceeding 10 ppm.)

2. Dispose of excavated soils and/or bedrock with PCB or VOC concentrations greater than the respective concentrations specified in subparagraph F.1 hereof, in an appropriate off-site facility in compliance with Section 121(d)(3) of CERCLA; and with Title 22, California Code of Regulations, Section 66260 et seq.

3. Consolidate those soils and/or bedrock which have not been disposed of off-site and which contain PCBs at concentrations equal to or less than 10 ppm but more than 1 ppm, in the Excavation area on the Property; and

4. Dispose of contaminated equipment and material which does not meet the cleanup levels set forth in 40 C.F.R. § 761.125, in an appropriate off-site facility in compliance with Section 121(d)(3) of CERCLA; and 22 Cal. Code Reg. § 66260 et seq.

5. Perform Verification sampling to ensure that the requirements specified in subparagraph F.1 above have been met.

3.1.3 During the course of, and in connection with, any Excavation in a Restricted Area on the Property, the Department shall have access to the Property for inspection, surveillance and monitoring of the Excavation, as deemed necessary by the Department in order to protect the public health and safety.

3.2 CONVEYANCE OF THE PROPERTY Within 30 days after the closing of any sale, lease, or other conveyance of all or any portion of the Property, the former Owner (in the case of a sale) or Occupant (in the case of a lease) and the then current Owner or Occupant of the Property, or part thereof, conveyed shall provide written notice to DTSC of the name and address of all the then Owners and/or Occupants of the Property, or part thereof, conveyed. DTSC shall not, by reason of the Covenant, have authority to approve, disapprove, or otherwise affect any sale, lease, or other conveyance of the Property except as otherwise provided by law or as expressly provided by this Covenant.

3.3 ENFORCEMENT

3.3.1 Failure of any Owner or Occupant to comply with any of the requirements set forth in Paragraph 3.1 above, shall be grounds for DTSC, by reason of the Covenant, to require the Owner or Occupant to discontinue any use of the Property in violation of Paragraph 3.1 above. Failure to observe the Restrictions set forth in Paragraph 3.1 shall be grounds for DTSC to pursue any remedy provided by law to enforce the provisions of Paragraph 3.1. Any costs reasonably and necessarily incurred by DTSC to enforce the provisions of Paragraph 3.1 shall be recoverable from the Owner or the Occupant of the Property determined in the final disposition of the enforcement action to have failed to observe the Restrictions.

3.3.3 Covenantor shall have no obligation to enforce or to police the observance of the Restrictions set forth herein by any subsequent Owner of all or any part of the Property or by any Occupant of all or any part of the Property owned by a person other than Covenantor. This Covenant shall not create any private right of action against Covenantor or any other Owner or Occupant of the Property or any portion thereof.

3.3.4 Notice of Default. The Department shall give the Owner and Occupant (if any) notice of any breach of this Covenant and Agreement and a reasonable opportunity to cure such breach prior to the Department's exercise of any of its enforcement remedies.

ARTICLE IV

VARIANCE TERMINATION AND AMENDMENT

4.1 Variance Any Owner, or with the Owner's written consent, which shall not be unreasonably withheld, any Occupant, of the Property or any portion thereof, may apply to DTSC for a written variance from the provisions of this Covenant. Such application shall be made in accordance with Section 25233 of the California Health and Safety Code.

4.2 Termination Any Owner, or with the Owner's written consent, which shall not be unreasonably withheld, any Occupant, of the Property or any portion thereof, may apply to DTSC for a termination of the Covenant as it applies to all or any portion of the Property owned or occupied by the applicant. Such application shall be made in accordance with Section 25234 of the California Health and Safety Code.

4.3 Amendment This Covenant may be amended from time to time in a writing signed by the Site Mitigation Branch Chief, DTSC, or his or her designee, and all of the then Owners of the Property, or any portion thereof, which remains subject to the Covenant. Any such amendment shall be effective only upon the date any such amendment is filed for recording in the official records of the County of Sonoma, State of California.

4.4 Term Unless otherwise terminated in accordance with Paragraph 4.2 above, by law or otherwise, this Covenant shall continue in effect in perpetuity.

ARTICLE V

MISCELLANEOUS

5.1 No Dedication Intended Nothing set forth herein shall be construed to be a gift or dedication, or offer of a gift or dedication, of the Property or any portion thereof to the general public or for any purposes whatsoever.

5.2 Notices Whenever any person shall desire to give or serve any notice, demand, or other communication with respect to this Covenant, each such notice, demand, or other communication shall be in writing and shall be deemed effective (i) when delivered, if personally delivered to the person being served or to an officer of a corporate party being served or official of a government agency being served, or (ii) three (3) business days after deposit in the mail if mailed by United States mail, postage paid certified, return receipt requested. Any party, or subsequent Owner or Occupant of all or any part of the Property, may provide or change its address by notice to the other party in the manner set forth above in this paragraph. The following addresses shall be effective as of the effective date of this Covenant.

Covenantor: TBG, Inc.
565 Fifth Avenue
New York, New York 10017
Attn: General Counsel

EPA: U.S. Environmental Protection Agency, Region IX
75 Hawthorne St.
San Francisco, CA 94105
Attn: Office of Regional Counsel, Hazardous Waste Branch (RC-3)

DTSC: Department of Toxic Substances Control
Region 2
700 Heinz Avenue, Suite 200
Berkeley, California 94710
Attn: Chief, Site Mitigation Branch

5.3 Partial Invalidity. If any portion of the Covenant is determined to be invalid for any reason, the remaining portion shall remain in full force and effect as if such portion had not been included herein.

5.4 Article Headings. Headings at the beginning of each article of this Covenant are solely for the convenience of the parties and are not a part of the Covenant.

5.5 Recordation. This instrument shall be executed by all Owners of the Property and by the Site Mitigation Branch Chief, California DTSC. This instrument shall be filed by the Covenantor for recording in the Official Records of the County of Sonoma, State of California within 10 days after the date Covenantor receives the instrument executed by DTSC. Covenantor shall provide DTSC a copy of the Covenant marked as received for recording by the County of Sonoma. Upon receipt of the Covenant marked as recorded, Covenantor shall provide a copy of such document to DTSC.

5.6 Effective Date. This Covenant shall be executed by Covenantor and provided to DTSC for signature, and the Covenant shall then be effective upon execution by DTSC. DTSC shall provide the fully executed Covenant to Covenantor for recording pursuant to paragraph 2.1 hereof.

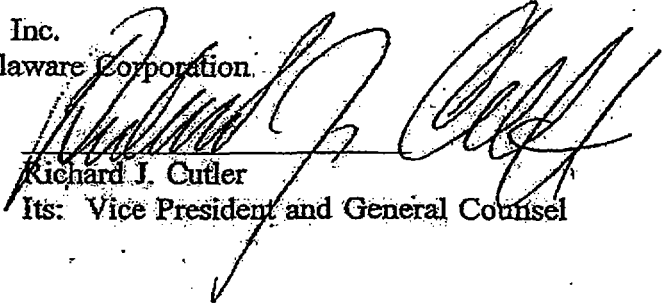
IN WITNESS WHEREOF, the parties execute this Covenant as of the date set forth below.

Date:

5-25-95

TBG, Inc.
A Delaware Corporation.

By:


Richard J. Cutler
Its: Vice President and General Counsel

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

Date:

By:

Barbara Cook
Chief, Site Mitigation Branch, Region 2

APPENDIX D

FIVE-YEAR REVIEW

FIRST FIVE-YEAR REVIEW REPORT

**FOR
MGM BRAKES
SUPERFUND SITE
CLOVERDALE, CALIFORNIA**

September 2003

**Prepared for
Contract No. 68-W-98-225/WA No. 171-FRFE-0946
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, California 94105**

Approved by:

Date:

**Joel Jones
Acting Chief, Federal Facilities Cleanup Branch
U.S. EPA, Region 9**

Original signed by Joel Jones on September 30, 2003

Table of Contents

Section	Page
Executive Summary	ES-1
1.0 Introduction	1
2.0 Site Chronology	2
3.0 Site Background	5
3.1 Physical Characteristics	5
3.2 Land and Resource Use	5
3.3 History of Contamination	5
3.4 Initial Response.....	6
3.5 Basis for Taking Action.....	7
4.0 Remedial Actions	8
4.1 Soil	8
4.1.1 Demolition Work.....	8
4.1.2 Excavation Work	9
4.1.3 Certificate of Completion for the Demolition and Excavation Work .	10
4.2 Groundwater.....	10
4.3 System Operation and Maintenance.....	11
5.0 Five-year Review Process	12
5.1 Document Review	12
5.2 Regulatory Review	12
5.3 Site Inspection.....	13
6.0 Technical Assessment	14
6.1 Functioning of the Remedy as Intended by Decision Documents	14
6.2 Current Validity of Assumptions Used During Remedy Selection	14
6.3 Recent Information Affecting the Remedy	14
7.0 Conclusions and Recommendations	16
7.1 Issues Identified and Recommended Follow-up Actions.....	16
8.0 Protectiveness Statements	17

List of Tables

Table 2-1: Chronology of Site Events	2
--	---

List of Figures

1	Site Location
2	Site Plan
3	Work Zones for Excavation Work
4	Locations of Groundwater Monitoring and Extraction Wells & Piezometers
5	Groundwater Elevation Contours
6	TCE Contours

Appendices

A	Documents Reviewed
B	Applicable or Relevant and Appropriate Requirements
C	Site Inspection Checklist
D	Photographs
E	Screening Level Ecological Risk Assessment
F	Copy of Figure 8 from the July 1, 1994 Proposed Final Prefinal Inspection Report for the Excavation Work prepared by Erler and Kalinowski, Inc.

List of Acronyms

CDFG	California Department of Fish and Game
CDM	Camp Dresser and McKee, Inc.
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
DOHS	Department of Health Services
EPA	Environmental Protection Agency
EKI	Erler & Kalinowski, Inc.
ESD	Explanation of Significant Differences
FS	Feasibility Study
GCA	GCA Technology, Inc.
HLA	Harding Lawson and Associates
IHII	Indian Head Industries, Inc.
KJ	Kennedy Jenks Engineers
K/J/C	Kennedy Jenks Chilton
MCL	maximum contaminant level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NCRWQCB	Northern Coast Regional Water Quality Control Board
PCB	polychlorinated biphenyls
ppb	parts per billion
ppm	parts per million
PRP	Potentially Responsible Party
RA	Remedial Action
RD	Remedial Design
ROD	Record of Decision
Site	MGM Brakes Superfund Site
SLERA	screening-level ecological risk assessment
SVOC	semivolatile organic compound
TBG	TBG Inc.
TCE	trichloroethylene
VOC	volatile organic compound

Five-year Review Summary Form

SITE IDENTIFICATION

Site name : MGM Brakes Superfund Site

EPA ID: 0946

CERCLIS ID #: CAD000074120

Region: IX State: CA City/County: Cloverdale/Sonoma

SITE STATUS

NPL status: Final Deleted Other (specify) _____

September 21, 1984

Remediation status (choose all that apply): Under Construction Operating Complete

Multiple OUs? YES NO Construction completion date: March 25, 1998

EPA certifies completion for demolition and excavation work.

Has Site been put into reuse? YES NO

REVIEW STATUS

Reviewing agency: EPA State Tribe Other Federal Agency _____

Author name: Janet Rosati

Author title: Remedial Project Manager Author affiliation: EPA Region IX

Review period: May - September 2003

Date(s) of Site inspection: June 13, 2003

Type of review: Statutory

Policy

(Post-SARA Pre-SARA NPL-Removal only

Non-NPL Remedial Action Site NPL State/Tribe-lead

Regional Discretion)

Review number: 1 (first) 2 (second) 3 (third) Other (specify)

Triggering action:

Actual RA Operation of Groundwater Previous Five-year Review Report

Remedial Systems

Construction Completion

Other (specify) Explanation of Significant Differences

Triggering action date: August 1995

Due date (five years after triggering action date): 2000

Issues / Recommendations and Follow-up Actions:

Continue to monitor groundwater for volatile organic compounds (VOCs) on a semi-annual basis as per the Final VOC Groundwater Monitoring Plan prepared by Erler & Kalinowski, Inc. on April 17, 1995. The next semi-annual groundwater monitoring event is scheduled for October 2003.

As noted during the June 2003 site inspection, the southern fence line is in disrepair and no sign is posted indicating that the property is a Superfund site. The fence will be repaired and a sign posted on the entry gate to the Site.

Protectiveness Statement:

The soil remedy at MGM Brakes Superfund Site is protective of human health and the environment since the exposure pathway for inhalation and ingestion has been removed due to a combination of excavation, offsite disposal and placement of clean fill material. Some PCB contaminated soil was left in place that contained less than 100 parts per million (ppm) of PCBs and was at least 15 feet below ground surface. A voluntary Covenant and Agreement was recorded with Sonoma County that restricts excavation of these portions of the property. The groundwater remedy, natural attenuation of VOCs, is expected to be protective upon completion by achieving levels at or below MCLs, and in the interim, exposure pathways that could result in unacceptable risks are being controlled. The 1995 ESD estimated that groundwater cleanup levels would be reached in seven years. Concentration of TCE in groundwater continue to decline and it is expected that cleanup goals will be reached within the next five years.

Executive Summary

The United States Environmental Protection Agency (EPA) completed this first five-year review of the remedial action at the MGM Brakes Superfund Site (the Site), located on the west side of Highway 101 at the south end of Cloverdale, California. This five-year review was required by statute because hazardous substances, pollutants, or contaminants remain at the Site above levels that allow unlimited use and unrestricted exposure. The five-year review was triggered by the August 1995 Explanation of Significant Differences (ESD). The five-year review process evaluates whether the remedial measures implemented at the Site are protective of human health and the environment.

The Site is located at the southwest corner of the intersection of Donovan Road and South Cloverdale Boulevard (formerly Highway 101) in Cloverdale, California. The MGM Brakes facility manufactured and cast aluminum brake components for large motor vehicles from 1965 to 1982. Wastewater containing polychlorinated biphenyls (PCBs) was discharged into a field south of the plant from 1965 until 1972. From 1972 until 1981, the company also discharged wastewater containing ethylene glycol on site. The ethylene glycol allowed PCBs already in the ground to travel rapidly over wide areas.

In 1981, the North Coast California Regional Water Quality Control Board (NCRWQCB) and the California Department of Fish and Game (CDFG) conducted an inspection and discovered oily soil containing PCBs resulting from the wastewater discharge. From 1983 to 1988, the owners of the MGM Brakes Casting Plant property, TBG, Inc. and Indian Head Industries, Inc. conducted the Remedial Investigation/Feasibility Study (RI/FS) under EPA and State oversight. Site investigations showed that the groundwater was contaminated with volatile organic compounds (VOCs). Chemicals of concern in groundwater included benzene, chlorobenzene, cis-1,2-dichloroethylene (cis-1,2-DCE), 1,4-dichlorobenzene (1,4-DCB), 1,1-dichloroethylene (1,1-DCE), 1,1,1-trichloroethane (1,1,1-TCA), trichloroethylene (TCE), and vinyl chloride.

The September 1988 ROD selected excavation and off-site disposal of PCB contaminated soils above 10 parts per million (ppm), demolition of the casting plant and decontamination of PCB contaminated equipment and materials. The groundwater remedy included activities to locate the source of VOCs, installation of additional wells to evaluate the extent of VOC contamination and groundwater monitoring. The ROD provided for development and implementation of additional remedial measures, if warranted, to ensure that groundwater was restored to Safe Drinking Water Standards, known as Maximum Contaminant Levels (MCLs), or a 10^{-6} risk level. In May 1990, a Remedial Design/Remedial Action (RD/RA) Consent Decree was entered into by EPA and the Site owners, TBG, Inc. and Indian Head Industries, Inc.

An Explanation of Significant Differences (ESD) was issued in August 1995, stating that soil containing less than 100 ppm of PCBs and located at least 15 feet below ground surface would be left in place due to impracticability of removal. A Voluntary Covenant and Agreement to restrict land use on the Site was recorded in July 1995. The ESD also identified natural attenuation as the groundwater cleanup option.

The remedies selected in the ROD and the ESD have been implemented, including the scope of work for remedial design and remedial action described in the 1990 Consent Decree.

Ongoing activities relating to the groundwater remedy include semi-annual groundwater monitoring for VOCs. The objective of the groundwater sample collection is to monitor the dissipation (through natural attenuation) and position of the VOC plume until analyses from six consecutive sampling events indicate that the concentrations of VOCs in groundwater have achieved the MCLs as specified in the Consent Decree.

1.0 Introduction

The United States Environmental Protection Agency (EPA) has conducted the first five-year review of the remedial action implemented at the MGM Brakes Superfund Site (also referred to as "MGM Brakes" or "the Site") located at the south end of Cloverdale, California, west of Highway 70. CH2M HILL was contracted under EPA Region IX's Response Action Contract to prepare this report, which documents the results of the five-year review.

The five-year review process evaluates whether the remedial measures implemented at the Site are protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports. In addition, five-year review reports identify any deficiencies found during the review and provide recommendations for addressing these deficiencies.

By statute, EPA must implement five-year reviews consistent with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA Section 121(c), as amended, states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the Site, the President shall review such remedial action no less often than each 5 years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.

The NCP part 300.430(f)(4)(ii) of the Code of Federal Regulations (CFR) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the Site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

Consequently, this five-year review was performed because hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unrestricted use and unlimited exposure.

This is the first five-year review for the MGM Brakes Site. The August 1995 ESD triggered the statutory review.

2.0 Site Chronology

Table 2-1 provides a chronology of events at the Site.

Table 2-1: Chronology of Site Events

Date	Event
August 1981	NCRWQCB and CDFG inspect MGM Brakes facility and note presence of oil-stained soil.
September 1981	IT Corporation reports that oily soils contain PCBs.
November 1981	Harding Lawson and Associates (HLA) is contracted by the Potentially Responsible Parties (PRPs) to investigate the extent of PCB soil contamination on the site.
November 1981	HLA prepares a proposed sampling program in accordance with NCRWQCB cleanup and abatement order No. 81-216.
November 1981-June 1983	HLA collects soil, surface water, and groundwater samples at MGM Brakes Site and the surrounding property. Kennedy Jenks Engineers (KJ) is contracted by PRPs to collect additional samples.
April 1982	HLA performs a seismic refraction study and submits a Remedial Action Plan.
June 1982	NCRWQCB and California Department of Health Services (DOHS) reviews HLA Remedial Action Plan and submits comments.
September 1982	In response to NCRWQCB and DOHS comments on the Remedial Action Plan, HLA performs additional sampling and submits a Revised Remedial Action Plan to the NCRWQCB and DOHS.
July 1983	In response to additional sampling requests by DOHS and NCRWQCB to determine the full extent of PCB contamination and to further characterize the subsurface geology and hydrology, HLA resubmits the Revised Remedial Action Plan on July 15.
October 1983	Kennedy Jenks (KJ) prepares draft report: <i>On-site Remedial Action</i> .
December 1983	KJ collects additional groundwater samples.
May-October 1984	KJ collects additional groundwater samples.
June 1984	Kennedy Jenks Chilton (K/J/C) prepares draft feasibility study (FS) based on previous investigations and submits it to DOHS and EPA.
October 1984	EPA and DOHS provide comments on K/J/C draft FS and request that the FS be revised to comply with minimum requirements.
November 1984	PRPs decline to prepare revised FS.
1985	EPA contracts GCA Technology, Inc. (GCA) to prepare an endangerment assessment and FS.
September 1986	GCA FS is released for public comment.
September-November 1986	Public comment period on proposed cleanup plan.

Table 2-1: Chronology of Site Events

Date	Event
1987	EPA contracts Camp Dresser & McKee Inc. (CDM) to revise the GCA FS to meet new requirements of the Superfund Amendments and Reauthorization Act (SARA) and to address adverse public comments received on the 1986 proposed cleanup plan.
1987-1988	To complete the database established by the first FS and to evaluate trichloroethylene (TCE) contamination, CDM performs surface soil sampling, groundwater sampling, and split sampling with the PRP consultants. CDM also reviews PRP consultants' PCB air monitoring efforts and treatability study programs.
June 1987	K/J/C and International Waste Technologies conduct bench-scale fixation test of MGM Brakes' contaminated soil.
September-December 1987	K/J/C and Galson Research conduct laboratory-scale testing of PCB dechlorination using an alkaline polyethylene glycol mixture.
April 1988	Revised FS issued.
May 1988	Proposed Plan issued.
May-June 1988	Public comment period on revised FS and Proposed Plan.
September 1988	Record of Decision (ROD) for cleanup of soil and groundwater is issued for the Site.
May 1990	Consent Decree for remedial design/remedial action (RD/RA) entered by the district court with TBG, Inc. (TBG) and Indian Head Industries, Inc. (IHII) agreeing to conduct the work.
March 1991	TBG and IHII conduct further investigation and characterization of soil and groundwater contamination.
July-November 1991	Installation and sampling of additional groundwater monitoring wells.
October 1991	Sampling and classification of equipment remaining inside the casting plant building in order to prepare for demolition.
December 1991-January 1992	Dismantling and equipment removal from the casting plant building for final disposal.
April 1992	Casting plant building demolition begins.
September 1992	Prefinal Inspection of casting plant building demolition conducted.
November 1992	TBG and IHII submit <i>Draft Prefinal Inspection Report</i> for building demolition work to EPA.
February 1993	Soil excavation work begins.
January 1994	Prefinal inspection of soil excavation conducted.
July 1994	TBG and IHII submit proposed <i>Final Prefinal Inspection Report</i> for the excavation work to EPA.
October 1994	TBG and IHII submit <i>Final Prefinal Inspection Report</i> for excavation work to EPA.

Table 2-1: Chronology of Site Events

Date	Event
April 1995	<i>Final VOC Groundwater Monitoring Plan</i> prepared by Erler & Kalinowski, Inc. (EKI) and submitted by TBG and IHII to EPA.
July 1995	Recording of voluntary covenant and agreement to restrict use of MGM Brakes property.
August 1995	Explanation of Significant Differences (ESD) modifying the 1988 ROD by leaving certain PCB-contaminated soils in place, imposing land-use restrictions, and identifying natural attenuation as groundwater cleanup option.
Late 1994-Early 1995	EPA samples surface water runoff from Site to ensure that there is no surficial migration of contamination.
Rainy seasons from 1994 to 1997	Surface water sampling conducted by EKI for TBG and IHII.
September 1994-March 1998	Quarterly groundwater monitoring of on- and off-site wells.
September 1997	TBG and IHII submit <i>Draft Final Monitoring Report for the Excavation Work</i> to EPA.
March 1998	EPA issues certificate of completion for demolition and excavation work.
March 1998	EPA agrees to amend the 1995 Final VOC Groundwater Monitoring Plan to terminate analysis of pesticides and semivolatile organic compounds (SVOCs), to no longer require sampling at Well B-74, and to reduce sampling frequency from quarterly to semi-annual.
March 1998-present	Semi-annual groundwater monitoring of on- and off-site wells.
August 1999	EPA agrees to allow for termination of analysis for PCBs in groundwater.
July 2000	Monitoring well B-74 plugged and abandoned.
June 2003	EPA conducts site inspection for five-year review.

3.0 Site Background

3.1 Physical Characteristics

The MGM Brakes Superfund Site is an approximately 5-acre area located in Sonoma County, in the southern portion of the city of Cloverdale, California. Cloverdale is located in the Alexander Valley approximately 80 miles north of San Francisco. The Site is located at the southwest corner of the intersection of Donovan Road and South Cloverdale Boulevard (former Highway 101), as shown in Figure 1. Cloverdale is an agricultural community of approximately 4,500 residents (USEPA, 1986). The Site is located less than one mile west of the Russian River but is not within the 100-year flood zone. The site is essentially flat, and the only features that currently remain are a fence surrounding the former casting plant and asphalt pavement located in the northeast corner. Adjacent property consists mainly of residential houses and office buildings, as shown on Figures 2 and 3.

3.2 Land and Resource Use

Prior to 1961, 22 acres of land including the five acres which comprise the MGM Brakes Site was an Indian reservation. From 1962 until operations ceased in 1982, the MGM Brakes facility manufactured and cast aluminum brake components for large motor vehicles. The facility consisted of a casting plant building, seven above ground tanks, a cooling tower, and a storage shed.

All buildings and related appurtenances have been removed from the site as part of the remedial action. A Voluntary Covenant and Agreement was recorded in Sonoma County on July 12, 1995 to restrict use of those portions of the Site where contaminated soil was left in place. The Site is fenced with the exception of the southeast corner due to new construction on the adjacent property. The Site is currently vacant and available for sale.

The water bearing unit underlying the Site is not used as a public drinking water source. The South Cloverdale Water Company provides drinking water from two wells located $\frac{1}{2}$ to $\frac{3}{4}$ miles upgradient and to the east of the Site. These wells are screened in a deeper water bearing unit. The drinking water from these wells is treated by chlorination and serves approximately 40 homes near the Site. No downgradient water supply wells have been identified.

According to site-specific groundwater investigations the dominant groundwater flow direction is to the south-southeast. The hydraulic gradient in this direction, measured by slug testing, is about 0.014 foot per foot during winter and about 0.012 foot per foot during summer (HLA, 1982). Surface drainage from the Site flows south-southeast along a ditch paralleling South Cloverdale Boulevard toward the nearest surface water body, Icaria Creek, which ultimately flows into the Russian River. The Russian River is approximately 1 mile east of the Site.

3.3 History of Contamination

From 1962 until operations ceased in 1982, the MGM Brakes facility manufactured and cast aluminum brake components for large motor vehicles. From 1965 to 1972 hydraulic fluids

containing PCBs were used in the casting machines. These hydraulic fluids leaked from the casting machines in the normal course of plant operations and were then collected, together with water used to cool the dies between castings, in floor drains. Following gravity separation of oils and grease, the wastewater containing PCBs was discharged, via a drain line, to the ground adjacent to the casting plant. The use of hydraulic fluid containing PCBs was gradually discontinued in 1973, but wastewater containing ethylene glycol (the hydraulic fluid later used in the casting machines) continued to be discharged in the same manner until 1981. The practice of discharging wastewater onto the vacant fields surrounding (mostly to the south) of the casting plant building is believed to be the main cause of contamination at the Site.

On August 11, 1981, the NCRWQCB and the CDFG conducted a site inspection in response to a citizen complaint. During the inspection they noted the presence of oily soil. In response to these observations, MGM Brakes personnel dug up the soil and stockpiled it on the Site. MGM then hired IT Corporation to dispose of the soil. Prior to disposal, IT sampled the waste and found that it contained PCBs. In response to these findings, Harding Lawson and Associates (HLA) conducted additional studies from 1981 to 1983. PCB contamination was detected in surface water runoff, surface and subsurface soil, and inside the casting plant building. Although groundwater was also tested at that time, PCBs were not detected (HLA, 1983). In 1986, volatile organic compounds (VOCs) were detected in the groundwater at the southeast property boundary and on portions of adjacent properties to the south and southeast of the Site. These VOCs are listed in Section 3.5.

3.4 Initial Response

In November 1981, the State issued Cleanup and Abatement Order No. 81-216 which required MGM Brakes to cease discharge of contaminated wastewater and remove oily soil from the Site. In the fall of 1981, the stockpiled soil was transported to the Casmalia hazardous waste disposal facility in Santa Barbara County. In addition, the order required submittal and implementation of a remedial action plan and monitoring groundwater for the presence of PCBs (HLA, 1983). Soil, surface water and groundwater were collected, and a seismic refraction study was completed by Harding Lawson and Associates (HLA) in 1982. A remedial action plan was submitted to the State in April 1982. In response to State comments, subsequent actions to support the development of the remedial action plan included groundwater monitoring, collection of soil samples, installation of surface water runoff collection systems, initiation of a study to determine whether the spread of PCB contamination was caused by presence of solvents in soil, and cleanup of the MGM Brakes casting plant interior.

The Site was proposed for the National Priorities List (NPL) on December 30, 1982, and finalized on the NPL in September 1983. At that time, EPA assumed lead responsibility for oversight of Site investigation and cleanup activities.

EPA conducted limited field investigation during the course of evaluating remedial alternatives. The original EPA Feasibility Study (FS) was initiated during 1985 and released in 1986. The first FS identified incineration as the Agency's preferred alternative. Due to strong opposition to incineration as well as other comments submitted during the public comment period, EPA decided to prepare a revised FS. In May of 1988, EPA released the revised FS which evaluated a list of alternatives including capping, excavation and on-site

fixation, in-situ fixation, on-site incineration, and excavation and off-site disposal. The preferred remedy announced in the May 1988 Proposed Plan was excavation and off-site disposal. A 35-day public comment period followed in which no adverse comments were received.

3.5 Basis for Taking Action

The basis for taking action at the MGM Brakes Site was the releases of hazardous substances into the environment and the fact that the Site posed, or potentially posed, a threat to human health and the environment via inhalation, ingestion, and direct contact. Surface and subsurface soils contained PCBs, a probable human carcinogen, at concentrations up to 4,800 ppm. The concrete slab of the casting plant was contaminated with concentrations of PCBs up to 5,400 ppm. These values far exceeded the 10 ppm level that EPA established in 1988 as the national cleanup level for PCBs in residential soils.

VOCs were first detected in groundwater in 1986 with concentrations ranging from less than 0.5 to 190 parts per billion (ppb). The detected VOCs were benzene, chlorobenzene, cis-1,2-DCE, 1,4-DCB, 1,1-DCE, 1,1,1-TCA, TCE, and vinyl chloride. DCE and TCE are probable human carcinogens. Vinyl chloride and benzene are known human carcinogens. The benzene, TCE and vinyl chloride exceeded their respective MCLs at the time of the 1988 ROD. When the 1995 ESD was published, TCE was the only contaminant that continued to exceed MCLs.

4.0 Remedial Actions

The following sections summarize the remedial actions selected, remedy implementation and operation and maintenance of remedial systems.

The ROD for the Site was signed on September 29, 1988. The selected remedy addressed soil and groundwater as one sitewide operable unit. The soil remedy portion was addressed in two separate parcels, as follows:

- Parcel 1: PCB-contaminated soil exclusive of that beneath the MGM Brakes processing building (casting plant) and corresponding concrete slab.
- Parcel 2: Contaminated soil and concrete beneath the casting plant building.
- Groundwater up to the Site boundary. Site boundary is defined as wherever groundwater contamination has come to be located.

As stated in the ROD, the selected remedies were intended to reduce the present and future on-site risk to human health and the environment to a 1×10^{-5} (1 in 100,000) cancer risk and provide unrestricted future use of the property. This was to be achieved by removing and disposing off-site all soil exceeding a PCB concentration of 10 ppm. The ROD also included further investigation of the VOC-contaminated groundwater and restoration of groundwater up to the Site boundary to appropriate MCLs (EPA, 1988).

The 1995 ESD slightly altered the soil remedy to allow for some PCB contamination less than 100 ppm and at least 15 feet below ground surface to remain onsite and to impose land-use restrictions for those contaminated soil areas. A Voluntary Covenant and Agreement to restrict land use was recorded in Sonoma County on July 12, 1995. The ESD selected natural attenuation as the groundwater remedy and defined the leading edge of the groundwater plume as the Point of Compliance (POC). The POC was to be used to ensure that contaminants did not move beyond the boundary line (the POC) at concentration levels greater than MCLs. (EPA, 1995a).

In a May 1990 Consent Decree (CD) entered into with EPA, the Settling Defendants, TBG Inc., and Indian Head Industries, Inc., agreed to perform the remedial design/remedial action and pay past costs for cleaning up the Site. The Remedial Design was conducted in conformance with the ROD as modified by the ESD.

4.1 Soil

The following section outlines remedial actions implemented in compliance with the ROD, Consent Decree, and ESD pertaining to contaminated soils in Parcels 1 and 2. The soil remedial activity was divided into two parts: demolition work and excavation work.

4.1.1 Demolition Work

In order to access the contaminated soil and concrete beneath the casting plant building and other structures (Parcel 2), it was determined that building demolition must be performed.

The casting plant building was comprised of two adjoining structures: one structure consisting of wood and concrete and one structure consisting of steel columns and beams

with sheet metal siding with internal metal partitions. Both structures had cast-in-place concrete flooring. Floor removal was not part of the demolition work. The other on-site structures included seven aboveground tanks, a cooling tower, and a storage shed.

Demolition work began with the wood and concrete structure in April 1992. To comply with health and safety requirements, both dust control measures and air sampling and analyses were used during the process. Any piles of debris created were covered with visqueen and anchored with cinder blocks at the end of each day. The air sampling included both personal and perimeter monitoring. Demolition of the metal structure was completed in May 1992. The building debris was sampled for PCBs, found to be hazardous and subsequently shipped off site to Kettleman Hills Class I Landfill.

All demolition equipment, such as front-end loader, Bobcat, etc. was decontaminated with high-pressure hoses. The decontamination water was collected at a decontamination pad site and placed in 55-gallon drums using a vacuum. This water was transported to an offsite disposal facility.

Some fluids were generated while conducting the demolition work including contents of the five aboveground tanks and the cooling tower, as well as decontamination water. All were sampled and analyzed prior to discharge, off-site disposal or treatment.

In September 1992, the concrete pad comprising the floor of the casting plant building and the drainage trenches were covered with a temporary cap of asphalt emulsion. The demolition work was completed in the Fall of 1992.

4.1.2 Excavation Work

The excavation work was performed to remove and dispose PCB-contaminated soil from both Parcel 1 and Parcel 2 at the Site. The surface soil excavation area was defined by site characterization/investigation data collected previously. The excavation was implemented by removing and stockpiling onsite surface soil (defined as the top 10 inches) that exceeded 1 ppm PCB. The surface soils beyond the bounds of the excavation were then sampled. Any surface soil that exceeded the 1 ppm PCB goal was also excavated and stockpiled. The subsurface soil (greater than 10 inches below ground surface) was sampled and where the 10 ppm PCB goal was exceeded, an additional two feet of soil was removed and the area was resampled. The maximum excavation depth was 29 feet. The stockpiled surface soil was placed in the excavation prior to backfilling the area with clean imported fill material. The work began with demolition and excavation of the concrete building pad on June 9, 1993. To comply with health and safety requirements, both dust control measures and air sampling and analyses were used during the process. Dust control measures consisted of spraying the areas of excavation as needed using a water truck, spray hoses, and sprinklers. All concrete was hauled off-site on the day it was excavated.

There were several below-grade structures that were removed as part of this excavation work. These included a small underground metal tank, two concrete sumps, three concrete pipes, and other associated underground piping.

Prior to excavating the soils, it was necessary to lower the water table in the area of deep excavation (i.e., where the highest levels of PCBs were found at lower depths below ground surface). Twenty-seven extraction wells were installed to pump groundwater to an on-site

treatment plant using granular-activated carbon as the treatment media (see Figure 4). The dewatering began in April 1993 and was discontinued in October 1993. The local water table was lowered to approximately 30 feet below ground surface. While the dewatering was ongoing, excavation of soil and concrete started in June 1993. Excavation would occasionally stop while verification sampling and backfilling with clean soil took place.

While conducting the excavation work (more than 900 grid squares were identified for excavation), some bedrock was encountered that required modification of the 1988 ROD. Due to difficulty excavating bedrock, TBG and IHII proposed to leave bedrock in place if it: (1) contained less than 100 ppm of PCBs and (2) was at least 15 feet below ground surface. The result of this action was that in 11 grid squares (12.5 feet by 12.5 feet) the remedial goal for PCB was not met. These grid locations are noted in the voluntary covenant that documents the restricted use of the property. The grids (sample locations) can be found in Figure 8 of the *Proposed Final Prefinal Inspection Report for the Excavation Work* dated July 1, 1994 prepared by Erler & Kalinowski, Inc. A copy of this figure is in Appendix F of this report.

Excavated soil containing greater than 10 ppm PCB and debris were daily removed from the Site and disposed of at facilities appropriate to the material. The extraction wells were abandoned in accordance with applicable regulatory requirements. All excavation field work was completed by June 1994.

4.1.3 Certificate of Completion for the Demolition and Excavation Work

Complete documentation of all work related to both demolition and excavation was provided to EPA by TBG and IHII, through their contractor Erler and Kalinowski, Inc. (EKT) in a letter dated January 30, 1998. The key reference documents that satisfy the remedial action for soils are:

- *Equipment Disposal Final Report*, November 22, 1992
- *Draft Prefinal Inspection Report, Building Demolition Work*, November 30, 1992
- *Proposed Final Prefinal Inspection Report for the Excavation Work*, July 1, 1994
- *Draft Prefinal Inspection Report No. 2 for the Excavation Work*, September 12, 1994
- *Draft Final Monitoring Report for the Excavation Work*, September 3, 1997

In March 1998, the EPA provided a Certificate of Completion for the demolition and excavation work, which documents EPA's concurrence that all portions of the remedial action for soil were completed in accordance with the ROD and the Consent Decree.

4.2 Groundwater

The following section outlines groundwater remedial actions implemented in accordance with the ROD and ESD.

The 1988 ROD specified that groundwater cleanup would achieve concentrations at or below maximum contaminant levels (MCLs) or other health-based standards, as well as a 10^{-6} risk level to the site boundary. The remedy included activities to locate the source of VOCs, installation of additional wells to evaluate the extent of VOC contamination and groundwater monitoring. The ROD provided for development and implementation of

additional remedial measures, if warranted, to ensure that groundwater was restored to MCLs.

The August 1995 ESD selected natural attenuation as the groundwater remedy and defined a Point of Compliance (POC). The POC was to be used to ensure that contaminants did not move beyond the boundary line (the POC) at concentration levels greater than MCLs (EPA 1995a).

The initial remedial action for groundwater was quarterly monitoring for VOCs and annual monitoring for semivolatile organic compounds (SVOCs) and PCBs in 12 wells. VOCs, PCBs, and SVOCs were analyzed according to EPA Methods 8010 and 8020, EPA Method 8080, and EPA Method 8270, respectively. These requirements were based on the April 1995 VOC monitoring plan. Currently, the requirements for monitoring are substantially reduced based upon submittals made to EPA by EKI, on behalf of TBG and IHII.

Over time, EPA has allowed for:

- Discontinuing analysis of SVOCs and PCBs due to sustained results which are less than the detection limit for these parameters.
- Termination of sampling upgradient well B-74 (groundwater elevation levels continued to be measured until it was plugged and abandoned on December 1, 2001). Figure 5 depicts all of the well locations.
- Reduction of sampling frequency from quarterly to semi-annually (April and October of each year).

The modified groundwater monitoring requirements are:

- Semi-annual monitoring for VOCs using EPA Method 8260 in 11 wells.

This groundwater monitoring will continue until such time that MCLs for each constituent are reached at all sampling points within the contamination plume and at the point of compliance (Site boundary line). TCE is the only VOC that still exceeds its MCL of 5 ppb.

4.3 System Operation and Maintenance

Annual Operation and Maintenance (O&M) costs are approximately \$21,000 per year. Costs include groundwater monitoring well sampling, analysis, data validation and reporting.

5.0 Five-year Review Process

The MGM Brakes five-year review was led by Janet Rosati, the EPA Remedial Project Manager for the Site. EPA received technical support from CH2M HILL.

The five-year review consisted of a review of relevant documents (Appendix A) and a regulatory review (Appendix B). A Site inspection was performed on June 13, 2003. The inspection checklist is found in Appendix C and photographs from the inspection are presented as Appendix D. It was determined that interviews were not needed as part of this review. As part of this Five-Year review, a screening-level ecological risk assessment (SLERA) was prepared. The SLERA was conducted to determine if there were any remaining risks to the environment posed by past and present activities at this Site (Appendix E).

Following the release of this document, EPA will produce and distribute a fact sheet to the community near the site. The fact sheet will summarize the findings of the five-year review and instructions on how to access a copy of the review.

5.1 Document Review

As a part of the five-year review process, CH2M HILL conducted a brief review of numerous documents related to Site activities. The documents chosen for review primarily focused on actions that have occurred during the past 5 years but ranged in publication date from 1988 to the present. Appendix A provides a list of the reviewed documents.

5.2 Regulatory Review

This section provides a review of applicable or relevant and appropriate requirements (ARARs) and other standards to be considered (TBCs) for the selected remedy at the MGM Brakes Superfund Site. "Applicable" requirements are standards and other substantive environmental protection requirements promulgated under federal and state law that specifically address a circumstance at a CERCLA site, such as a hazardous substance, pollutant, contaminant, remedial action, or location. "Applicability" implies that circumstances at the site satisfy all jurisdictional prerequisites of a requirement. "Relevant and appropriate" requirements are standards and other substantive environmental protection requirements promulgated under federal or state law that address situations sufficiently similar to a CERCLA site to be of use. "Relevance" implies that the requirement regulates or addresses situations sufficiently similar to those found at the MGM Brakes Site. "Appropriateness" implies that the circumstances of the release or threatened release are such that use of the standard is germane.

TBCs are non-promulgated federal or state advisories or guidelines that are not legally binding and do not have the status of ARARs. However, TBCs may play an important role in the development of site-specific cleanup standards.

The ARARs presented in the September 1988 ROD were reviewed for any changes, additions or deletions. An ESD issued in August 1995 was also reviewed to identify any changes to ARARs.

The comprehensive regulatory review of all ARARs is attached as Appendix B. The result of the review is that there are no significant changes that have occurred in the regulations since issuance of the ROD and ESD that would effect the protectiveness of the remedies.

5.3 Site Inspection

Representatives of EPA, EKI, and CH2M HILL participated in a site inspection on June 13, 2003. The inspection included a walk of the Site and surrounding properties, as well as gathering plants to be used in preparing the screening-level ecological risk assessment (SLERA). Also in support of the SLERA, the site inspection team observed animal habitats both on and around the Site. A summary of the inspection findings is presented below. The Site inspection checklist and photos are provided in Appendices C and D, respectively.

The Site is an open field surrounded by a fence. Asphalt pavement covers the northeastern corner of the Site, a remnant of the former parking lot and pad for the treatment plant constructed during remedial action activities. Drainage ditches that have been covered with asphalt border the northeastern fence lines. Along the southern fenceline it was noted that some of the fence was in disrepair allowing for access to the site by trespassers. There are no signs indicating that the Site is a Superfund site. The only sign posted is a "For Sale" sign.

A new office building and parking lot have recently been constructed within the parcel located to the south of the MGM Brakes property. Groundwater monitoring wells B-71-1, B-75 and B-76 are located on this property.

6.0 Technical Assessment

6.1 Functioning of the Remedy as Intended by Decision Documents

All soil remedial actions have been completed, as mandated in the ROD, ESD, and Consent Decree. The soil remedial action which consisted of demolition, excavation, and placement of clean fill was completed to the satisfaction of EPA as documented in the March 25, 1998 Certificate of Completion. A total of eleven grid squares (12.5 feet by 12.5 feet) of contaminated soil that contained less than 100 ppm of PCBs and was at least fifteen feet below ground surface was left in place. A voluntary Covenant and Agreement, recorded with Sonoma County, restricts excavation of these portions of the property.

The requirement for semi-annual monitoring for VOCs continues in eleven wells. TCE continues to be detected above the MCL in two wells. Reporting for the semi-annual (conducted every April and October) groundwater monitoring continues as specified per the revised Final VOC Groundwater Monitoring Plan (EKI, 1995).

6.2 Current Validity of Assumptions Used During Remedy Selection

The assumptions used to select and implement the remedy are generally unchanged for all areas contaminated with chemicals identified at the time of the 1988 ROD and the 1995 ESD. No standards have been changed that would effect the protectiveness of the remedy. No changes in exposure pathways have been identified.

6.3 Recent Information Affecting the Remedy

All remedial activities related to cleanup of soils were completed in 1994. EPA certified completion of soil remedial activities in 1998. Recent activity includes groundwater monitoring, which is required as part of the groundwater remedy, with the latest semi-annual sampling event being conducted in April 2003. The event included measurement of water levels and collection of groundwater samples and analysis for volatile organic compounds from eleven wells. A letter report summarizing the results of this most recent sampling event was submitted to the EPA and the California Regional Water Quality Control Board on June 10, 2003.

Prior to sampling wells B-31, B-45R, B-50, B-71-1, B-72-1, B-73, B-75, B-76, B-77A, B-77B and B-78 on April 1, 2003, water elevations in each well were measured. This data was used to prepare a groundwater elevation contour map, presented as Figure 5. Groundwater elevation contours indicate the direction of groundwater flow is generally to the southeast. It should be noted that water elevation data taken from well B-77B is not included in generating the groundwater elevation contours because it is screened in a deeper zone (bedrock) than all of the other wells.

Groundwater sampling took place on April 1 and 3, 2003 from all eleven wells. The samples were analyzed by Sequoia Analytical in Petaluma, California, for VOCs by EPA Method 8260 in accordance with the revised Final VOC Groundwater Monitoring Plan (EKI, 1995)

and any approved modifications. April 2003 groundwater sampling results were consistent with that of previous events. TCE was detected above the cleanup goal of 5 ppb in wells B-50 and B-73 in April 2003 and below the cleanup goal in all other wells. A TCE concentration contour map for April 2003 is presented in Figure 6. All other VOC constituents were either below their associated cleanup goal or were not detected in all of the wells.

The groundwater remedy of natural attenuation selected in the 1995 ESD requires monitoring to continue until levels are at or below the MCLs for six consecutive quarters, followed by annual monitoring showing levels at or below MCLs for five consecutive years within the established boundary line (point of compliance). The April 2003 sampling event results show that monitoring must continue since the MCL for TCE is exceeded in two of the wells. TCE was either below the detection limit or below MCL for all other wells.

The screening-level ecological risk assessment (SLERA) conducted as part of the five-year review process for this Site revealed that there is little or no potential risk to ecological receptors that are currently using the Site or may use the Site in the future. The comprehensive SLERA report is found in Appendix E.

7.0 Conclusions and Recommendations

The following sections summarize conclusions and recommendations from the five-year review. Where follow-up action is required, the follow-up action to be conducted and the proposed date for completion are discussed.

7.1 Issues Identified and Recommended Follow-up Actions

The MCL for TCE was exceeded in groundwater samples collected from wells B-50 and B-73 in April 2003. Therefore groundwater monitoring will need to continue as per the revised Final VOC Groundwater Monitoring Plan (EKI, 1995). The next semi-annual groundwater monitoring will take place in October 2003.

As noted during the June 2003 site inspection, the southern fence line is in disrepair and no sign is posted indicating that the property is a Superfund site. The fence will be repaired and a sign posted on the entry gate to the Site.

8.0 Protectiveness Statements

The soil remedy at MGM Brakes Superfund Site is protective of human health and the environment since the exposure pathway for inhalation and ingestion has been removed due to a combination of excavation, offsite disposal and placement of clean fill material. A total of eleven grid squares (12.5 feet by 12.5 feet) of contaminated soil that contained less than 100 ppm of PCBs and was at least fifteen feet below ground surface was left in place. A voluntary Covenant and Agreement, recorded with Sonoma County, restricts excavation of these portions of the property. The groundwater remedy, natural attenuation of VOCs, is expected to be protective upon completion by achieving levels at or below MCLs, and in the interim, exposure pathways that could result in unacceptable risks are being controlled. The 1995 ESD estimated that groundwater cleanup levels would be reached in seven years. Concentration of TCE in groundwater continue to decline and it is expected that cleanup goals will be reached within the next five years.

In order to insure the remedy continues to be protective of human health and the environment and is not compromised in any way, another review will be conducted within 5 years of the completion of this five-year review report, by 2008.

Figures

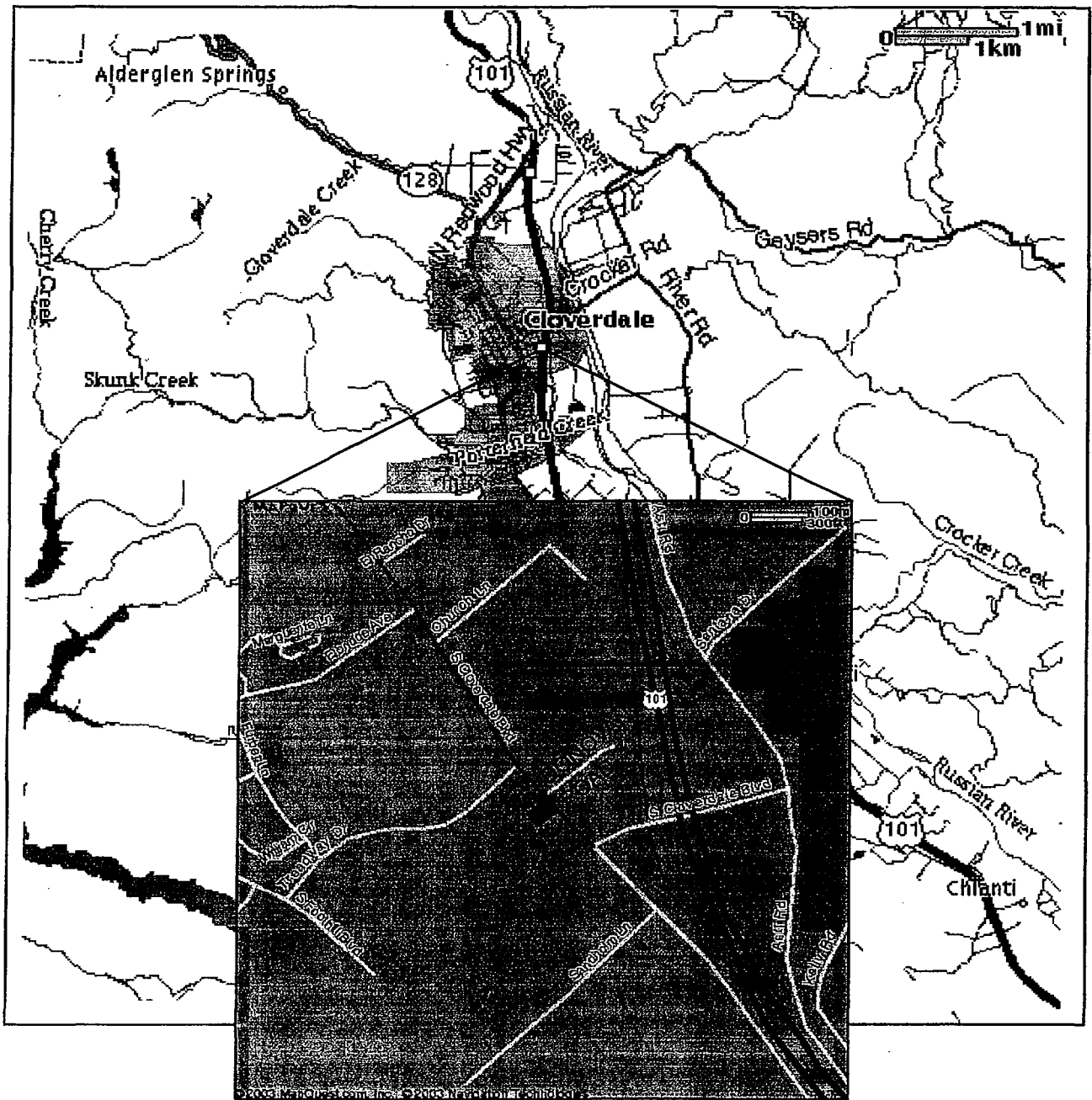
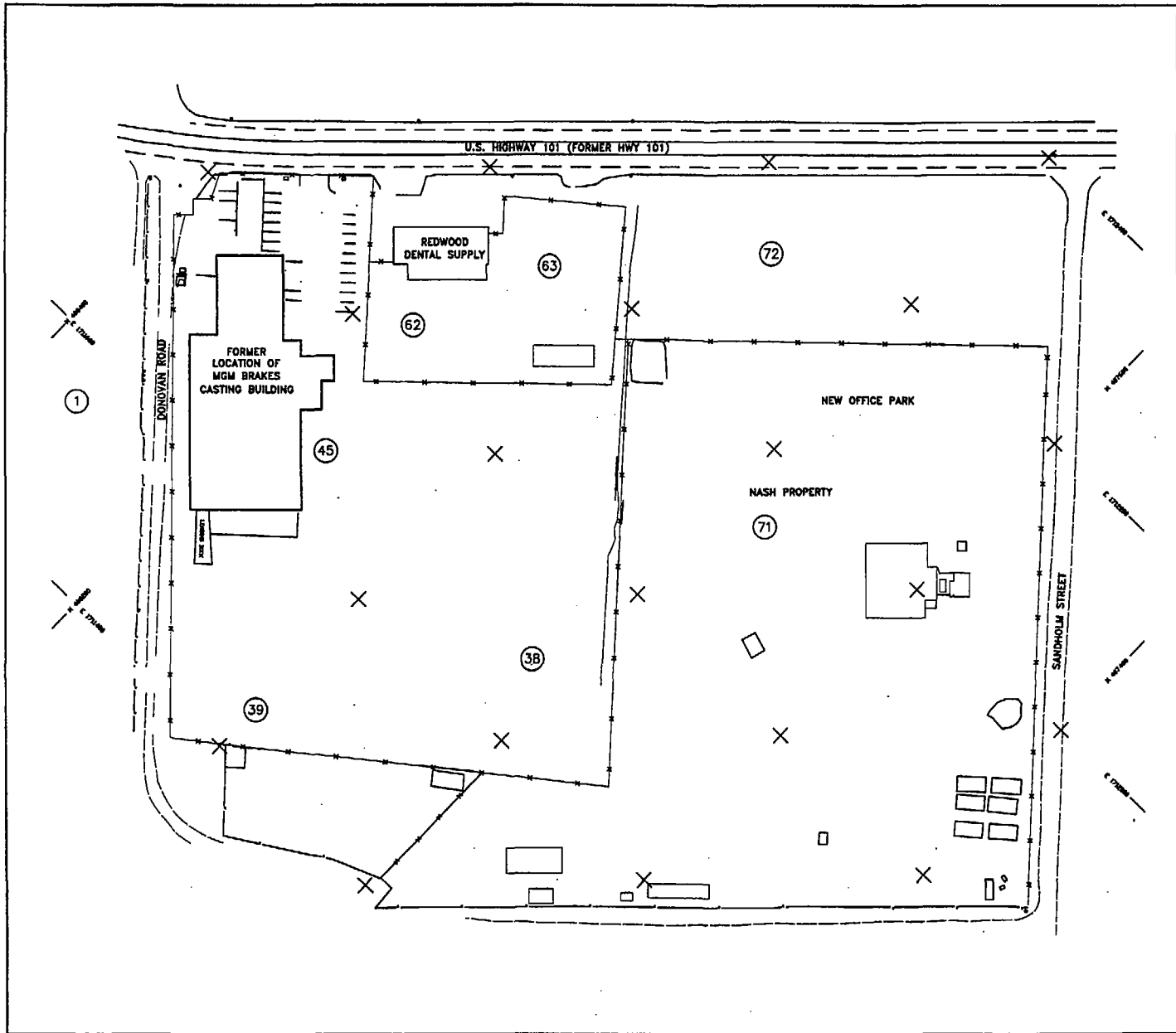


Figure 1 - Site Location
 MGM Brakes Superfund Site
 Cloverdale, California
 Five Year Review
 September 2003



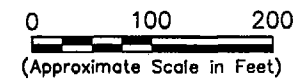
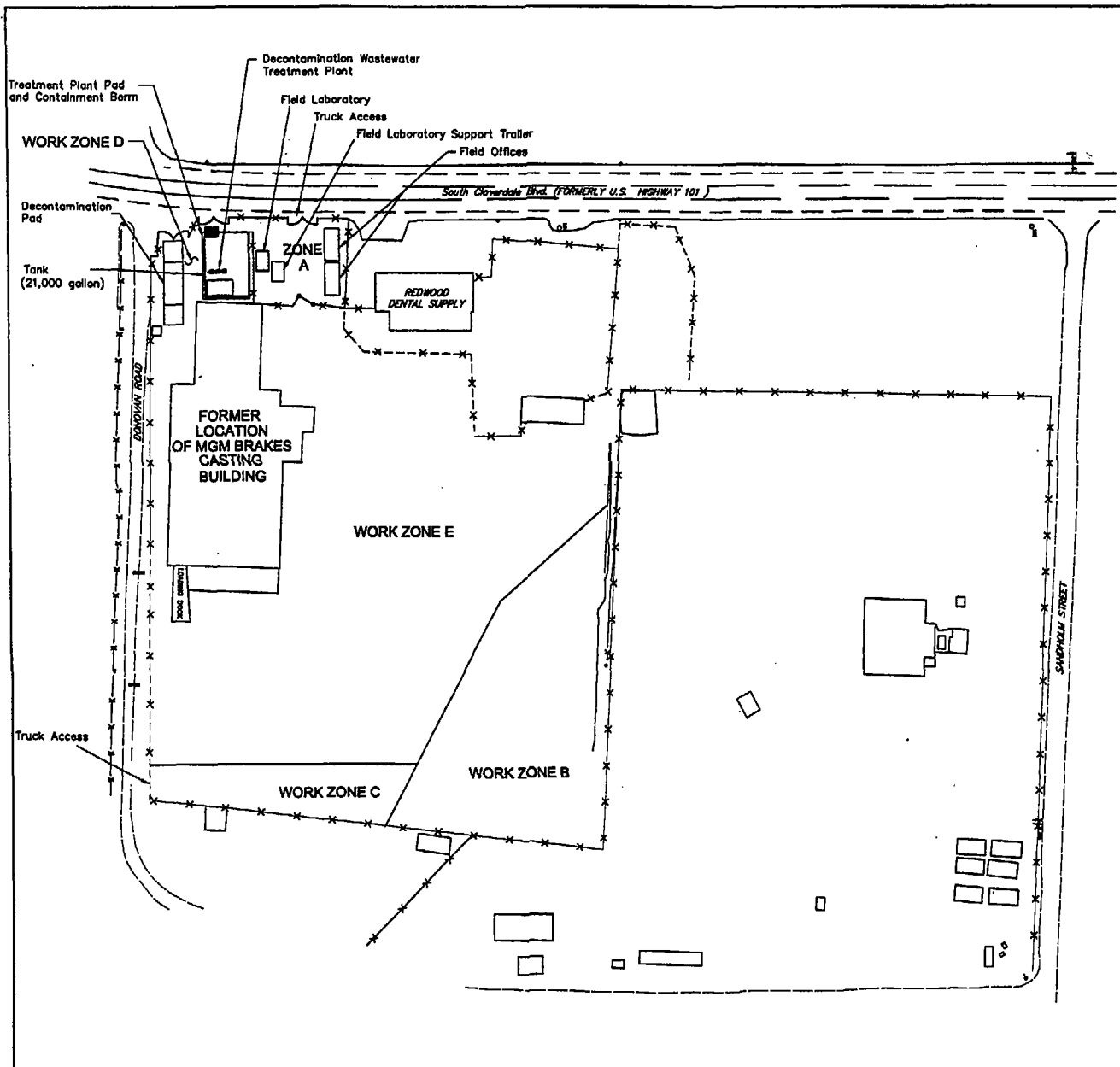
LEGEND

- Property line
- x-x- Fence
- (72) Assessor's Parcel Number

NOTES

1. All locations are approximate.
2. Base map provided by Canonie Environmental and Erier & Kallinowski, Inc.

Figure 2 - Site Plan
 MGM Brakes Superfund Site
 Cloverdale, California
 Five Year Review
 September 2003



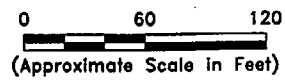
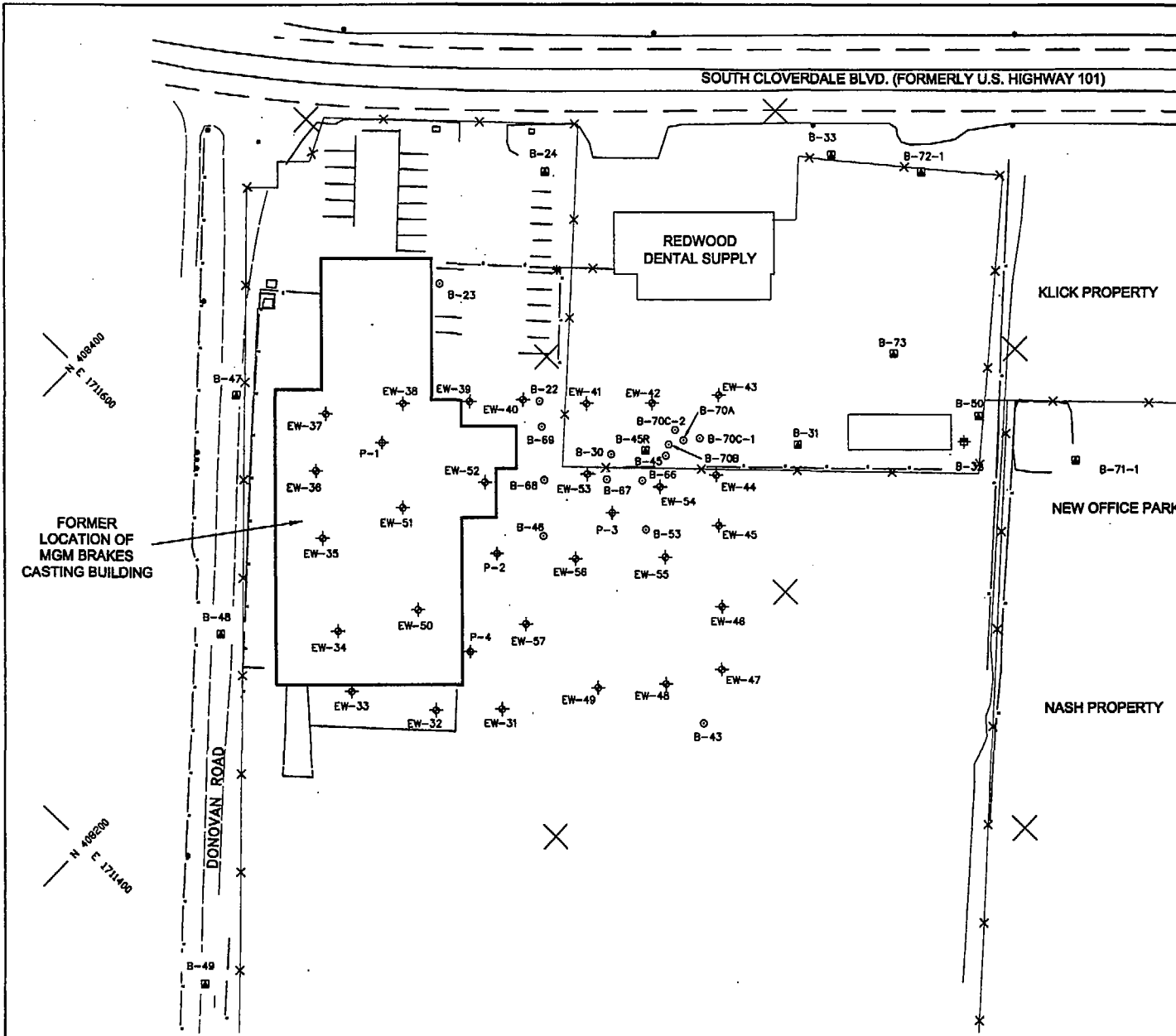
LEGEND

- x-x-x- Fence
- - - - - Movable Temporary Fence

NOTES

1. All locations are approximate.
2. Base map provided by Canonie Environmental and Erler & Kalinowski, Inc.

Figure 3 - Work Zones for Excavation Work
MGM Brakes Superfund Site
 Cloverdale, California
 Five Year Review
 September 2003



LEGEND

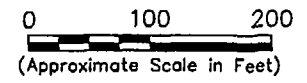
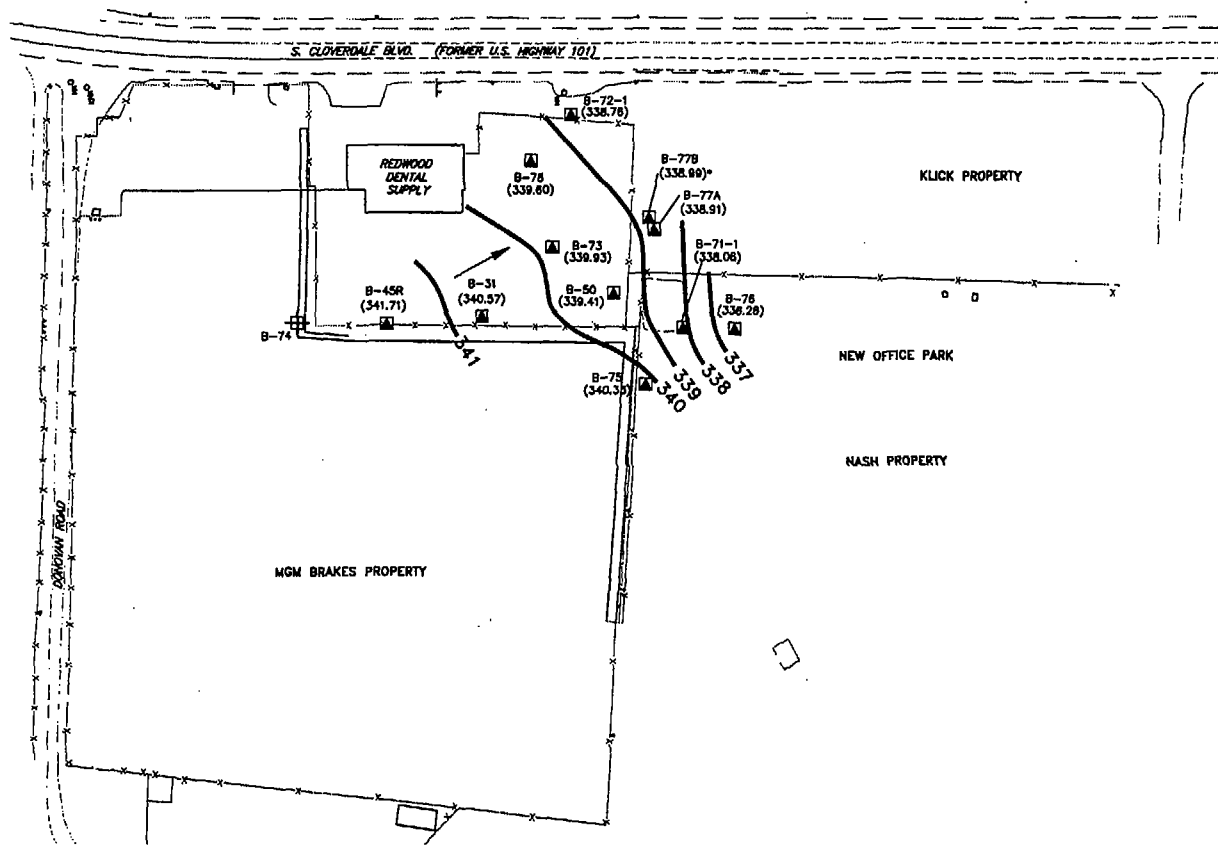
- Property line
- X — Fence
- Monitoring Well
- ⊕ Well abandoned prior to excavation work
- Well abandoned in accordance with the Approved Final Excavation Plans and Specifications. Abandonment completed in Spring 1994.
- ⊕ Groundwater Extraction Well
- ⊕ Piezometer

NOTES

1. All locations are approximate.
2. Base map provided by Canonic Environmental and Erier & Kalinowski, Inc.

**Figure 4 - Locations of Groundwater Monitoring and Extraction Wells & Piezometers
MGM Brakes Superfund Site
Cloverdale, California
Five Year Review
September 2003**





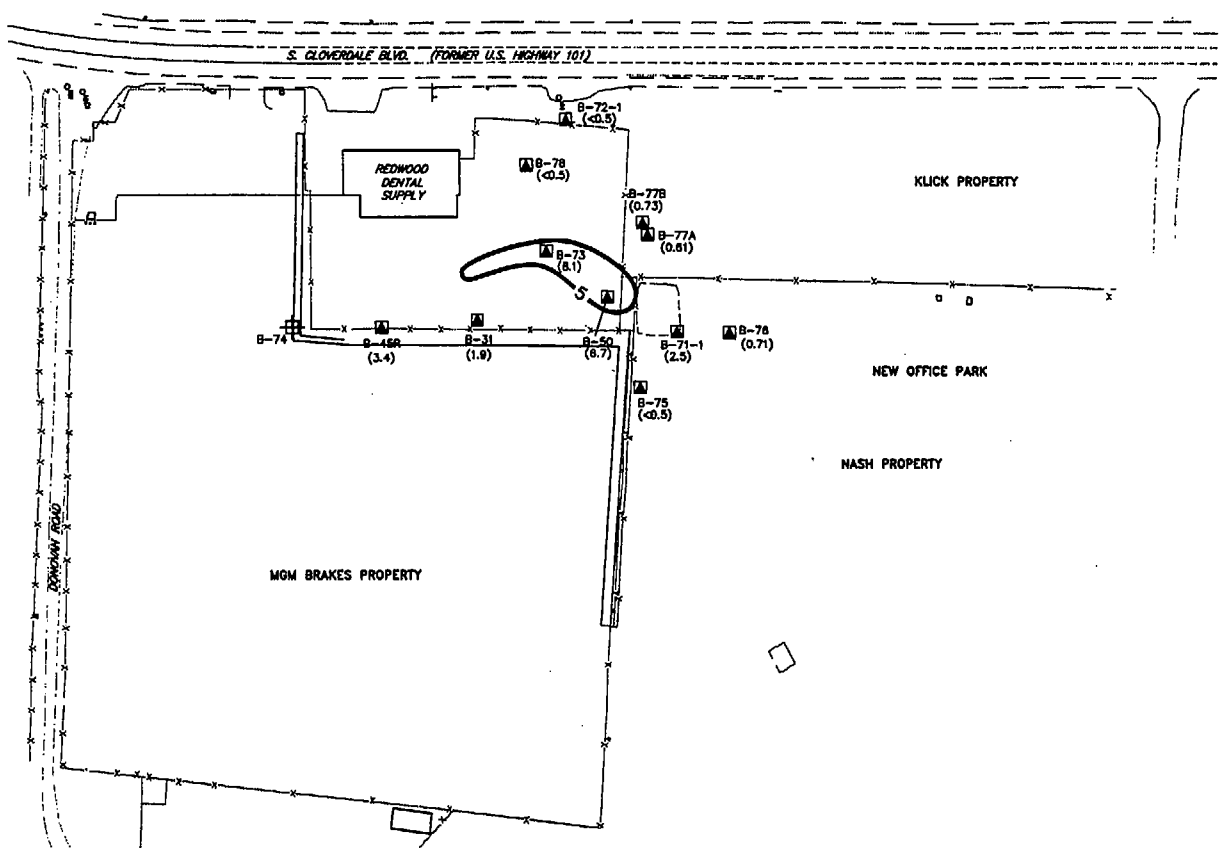
LEGEND

- Monitoring Well Location
- Destroyed Monitoring Well
- Fence
- Water Level in Feet Above Mean Sea Level
- 340 Groundwater Elevation Contour
- Groundwater Flow Direction

NOTES

1. All locations are approximate.
2. Base map provided by Canonie Environmental & Eler & Kallnowsk, Inc.
3. Groundwater elevations measured 1 April 2003.
4. * = not included in potentiometric surface map.

Figure 5 - Groundwater Elevation Contours
 MGM Brakes Superfund Site
 Cloverdale, California
 Five Year Review
 September 2003



LEGEND

- Monitoring Well Location
- ⊕ Destroyed Monitoring Well
- X-X- Fence
- 5- TCE Concentration Contour (ug/L)

NOTES

1. All locations are approximate.
2. Base map provided by Canonie Environmental and Erier & Kallnowski, Inc.
3. (20) TCE concentration in ug/L detected by Sequoia Analytical Laboratory in groundwater samples collected in April 2003.

Figure 6 - TCE Contours
 MGM Brakes Superfund Site
 Cloverdale, California
 Five Year Review
 September 2003

CH2MHILL

Appendix A
Documents Reviewed

APPENDIX A

Documents Reviewed

- Camp Dresser & McKee Inc. 1987. *Draft MGM Brakes Site Well Inventory Report*. October 1
- Canonie Environmental, Inc. 1992. *Technical Memorandum Number 1: Results of Additional Studies for Soil and Concrete, MGM Brakes Site, Cloverdale, California*. February.
- Erler & Kalinowski, Inc. (EKI). 1990. "Equipment Disposal Work Plan, MGM Brakes Site, Cloverdale, California." December 3.
- EKI. 1992. "Draft Prefinal Inspection Report Building Demolition Work, MGM Brakes, Cloverdale, California." November 30.
- EKI. 1994. "Proposed Final Prefinal Inspection Report for the Excavation Work, MGM Brakes, Superfund Site Cloverdale, California." July 01.
- EKI. 1994. "Final Prefinal Inspection Report No. 2 for the Excavation Work, MGM Brakes, Cloverdale, California." October 03.
- EKI. 1995. *Transmittal of Revised Final VOC Groundwater Monitoring Plan, MGM Brakes Superfund Site, Cloverdale, California*. April 17.
- EKI. 1998. *Final Inspection and Remedy Certification Report for the Demolition and Excavation Work, MGM Brakes Superfund Site, Cloverdale, California*. January 30.
- EKI. 2003. *Semi-Annual Monitoring Report - April 2003, MGM Brakes Superfund Site, Cloverdale, California*. June 10.
- GCA Technology Division, Inc. 1986. "Feasibility Study and Endangerment Assessment v.1, MGM Brakes Superfund Site, Cloverdale, California." September 1.
- Harding Lawson Associates. 1983. "Revised Remedial Action Plan, MGM Brakes, Cloverdale, California." July 15.
- Kennedy, Jenks and Chilton. 1989. "Revised Sampling and Analysis Plan Groundwater VOC Investigation, MGM Brakes Site, Cloverdale, California." March 01.
- McCutchen, Doyle, Brown & Enersen, Counselors at Law. 1995. *MGM Brakes Superfund Site, Land Use Restrictions*. July 17.
- U.S. Environmental Protection Agency, Region 9 (USEPA). 1986. *Community Relations Plan, MGM Brakes Site, Cloverdale, California*. October
- USEPA. 1988. *Record of Decision, MGM Brakes, Superfund Site, Cloverdale, CA*. September 29.
- USEPA. 1990. *Consent Decree, MGM Brakes, Superfund Site, Cloverdale, CA*. May 18.
- USEPA. 1995. "Explanation of Significant Differences (ESD), MGM Brakes, Superfund Site, Cloverdale, CA." August 23.
- USEPA. 1995. *Certificate of Completion for the Demolition and Excavation Work. MGM Brakes, Superfund Site, Cloverdale, CA*. March 25.