EPA/ROD/R09-88/018
1988

EPA Superfund
Record of Decision:

MGM BRAKES
EPA ID: CAD000074120
OU 01
CLOVERDALE, CA
09/29/1988

(1) WOULD NOT DETOXIFY PCBS; (2) WOULD INCREASE THE VOLUME OF THE CONTAMINATED SOILS; (3) WOULD NOT ADDRESS THE PRINCIPLE THREAT AT THE SITE THROUGH TREATMENT; AND (4) WOULD REQUIRE LONG TERM MONITORING, MAINTENANCE, AND LAND USE RESTRICTIONS AT THE SITE, EPA REJECTED THIS ALTERNATIVE. EPA HAS IDENTIFIED EXCAVATION AND OFF-SITE DISPOSAL AS ITS PREFERRED REMEDY.

BECAUSE THE REMEDY WILL NOT RESULT IN HAZARDOUS SUBSTANCES REMAINING ON SITE ABOVE HEALTH-BASED LEVELS, THE FIVE YEAR FACILITY REVIEW WILL NOT APPLY TO THIS ACTION.

DATE
09/29/88

DANIEL MACGOVERN
REGIONAL ADMINISTRATOR
EPA, REGION 9

#SLD

I. SITE LOCATION AND DESCRIPTION

THE MGM BRAKES SITE IS LOCATED IN CLOVERDALE, CALIFORNIA, A NORTHERN CALIFORNIA COMMUNITY IN THE ALEXANDER VALLEY APPROXIMATELY 80 MILES NORTH OF SAN FRANCISCO (FIGURE 1). THE MGM BRAKES FACILITIES, A PORTION OF WHICH COMPRISES THE MGM BRAKES SUPERFUND SITE, ARE LOCATED AT THE SOUTHERN EDGE OF THE COMMUNITY.

THE MGM BRAKES DIVISION OF INDIAN HEAD INDUSTRIES, INC. OPERATES AN ASSEMBLY PLANT AND CASTING PLANT FOR AUTOMOTIVE BRAKES, LOCATED ON THE EAST AND WEST SIDES OF HIGHWAY 101. THE ASSEMBLY PLANT, A STORAGE AREA, AND OFFICES OCCUPY THREE ACRES ON THE EAST SIDE OF THE HIGHWAY. THE ALUMINUM CASTING PLANT AND VACANT FIELD OCCUPY FIVE ACRES OF LAND ON THE WEST SIDE OF THE HIGHWAY. THE SITE CONSISTS OF THE FIVE-ACRE PLOT WHICH CONTAINS THE OPERATING CASTING PLANT, A PAVED AREA SURROUNDING THE PLANT, AND AN OPEN FIELD TO THE FAR WEST, SOUTHWEST, AND SOUTH OF THE PLANT (FIGURE 2).

ADJACENT PROPERTY CONSISTS MAINLY OF RESIDENTIAL HOMES AND CONSTRUCTION BUSINESS. WITHIN A HALF-MILE RADIUS OF THE SITE THREE ARE APPROXIMATELY 40 HOMES, AN APARTMENT COMPLEX, A CHURCH, A RAILROAD TRACK AND SEVERAL SMALL CONSTRUCTION INDUSTRIES. ADDITIONALLY, A GRAZING AREA FOR COWS AND HORSES IS LOCATED 100 FEET NORTHWEST OF THE SITE (SEE FIGURE 2). IN ADDITION, A 200 UNIT HOUSING DEVELOPMENT IS UNDER CONSTRUCTION IMMEDIATELY ADJACENT TO THE NORTHERN BOUNDARY OF THE SITE.

THE MGM BRAKES SITE LIES ON THE WEST SIDE OF A VALLEY THROUGH WHICH THE RUSSIAN RIVER FLOWS; THE SITE IS LOCATED LESS THAN 1 MILE WEST OF THE RIVER. THE SITE DOES NOT LIE ON THE 100 YEAR FLOOD PLAIN OF THE RUSSIAN RIVER. THE TOPOGRAPHY OF THE SITE IS RELATIVELY FLAT (1.0 TO 1.5 PERCENT SLOPE), BUT SLOPES GENTLY TO THE SOUTH. SURFACE WATER DRAINAGE FROM THE MGM BRAKES SITE FLOWS SOUTH-SOUTHEAST ALONG A DITCH PARALLELING HIGHWAY 101 TOWARD ICARIA CREEK. ICARIA CREEK FLOWS NORTH-NORTHEAST APPROXIMATELY 1/2 MILE, WHERE IT MERGES WITH PORTERFIELD CREEK. THE COMBINED STREAMS FLOW APPROXIMATELY 3/4 MILE SOUTH BEFORE FLOWING INTO THE RUSSIAN RIVER (SEE FIGURE 1). GROUNDWATER FLOW IS SOUTH-SOUTHEAST AND THE HYDRAULIC GRADIENT IN THIS DIRECTION IS ABOUT 0.014 FEET PER FOOT DURING THE WINTER AND ABOUT 0.012 FEET PER FOOT DURING THE SUMMER. THE GROUNDWATER TABLE IS RATHER SHALLOW, FLUCTUATING TWO TO FIVE FEET BELOW GROUND SURFACE SEASONALLY.

SOUTH OF THE MGM BRAKES CASTING PLANT THERE IS A SLIGHT DEPRESSION. THIS DEPRESSION DRAINS SURFACE WATER TO THE SOUTHEAST CORNER. AN INTERIM DRAINAGE DITCH DIRECTS SURFACE WATER FLOWS SOUTHEASTERLY FROM THE NORTHWEST PORTION OF THE SITE PLANT TO A WEST TO EAST DRAINAGE DITCH ALONG THE SOUTHERNMOST PROPERTY BOUNDARY. THIS DITCH DRAINS SURFACE WATER AWAY FROM THE SITE TOWARD A DRAINAGE DITCH WHICH RUNS PARALLEL TO HIGHWAY 101 (FIGURE 1). THE DITCH RUNS SOUTHWARD

ON THE WEST SIDE OF HIGHWAY 101. IT THEN CROSSES UNDER THE HIGHWAY VIA A CULVERT, RUNS SEVERAL HUNDRED FEET SOUTHWARD ON THE EAST SIDE OF THE HIGHWAY, AND THEN RETURNS UNDER THE HIGHWAY VIA ANOTHER CULVERT TO THE WESTERN SIDE OF THE HIGHWAY. THE DITCH FALLS INTO A GENERALLY LOW LYING AREA ABOUT ONE-HALF MILE SOUTH OF THE SITE. JUST FURTHER SOUTH IS ICARIA CREEK, WHICH FLOWS TO THE RUSSIAN RIVER. DURING PERIODS OF HEAVY RAINFALL, IT IS LIKELY THAT THE DRAINAGE FROM THE DITCH FLOWS INTO ICARIA CREEK AND REACHES THE RUSSIAN RIVER.

THE LOCAL GEOLOGY OF THE MGM SITE HAS BEEN INTERPRETED THROUGH A SEISMIC REFRACTION SURVEY, SOIL TEST BORINGS, SHALLOW TEST PITS, AND GAMMA LOGGING. THESE TESTS INDICATE THAT THE SITE IS UNDERLAIN BY A DARK GRAY, SILTSTONE BEDROCK VARYING IRREGULARLY IN DEPTH FROM 3 TO 32 FEET. A VERY STIFF, MICACEOUS, SILTY CLAY VARYING IN THICKNESS FROM ABOUT 2 TO 20 FEET. DEPENDING ON BEDROCK TOPOGRAPHY, OVERLIES THIS BEDROCK AND IS A PRODUCT OF EXTENSIVE BEDROCK WEATHERING. THE VERY STIFF CLAY IS IN TURN OVERLAIN TO THE GROUND SURFACE BY SILTY SAND AND CLAYEY GRAVEL LENSES EMPLACED IN A MATRIX OF STIFF, SILTY CLAYS. THE LENSES DO NOT APPEAR TO BE CONTINUOUS AS THEY CANNOT BE TRACED BETWEEN ADJACENT TEST BORINGS.

THE AREA ON THE WEST AND SOUTH SIDES OF THE CASTING PLANT IS UNDERLAIN BY APPROXIMATELY FOUR FEET OF FILL. THIS FILL CONSISTS OF CLAYS, GRAVELS, SILTS, AND NON-TOXIC ALUMINUM FURNACE DROSS (FILM SKIMMED FROM MOLTEN ALUMINUM), EXTENDING APPROXIMATELY 60 FEET BEYOND THE SOUTHERN EDGE OF THE PARKING LOT. THE FILL WAS REPORTEDLY ADDED IN THE MID-1960S AND PORTIONS WERE PAVED OVER IN THE LATE I960S.

#SH

II. SITE HISTORY

THE LAND WHICH COMPRISES THE MGM BRAKES SITE IS OWNED BY CLOVER CASTINGS, INC., A WHOLLY-OWNED SUBSIDIARY OF THYSSEN-BORNEMISZA GROUP, INC. ("TBG"). THE PARENT COMPANY OF TBG IS TBG HOLDINGS, INC. INDIAN HEAD INDUSTRIES, INC. OWNS AND OPERATES THE CASTING PLANT ON THE SITE THE PLANT WAS FORMERLY OPERATE BY MGM BRAKES, INC.; MGM BRAKES IS NOW A DIVISION OF INDIAN HEAD INDUSTRIES, INC. THE POTENTIALLY RESPONSIBLE PARTIES (PRPS) FOR THE SITE INCLUDE ALL OF THE ABOVE-REFERENCED COMPANIES, ALTHOUGH NOT ALL ACTIONS IN THIS DOCUMENT IDENTIFIED AS BEING PERFORMED BY PRPS WERE PERFORMED BY ALL OF THEM.

PCB DISCHARGES OCCURRED FROM 1965 TO 1972. IN 1972 HYDRAULIC FLUIDS CONTAINING PCBS WERE REPLACED WITH OTHER PRODUCTS. DISCHARGE OF HYDRAULIC FLUIDS CONTAINING ETHYLENE GLYCOL AND WASTEWATER CONTINUED UNTIL AUGUST, 1981. PORTIONS OF THE PROPERTY HAVE BEEN FOUND TO BE CONTAMINATED WITH PCBS AS A RESULT OF THE DISCHARGE OF THE PCBS-LADEN HYDRAULIC FLUID.

THE NORTH COAST CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD (NCRWQCB) AND THE CALIFORNIA DEPARTMENT OF FISH AND GAME (DFG) CONDUCTED AN INSPECTION AT THE MGM BRAKES CASTING PLANT ON AUGUST 11, 1981. THEY NOTED THE PRESENCE OF AN OILY MATERIAL ON THE SOILS SOUTH OF THE PLANT BUILDING. THE NCRWQCB AND DFG REPRESENTATIVES INFORMED THE MGM PLANT MANAGER THAT DISCHARGE OF WASTES MATERIALS ON THE PROPERTY SOILS HAD TO BE DISCONTINUED AND THE VISIBLY OILY WASTE MATERIALS ON THE PROPERTY SOILS HAD TO BE CLEANED UP.

MGM BRAKES PERSONNEL SCRAPED UP THE OILY MATERIALS WITH SHOVELS AND STOCKPILED IT ON-SITE. MGM BRAKES CONTACTED IT CORPORATION IN MARTINEZ, CALIFORNIA FOR WASTE DISPOSAL. PRIOR TO ACCEPTING THE MATERIAL, IT REQUESTED THAT A SAMPLE OF THE MATERIAL BE SENT TO THEM FOR ANALYSIS. ON SEPTEMBER 28. 1981, IT CORPORATION INFORMED MGM THAT THE SOIL SAMPLE CONTAINED PCB.

THE NCRWQCB ISSUED CLEAN-UP AND ABATEMENT ORDER #81-216 (NOVEMBER 1981), WHICH REQUIRED MGM BRAKES TO SUBMIT AND EXECUTE A REMEDIAL ACTION PLAN AND TO MONITOR GROUNDWATER FOR THE PRESENCE OF PCBS. THESE REMEDIAL ACTIVITIES WERE PRIMARILY PERFORMED BY CONSULTANTS TO THE PRPS. THE SITE WAS PLACED ON THE SUPERFUND NATIONAL PRIORITIES LIST (NPL) IN 1983. AT THIS TIME, EPA TOOK

THE LEAD RESPONSIBILITY FOR THIS PREVIOUSLY STATE-LEAD SITE.

EPA CONDUCTED A 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 DO A REVISED FS. THE REVISED FS WAS INITIATED IN 1987 AND RELEASED FOR PUBLIC COMMENT IN APRIL 1988.

THE FOLLOWING IS A CHRONOLOGY OF IMPORTANT MGM BRAKES SITE ACTIVITIES AND INVESTIGATIONS BY THE PRPS, STATE AGENCIES, AND EPA:

AUG 1981	NCRWQCB AND DFG INSPECT MGM BRAKES FACILITY AND NOTE PRESENCE OF OIL-STAINED SOIL.
SEPT 1981	IT CORPORATION REPORTS THAT OILY SOILS CONTAIN PCBS.
NOV 1981	HARDING LAWSON AND ASSOCIATES (HLA) WAS CONTRACTED BY PRPS TO INVESTIGATE THE EXTENT OF PCB SOIL CONTAMINATION ON THE SITE.
NOV 1981	HLA PREPARED A PROPOSED SAMPLING PROGRAM IN ACCORDANCE WITH NCRWQCB CLEAN UP AND ABATEMENT ORDER NO. 81-216.
NOV 1981-JUNE 1983	HLA COLLECTED SOIL, SURFACE WATER AND GROUNDWATER SAMPLES AT MGM BRAKES SITE AND THE SURROUNDING PROPERTY. KENNEDY JENKS ENGINEERS (KJ) WAS CONTRACTED BY PRPS TO COLLECT ADDITIONAL SAMPLES DURING THIS TIME PERIOD.
APRIL 1982	HLA PERFORMED A SEISMIC REFRACTION STUDY AND SUBMITTED A "REMEDIAL ACTION PLAN."
JUNE 1982	NCRWQCB AND CALIFORNIA DEPARTMENT OF HEALTH SERVICES (DOHS) REVIEWED THE HLA "REMEDIAL ACTION PLAN" AND SUBMITTED COMMENTS.
SEPT 1982	IN RESPONSE TO NCRWQCB AND DOHS COMMENTS ON THE REMEDIAL ACTION PLAN, HLA PERFORMED ADDITIONAL SAMPLING AND SUBMITTED 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 RESUBMITTED THE "REVISED REMEDIAL ACTION PLAN" ON JULY 15, 1983.
OCT 1983	KJ PREPARED A DRAFT REPORT ENTITLED "ON-SITE REMEDIAL ACTION."
DEC 1983	KJ COLLECTED ADDITIONAL GROUNDWATER SAMPLING.
MAY-OCT 1984	KJ COLLECTED ADDITIONAL GROUNDWATER SAMPLES.
JUNE 1984	KENNEDY JENKS CHILTON (K/J/C) PREPARED A DRAFT FEASIBILITY STUDY (FS) BASED ON PREVIOUS INVESTIGATIONS AND SUBMITTED IT TO DOHS AND EPA.

OCT 1984	EPA AND DOHS PROVIDED COMMENTS ON K/J/C DRAFT FS AND REQUESTED THAT THE FS BS REVISED TO COMPLY WITH MINIMUM REQUIREMENTS.
NOV 1984	PRPS DECLINED TO PREPARE REVISED FS.
1985	EPA CONTRACTED GCA TECHNOLOGY INC. TO PREPARE AN ENDANGERMENT ASSESSMENT AND FEASIBILITY STUDY.
SEPT 1986	GCA FS WAS RELEASED FOR PUBLIC COMMENT.
SEPT-NOV 1986	PUBLIC COMMENT PERIOD ON FIRST FS.
1987	EPA CONTRACTED CAMP DRESSER & MCKEE INC. (CDM) TO REVISE THE GCA FS TO MEET NEW REQUIREMENTS AND ADDRESS COMMENTS PROVIDED ON THE ORIGINAL FS BY THE PRPS AND THE PUBLIC. PROVIDED ON THE ORIGINAL FS BY THE PRPS AND THE PUBLIC.
1987-1988	TO COMPLETE THE DATA BASE ESTABLISHED BY THE FIRST FS AND TO EVALUATE TCE CONTAMINATION, CDM PERFORMED SURFACE SOIL SAMPLING, GROUNDWATER SAMPLING, AND SPLIT SAMPLING WITH THE PRP CONSULTANTS. CDM ALSO REVIEWED PRP CONSULTANTS' PCB AIR MONITORING EFFORTS AND TREATABILITY STUDY PROGRAMS.
JUNE 1987	K/J/C AND INTERNATIONAL WASTE TECHNOLOGIES CONDUCTED BENCH SCALE FIXATION TEST OF MGM BRAKES CONTAMINATED SOIL.
SEPT-DEC 1987	K/J/C AND GALSON RESEARCH CONDUCTED LABORATORY SCALE TESTING OF PCB DECHLORINATION USING AN ALKALINE POLYETHYLENE GLYCOL MIXTURE.
APRIL 1988	REVISED FS ISSUED.
MAY-JUNE 1988	PUBLIC COMMENT PERIOD ON REVISED FS.

#CRH

III. COMMUNITY RELATIONS HISTORY

EPA HAS CARRIED ON AN EXTENSIVE COMMUNITY RELATIONS PROGRAM AT THE MGM BRAKES SUPERFUND SITE.

IN THE SPRING OF 1986, EPA CONDUCTED INTERVIEWS OF CLOVERDALE COMMUNITY MEMBERS; THESE INTERVIEWS FORMED THE BASIS OF THE COMMUNITY RELATIONS PLAN (CRP) FOR THE SITE. THE CRP - COMPLETED IN THE FALL OF 1986 DESCRIBED CONCERNS OF THE COMMUNITY RELATING TO SITE CLEAN-UP AND EPA'S PLANS TO INFORM THE COMMUNITY ABOUT CURRENT SITE ACTIVITIES AND OPPORTUNITIES FOR INPUT. EPA ALSO ESTABLISHED A REPOSITORY FOR SITE-RELATED DOCUMENTS AT THE CLOVERDALE LIBRARY AND COMPILED A SITE MAILING LIST.

IN SEPTEMBER OF 1986, EPA RELEASED TO THE PUBLIC ITS FIRST FEASIBILITY STUDY (FS) ON THE MGM BRAKES SUPERFUND SITE. IN FULFILLMENT OF COMMUNITY PARTICIPATION REQUIREMENTS, EPA HELD A PUBLIC COMMENT PERIOD FROM SEPTEMBER 23 UNTIL NOVEMBER 29, 1986, BRIEFINGS OF LOCAL OFFICIALS AND COMMUNITY MEMBERS, AND TWO COMMUNITY MEETINGS. ONE MEETING WAS HELD ON OCTOBER 15, 1986 TO PRESENT CLEAN-UP ALTERNATIVES, TO ANSWER QUESTIONS, AND TO TAKE COMMENTS ON THE FS. A SECOND COMMUNITY MEETING WAS HELD ON NOVEMBER 19, 1986, TO PRESENT INFORMATION ON THE HEALTH EFFECTS OF PCBS AND INCINERATION EMISSIONS. COMMENTS RECEIVED ON THE FS FOCUSED ON THE FOLLOWING: THE ECONOMIC AND HEALTH RISKS OF ON-SITE INCINERATION; THE LACK OF DATA ON CONTAMINANTS OTHER THAN PCBS; AND THE FAILURE TO FULLY EVALUATE TREATMENT ALTERNATIVES OTHER THAN INCINERATION.

IN THE SPRING OF 1987, BROAD COMMUNITY OPPOSITION DEVELOPED TO THE INCINERATION ALTERNATIVE, INCLUDING OPPOSITION FROM A U.S. CONGRESSMAN AND STATE ASSEMBLYWOMEN. IN APRIL 1987, EPA REPRESENTATIVES WERE PRESENTED WITH A PETITION CONTAINING 500 SIGNATURES OPPOSING INCINERATION AS A CLEAN-UP ALTERNATIVE.

IN LATE SPRING OF 1987, BASED ON THE COMMENTS RECEIVED ON THE FS, EPA DECIDED TO PREPARE A REVISED FS WHICH WOULD ADDRESS THE COMMENTS RECEIVED ON THE FIRST FS AND ALSO ADDRESS THE NEW REQUIREMENTS OF SARA. A FACT SHEET ANNOUNCING THE DECISION AND DESCRIBING THE ADDITIONAL SAMPLING AND ALTERNATIVES TO BE EVALUATED WAS PUBLISHED IN JULY OF 1987. A COMMUNITY MEETING WAS HELD ON JULY 29 TO FURTHER DISCUSS THE DECISION WITH THE COMMUNITY.

IN AUGUST OF 1987, EPA CONDUCTED A COMMUNITY WELL INVENTORY TO IDENTIFY AND SAMPLE WELLS WITHIN A ONE-HALF MILE RADIUS OF THE MGM BRAKES SITE.

IN MAY OF 1988, EPA RELEASED THE REVISED FS AND A PROPOSED PLAN FACT SHEET ANNOUNCING AVAILABILITY OF THE FS, AND HELD A 35-DAY PUBLIC COMMENT PERIOD ON THE REVISED FS. EPA'S PREFERRED ALTERNATIVE IN THE FACT SHEET WAS EXCAVATION AND OFF-SITE DISPOSAL. A COMMUNITY MEETING ON THE REVISED FS WAS HELD IN CLOVERDALE ON MAY 18, 1988. SIX PEOPLE SPOKE - NONE IN OPPOSITION TO THE PREFERRED ALTERNATIVE. RESPONSES TO THE COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD, INCLUDING THOSE RECEIVED DURING THE PUBLIC MEETING, ARE ADDRESSED IN THE ATTACHED RESPONSIVENESS SUMMARY (ATTACHMENT B).

#SRRA

IV. SCOPE AND ROLE OF RESPONSE ACTIONS

TWO LAND PARCELS HAVE BEEN IDENTIFIED FOR THIS SELECTED REMEDIATION. REMEDIATION OF PARCEL 1 WILL CONSIST OF REMOVING AND DISPOSING THE CONTAMINATED SOIL EXCLUSIVE OF THE MGM BRAKES PROCESSING BUILDING AND CONCRETE SLAB. REMEDIATION OF PARCEL 2 WILL CONSIST OF THE REMOVAL AND DISPOSAL OF CONTAMINATED SOIL BENEATH THE PROCESSING BUILDING AND REMOVAL AND DISPOSAL OF THE CONCRETE SLAB. PARCELS 1 AND 2 CAN BE REMEDIATED SEPARATELY OR CONCURRENTLY. HOWEVER, DUE TO THE PRESENT OCCUPANCY OF THE MGM BRAKES PROCESSING BUILDING, REMEDIAL ACTION ON PARCEL 2 MAY BE DELAYED UP TO TEN YEARS TO PROVIDE MGM BRAKES AND THE COMMUNITY AMPLE TIME TO PLAN FOR BUILDING DEMOLITION.

PRIMARY THREATS AT THE MGM BRAKES SITE AS DETERMINED BY EPA INCLUDE EXPOSURE OF MGM BRAKES EMPLOYEES AND POTENTIAL FUTURE EXPOSURE OF THE LOCAL POPULACE TO PCB-CONTAMINATED SOIL AND PARTICULATE. PRESENT AND POTENTIAL FUTURE EXPOSURE PATHWAYS CONSIST OF INHALATION OF PCB VAPOR AND PARTICULATE, DERMAL EXPOSURE, AND INGESTION OF CONTAMINATED SOIL. VOC CONTAMINATION OF GROUNDWATER IS ALSO OF CONCERN. A SOURCE FOR TCE AND BENZENE HAS NOT BEEN FOUND AND SITE SURFACE SOILS DO NOT APPEAR CONTAMINATED. GROUNDWATER CONTAINS BENZENE, TCE AND VINYL CHLORIDE AT CONCENTRATIONS EXCEEDING MAXIMUM CONTAMINANT LEVELS (MCLS) (5UG/L, 5UG/L AND 2UG/L, RESPECTIVELY). ALTHOUGH THE SITE AQUIFER CURRENTLY IS NOT USED AS A DRINKING WATER SUPPLY, POTENTIAL FUTURE USE AND EFFECTS TO DOWN-GRADIENT AQUIFERS REQUIRE REMEDIATION OF THE VOC CONTAMINATION.

THE SELECTED REMEDY, A FINAL REMEDY AT THE SITE, ADDRESSES THESE EXPOSURE PATHWAYS OR THREATS BY REMOVING THE SOURCE OF CONTAMINATION. REMOVAL OF THE CONTAMINATED SOIL WILL SIGNIFICANTLY REDUCE THE POTENTIAL FOR FUTURE EXPOSURE TO CONTAMINATED SOIL, PARTICULATE AND VAPOR, AND WILL PREVENT MIGRATION OF PCBS THROUGH SURFACE RUNOFF. THE SELECTED REMEDIAL MEASURE WILL ADDRESS THE VOC PROBLEM THROUGH SOURCE IDENTIFICATION AND THE EVALUATION OF THE NEED TO PUMP AND TREAT THE CONTAMINATED AQUIFER TO REMOVE TCE, VINYL CHLORIDE, AND BENZENE.

#SC

V. SITE CHARACTERISTICS

PCB CONTAMINATION RESULTED FROM THE DISCHARGE OF HYDRAULIC FLUID CONTAINING PCBS BETWEEN 1965-1972 ONTO PROPERTY OF THE SITE. HYDRAULIC FLUIDS LEAKED FROM CASTING MACHINES DURING NORMAL OPERATION AND WERE COLLECTED IN SUMPS BELOW THE MACHINES. THE LEAKED FLUIDS AND WASTEWATER WERE DISCHARGED ONTO PROPERTY SOUTH OF THE FACILITY THROUGH DRAIN LINES CONNECTED TO THE PUMPS. IN ADDITION TO PCB HYDRAULIC FLUID, THE FACILITY ALSO USED FLUIDS CONTAINING ETHYLENE GLYCOL. THE ETHYLENE GLYCOL APPEARS TO HAVE ACTED AS A CO-SOLVENT WITH WATER TO FACILITATE MOVEMENT OF PCBS IN SITE SOIL AND GROUNDWATER. AS S RESULT OF CO-SOLVENT TRANSPORT, PCBS MOVED TO A DEPTH OF 29 FEET, WHICH IS BEDROCK AT THE SITE. DISCHARGE OF ETHYLENE GLYCOL CONTINUED UNTIL 1981, WHEN ALL DISCHARGES CEASED. HOWEVER, SIGNIFICANT MOVEMENT OF PCBS HAD OCCURRED BY THAT TIME.

AFFECTED MEDIA INCLUDE ON-SITE SOIL, THE CONCRETE SLAB OF THE PROCESSING BUILDING, SOIL BENEATH THE PROCESSING BUILDING, ON-SITE DRAINAGE DITCHES AND OFF-SITE DRAINAGE DITCHES (FIGURE 2). SMALL QUANTITIES OF PCBS HAVE BEEN DETECTED IN TWO GROUNDWATER MONITORING WELLS. IN ADDITION, AMBIENT AIR SAMPLES CONTAINED PCBS AT DETECTABLE LEVELS. DURING THE WINTER OF 1987-88, PCBS WERE DETECTED IN UPGRADIENT MONITORING WELLS; THIS CONTAMINATION IS THE RESULT OF SURFACE WATER TRANSPORT AND FLOW INTO WELL CASINGS INSTALLED BELOW THE GROUND SURFACE.

THE VOLUME OF CONTAMINATED SOIL, EXCLUSIVE OF THAT BENEATH THE PROCESSING BUILDING, WAS DETERMINED TO BE 10,650 CUBIC YARDS (SEE FIGURE 3). APPROXIMATELY 2,860 CUBIC YARDS OF CONTAMINATED SOIL ARE ESTIMATED TO EXIST BENEATH THE PROCESSING BUILDING. THE MAJORITY OF CONTAMINATION IS PRESENT AT DEPTHS OF LESS THAN FIVE FEET (ALTHOUGH CONTAMINATION TO 29 FEET WAS DETERMINED AT ONE POINT), BUT COVERS AN AREA OF NEARLY THREE ACRES. PCB SOIL CONTAMINATION RANGES FROM A FEW PARTS PER MILLION TO 4,500 PPM. SOIL CONTAMINATION DOES NOT APPEAR TO BE HOMOGENEOUSLY DISTRIBUTED AND, THEREFORE, VOLUME ESTIMATES ARE DIFFICULT TO MAKE ACCURATELY. SAMPLES COLLECTED IN 1986 FROM THE CONCRETE SLAB IN THE CASTING BUILDING SHOW A MAXIMUM PCB CONCENTRATION OF 5,400 MG/KG.

PCB CONTAMINATION WAS ALSO IDENTIFIED IN DRAINAGE DITCHES LEADING FROM THE FACILITY (SEE FIGURE 3) AND IN THE SURROUNDING AMBIENT AIR. HI VOL SAMPLING METHODOLOGY WAS EMPLOYED TO DETERMINE TOTAL PCBS IN VOLATILE OR PARTICULATE FORM. PCB CONCENTRATIONS OF UP TO 0.157 UG/M(3) WERE MEASURED IN THE AIR AT THE SITE. SEDIMENT AND SURFACE WATER IN THE DRAINAGE DITCHES WERE ALSO SAMPLED; SEDIMENT SAMPLES CONTAINED PCB CONCENTRATIONS OF UP TO 5 MG/KG AND ON-SITE SURFACE WATER PCB CONCENTRATIONS OF UP TO 54 MG/L (PPB) WERE MEASURED.

PCBS WERE IDENTIFIED IN SAMPLES FROM 2 OF 14 MONITORING WELLS. WELL B-46 HAS CONSISTENTLY SHOWN PCB CONCENTRATIONS BETWEEN 0.1 TO 0.5 UG/L. MONITOR WELL 8-53 WAS INSTALLED IN SEPTEMBER 1987 IN A HIGHLY CONTAMINATED AREA OF THE SITE. MONITOR WELL SAMPLES COLLECTED FROM B-53 HAVE PRODUCED PCB LEVELS RANGING FROM 24-130 UG/L. THESE HIGH RESULTS CAN BE ATTRIBUTED TO PCB ABSORBED TO SUSPENDED PARTICULATE MATTER. ANALYTICAL RESULTS PROVIDED BY PRP CONSULTANTS SHOW MORE THAN 90 PERCENT OF THE GROUNDWATER PCB VALUES ARE ATTRIBUTABLE TO SUSPENDED SEDIMENT IN THE GROUNDWATER SAMPLE. THE MOBILITY OF PCBS IN GROUNDWATER AT THE MGM BRAKES SITE IS LIMITED. PCBS HAVE LIMITED SOLUBILITY IN WATER AND STRONG AFFINITY TO SOIL PARTICLES. MOVEMENT OF PCBS IN GROUNDWATER IS HIGHLY ATTENUATED, WITH HORIZONTAL MOVEMENT ESTIMATED AT 2-3 INCHES PER YEAR. FACILITATED TRANSPORT THAT RESULTED WITH DISCHARGE OF ETHYLENE GLYCOL IS NO LONGER OCCURRING DUE TO THE CESSATION OF ALL DISCHARGES AND NATURAL DEGRADATION OF ETHYLENE GLYCOL.

VOCS, INCLUDING CHLOROBENZENE, DICHLOROBENZENE, TRICHLOROETHYLENE, DICHLOROETHENE AND VINYL CHLORIDE, WERE FIRST DETECTED IN MONITORING WELLS ON- AND OFF-SITE IN OCTOBER OF 1986. CHLOROBENZENES ARE COMMONLY ASSOCIATED WITH PCBS AND AT THIS SITE ARE FOUND AT LOW LEVELS. THE

TCE AND ITS BREAKDOWN PRODUCTS HAVE BEEN DETECTED IN WELLS LOCATED ALONG THE EASTERN BOUNDARY OF THE SITE. TCE AND VINYL CHLORIDE CONCENTRATIONS CONTINUE TO EXCEED MCLS.

IN THE MAY 1988 MONITORING REPORT TO THE NCRWQCB (TRANSMITTED TO EPA ON JULY 8, 1988) KENNEDY/JENKS/CHILTON REPORTED THAT 16 PPM OF BENZENE WAS DETECTED IN ONE OF THE OFF-SITE WELLS ALSO CONTAMINATED WITH TCE AND ITS BREAKDOWN PRODUCTS.

MOST OF THE EARLY SITE DATA (ON WHICH THE ORIGINAL FS WAS BASED) WAS COLLECTED BY CONSULTANTS TO THE PRPS. IN 1987, EPA INDEPENDENTLY VALIDATED A SMALL PROPORTION OF WATER AND SOIL ANALYSES AS AN INDEPENDENT CHECK ON THE QUALITY OF THE PRP DATA. OUT OF 35 SAMPLES VALIDATED, ONLY EIGHT WERE CONSIDERED TO HAVE QUALITY CONTROL (QC) PROBLEMS WHICH MADE THEM USABLE FOR LIMITED PURPOSES. IN 1987, EPA ALSO COLLECTED ITS OWN CONFIRMATION ON- AND OFF-SITE SOIL AND GROUND WATER SAMPLES AND OFF-SITE SURFACE WATER AND SEDIMENT SAMPLES. SAMPLE RESULTS WERE COMPARABLE TO LEVELS DETECTED BY THE PRPS, ALTHOUGH MUCH OF THE EPA DATA IS FLAGGED FOR LIMITED USES ONLY.

TAKEN TOGETHER, THE EPA AND PRP DATA SHOW CLEARLY THAT THE ON-SITE SOIL CONTAMINATION IS EXTREMELY HETEROGENEOUS, WITH HIGH CONCENTRATION SAMPLES LOCATED NEXT TO SAMPLES WITH NO CONTAMINATION. THEREFORE, AN IMPORTANT PART OF THE FINAL CLEANUP WILL BE DETAILED CONFIRMATION SAMPLING WITH STRICT QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) CHECKS.THE GROUNDWATER RESULTS CONTINUE TO SHOW A CONSISTENT TREND OF PCB CONTAMINATION ONLY ON-SITE AND VOC CONTAMINATION OFF-SITE WITH DECREASING CONCENTRATIONS AS DISTANCE FROM CASTING BUILDING INCREASES. FURTHER SAMPLING WILL BE REQUIRED AS PART OF THE REMEDY TO DETERMINE IF A SOURCE OF THIS VOC CONTAMINATION IS STILL PRESENT AND TO DEFINE THE LATERAL EXTENT OF CONTAMINATION.

THE AIR DATA COLLECTED BY THE PRPS WAS NEVER INDEPENDENTLY VALIDATED BY THE EPA SO THAT NO CONFIRMATION OF THE ANALYTICAL ACCURACY CAN BE MADE. HOWEVER, DUE TO THE DESIGN OF THE SAMPLING PROGRAM, THE DATA ARE ONLY BEING USED QUALITATIVELY AS AN INDICATION OF THE PRESENCE OF PCBS IN ON-SITE AIR.

#SSR

VI. SUMMARY OF SITE RISK

IN ON-SITE SOILS, AND TO A LIMITED EXTENT NEAR-SITE SOILS AND SURFACE WATER DRAINAGE, PCBS ARE THE CONTAMINANT OF CONCERN FOR THE MGM BRAKES SITE. EPA HAS IDENTIFIED THREE MAJOR EXPOSURE PATHWAYS AT THE SITE UNDER PRESENT AND FUTURE SITE-USE CONDITIONS. THE EXPOSURE ROUTES FOR THE PCB CONTAMINATED SOIL ARE INHALATION OF VAPORS AND PARTICULATE CONTAINING PCBS, INGESTION OF CONTAMINATED SOIL, AND ADSORPTION THROUGH DIRECT SOIL CONTACT BY MGM BRAKES EMPLOYEES AND THE LOCAL POPULACE. AIR SAMPLING RESULTS SHOWED DETECTABLE LEVELS OF PCBS IN THE AIR AROUND THE SITE. SOIL SAMPLING RESULTS SHOWED SIGNIFICANT PERCENTAGE OF SAMPLES WITH PCBS IN EXCESS OF 1,000 MG/KG (1,000 PPM).

FOR PCBS, GROUNDWATER IS NOT CONSIDERED A MAJOR PATHWAY FOR EXPOSURE. PCBS ARE RELATIVELY INSOLUBLE IN WATER AND EXHIBIT A LOW RATE OF MOVEMENT WITHOUT FACILITATED CO-SOLVENT TRANSPORT. THE SHALLOW AQUIFER PRESENT BELOW THE SITE IS ALSO NOT HIGHLY PRODUCTIVE, EXHIBITING SUSTAINED YIELDS OF LESS THAN 20 GALLONS PER HOUR.

THE TOXICITY OF PCBS HAS BEEN WELL DOCUMENTED. TESTS OF ACUTE LETHALITY OF PCB PRODUCTS IN LABORATORY ANIMALS HAVE DEMONSTRATED SIMILAR TOXICOLOGICAL EFFECTS REGARDLESS OF ROUTE OF ADMINISTRATION, SPECIES, OR AGE OF ANIMAL. CHRONIC EXPOSURE OF LABORATORY ANIMALS TO PCB PRODUCED ALTERATIONS OF THE LIVER, THYROID, AND REPRODUCTIVE SYSTEM. PROLONGED EXPOSURE TO PCBS CAN CAUSE A DISFIGURING SKIN ILLNESS CALLED CHLORACNE. LABORATORY DATA INDICATES THERE IS A POTENTIAL FOR REPRODUCTIVE EFFECTS AND DEVELOPMENTAL TOXICITY. EPA DEFINES PCB AS AN ANIMAL CARCINOGEN AND A PROBABLE HUMAN CARCINOGEN.

FOR THE MGM BRAKES SITE REVISED FS, EPA USED ESTABLISHED ADVISORY LEVELS FOR ESTIMATING CANCER RISK. THE EPA OFFICE OF HEALTH AND ENVIRONMENT ASSESSMENT (OHEA) HAS DEVELOPED ADVISORY LEVELS FOR PCBS IN SOIL FOR USE BY EPA'S OFFICE OF EMERGENCY AND REMEDIAL RESPONSE FOR REMEDIATING CERCLA SITES. THE OHEA ASSESSMENT CONCLUDED THAT A PCB LEVEL OF 1 TO 6 PMM IN SOIL IN A RESIDENTIAL/COMMERCIAL AREA RESULTS IN A 10(-5) LEVEL OF ONCOGENIC RISK(RISK OF DEVELOPING CANCEROUS TUMORS) FOR ON-SITE EXPOSURE. FOR THE INHALATION ROUTE ONLY, SOIL CONCENTRATIONS OF 2 MG/KG (2 PPM) CORRESPONDS TO A 10(-6) RISK OF DEVELOPING SUCH TUMORS. THE EXPOSURE ASSUMPTIONS IN THE OHEA DOCUMENT AND THE SPILL POLICY ARE SIMILAR TO THE SITUATION AT THE MGM BRAKES SITE. THE SITE AREA IS CONSIDERED RESIDENTIAL/COMMERCIAL DUE TO THE PRESENCE OF 3 RESIDENCES WITHIN 100 FEET OF SITE BOUNDARIES AND THE PRESENCE OF CLOVERDALE LUMBER IMMEDIATELY EAST OF THE SITE. FURTHERMORE, A CLOVERDALE CITY COUNCIL MEMBER INDICATED TO EPA THAT THE CITY WOULD PREFER TO HAVE THE OPTION OF USING THE AREA EXCLUSIVELY FOR RESIDENTIAL USE. A HOUSING DEVELOPMENT OF 200 UNITS IS BEING CONSTRUCTED JUST NORTH OF THE SITE. THEREFORE, A REASONABLE FUTURE USE SCENARIO WOULD BE A RESIDENTIAL AREA WITH UNRESTRICTED ACCESS.

THE ENVIRONMENTAL RISK ASSOCIATED WITH PCB CONTAMINATION IS DUE TO ITS PERSISTENCE IN THE ENVIRONMENT AND INHERENT TOXICITY. EPA HAS CONCLUDED THAT PCB ARE RESISTANT TO DEGRADATION AND THAT THEY BIOACCUMULATE IN THE ENVIRONMENT AND BIOCONCENTRATE IN THE FATTY TISSUES OF ORGANISMS. PCBS HAVE BEEN DETECTED IN THE DRAINAGE DITCH LEADING FROM THE SITE. THE DITCH IS KNOWN TO SUPPORT AQUATIC LIFE DURING THE WINTER RAINY SEASON. CONCENTRATIONS OF PCBS HAVE BEEN DETECTED IN SEDIMENTS AND SURFACE WATER IN CONCENTRATIONS THAT VIOLATE THE NCRWQCB'S WATER QUALITY CONTROL PLAN FOR THE NORTH COAST BASIN.

CONTAMINATION OF GROUNDWATER WITH VOCS IS ALSO OF CONCERN. TCE, VINYL CHLORIDE, AND BENZENE ALL EXCEED ESTABLISHED MCLS. ALTHOUGH THE GROUNDWATER IMMEDIATELY UNDER THE SITE IS NOT HIGHLY PRODUCTIVE, THE SAME AQUIFER DOWNGRADIENT FROM THE SITE IS BEING USED AS A SOURCE OF DRINKING WATER. VOCS, WHICH ARE HIGHLY MOBILE, DO PRESENT A FUTURE THREAT TO DRINKING WATER SOURCES DOWNGRADIENT FROM THE SITE.

#DSC

VII. DOCUMENTATION OF SIGNIFICANT CHANGES

THE PREFERRED ALTERNATIVE FOR THE MGM BRAKES SITE IS OFF-SITE TRANSPORT AND DISPOSAL OF PCB CONTAMINATED SOIL AND REMEDIATION OF THE VOC CONTAMINATED GROUNDWATER. AT THIS TIME NO SIGNIFICANT CHANGES FROM THE PROPOSED PLAN HAVE OCCURRED.

VIII. DESCRIPTION OF ALTERNATIVES

THE REVISED FEASIBILITY STUDY FOR THE MGM BRAKES SITE DESCRIBES 12 REMEDIAL ALTERNATIVES. THESE ALTERNATIVES ADDRESS THE PCB CONTAMINATION AT THE MGM BRAKES SITE. THE SITE HAS BEEN SEPARATED INTO TWO PARCELS, FOR REMEDIATION CONSIDERATIONS. THESE PARCELS ARE:

PARCEL 1 - CONTAMINATED SOIL ON PROPERTY EXCLUSIVE OF THE CASTING BUILDING AREA.
PARCEL 2 - CONCRETE SLAB AND CONTAMINATED SOIL BENEATH THE CASTING BUILDING.

THE REMEDIAL ALTERNATIVES WERE DEVELOPED SUCH THAT SUFFICIENT LABOR AND EQUIPMENT ARE AVAILABLE TO REMEDIATE THE SITE WITHIN A SEVEN TO 18 MONTHS TIME FRAME.

CANDIDATE REMEDIAL ALTERNATIVES ARE DESCRIBED IN THE FOLLOWING PARAGRAPHS. ACTIVITIES TO LOCATE THE SOURCE OF VOCS AND REMEDIATE VOC CONTAMINATION ARE NOT INDIVIDUALLY DESCRIBED IN EACH REMEDIAL ALTERNATIVE, ALTHOUGH THEY WILL BE PERFORMED REGARDLESS OF THE CHOSEN REMEDY. ACTIVITIES TO BE PERFORMED TO REMEDIATE THE VOC GROUNDWATER PROBLEM WILL INCLUDE ANALYSIS OF SOIL SAMPLES FOR VOCS AS PART OF PCB CLEANUP LEVEL CONFIRMATION SAMPLING, INSTALLATION OF MONITOR WELLS TO TRACK MOVEMENT OF VOCS, EVALUATION OF EFFECTS ON DOWNGRADIENT USERS, AND

EVALUATION OF POTENTIAL REMEDIAL ALTERNATIVES TO RESTORE GROUNDWATER TO THE MCL FOR TCE, VINYL CHLORIDE, AND BENZENE.

ALTERNATIVE 1-1. NO ACTION - PARCEL 1

THIS ALTERNATIVE WOULD INVOLVE NO ACTION TO TREAT, CONTAIN, OR REMOVE CONTAMINATED SOIL. MULTI-MEDIA MONITORING WOULD BE PERFORMED AT A MINIMUM OF EVERY FIVE YEARS TO SUPPORT A REASSESSMENT OF THE NO ACTION ALTERNATIVE.

ALTERNATIVE 1-2. NO ACTION - PARCEL 2

SAME AS ALTERNATIVE 1-1 EXCEPT IT APPLIES TO PARCEL 2.

ALTERNATIVE 2-1. EXCAVATION OF SOILS GT 10 PPM PCBS AND OFF-SITE DISPOSAL - PARCEL 1

THIS ALTERNATIVE WILL INVOLVE EXCAVATING A TOTAL VOLUME OF 10,650 CUBIC YARDS OF SOIL CONTAINING PCBS IN EXCESS OF 10 MG/KG AND DISPOSING OF THE SOIL OFF-SITE WITHOUT PRIOR TREATMENT. SOIL CONTAINING PCBS GREATER THAN 50 PPM WILL BE TRANSPORTED TO A CLASS I DISPOSAL FACILITY WITH A TOXIC SUBSTANCES CONTROL ACT (TSCA)-PERMITTED PCB DISPOSAL UNIT. SOIL CONTAINING PCBS RANGING FROM 10 TO 50 PPM WILL BE TRANSPORTED TO A CLASS II FACILITY PERMITTED BY DOHS AND ACCEPTABLE TO THE NCRWQCB. IMPLEMENTATION OF THIS ALTERNATIVE WILL INVOLVE EXCAVATION, CONSTRUCTION OF A STAGING AREA, GROUNDWATER DEWATERING, AND DISPOSAL OF THE CONTAMINATED SOIL. WASTEWATER FROM THE DEWATERING WILL BE TREATED IN A M,BILE TREATMENT SYSTEM TO REMOVE SEDIMENTS AND PCBS. TREATED WATER WILL EITHER BE RELEASED ON SITE IN ACCORDANCE WITH NCRWQCB'S BASIN PLAN OR DISPOSED OF IN A PUBLICLY OWNED TREATMENT WORKS. TRANSPORT OF SOIL FOR OFF-SITE DISPOSAL WILL BE PERFORMED BY A STATE-PERMITTED WASTE HAULER. ONCE THE SOIL AND GROUNDWATER CONTAMINATION HAS BEEN REMEDIED THE SITE WILL NO LONGER REQUIRE LONG-TERM MONITORING OR DEED RESTRICTIONS.

ALTERNATIVE 2-2. EXCAVATION OF SOILS GT 10 PCM PCBS AND OFF-SITE DISPOSAL - PARCEL 2

THIS ALTERNATIVE WILL INVOLVE THE SAME EXCAVATION-RELATED ACTIVITIES AS DESCRIBED IN ALTERNATIVE 2-1. HOWEVER, THE VOLUME OF CONTAMINATED SOIL AND CONCRETE TO BE EXCAVATED CONSISTS OF APPROXIMATELY 2,860 CUBIC YARDS. PRIOR TO SOIL AND CONCRETE EXCAVATION ACTIVITIES, THE PROCESSING BUILDING WILL BE DISMANTLED. THE CONCRETE SLAB WILL BE CRUSHED AND DISPOSED OF IN A TSCA FACILITY OR CLASS II PERMITTED FACILITY DEPENDING ON SOIL CONCENTRATIONS OF GT 50 OR 10 TO 50 PPM, RESPECTIVELY. UNCONTAMINATED PORTIONS OF THE SLAB MAY BE DISPOSED OF IN A CLASS III LANDFILL.

ONCE THE GROUNDWATER CONTAMINATION HAS BEEN REMEDIED THE SITE WILL NO LONGER REQUIRE LONG-TERM MONITORING OR DEED RESTRICTIONS.

ALTERNATIVE 3-1. EXCAVATION OF SOILS GT 10 PPM PCBS AND ON-SITE THERMAL TREATMENT - PARCEL 1

THIS ALTERNATIVE WOULD INVOLVE EXCAVATION OF THE SAME SOIL VOLUMES ASSOCIATED WITH THE IMPLEMENTATION OF ALTERNATIVE 2-1, EXCEPT THAT CONTAMINATED SOILS WOULD BE TRANSPORTED TO A TEMPORARY STORAGE AREA WHERE THEY WOULD BE THERMALLY TREATED AND SUBSEQUENTLY DISPOSED OF AS BACKFILL AT THE SITE. A STAGING AREA WOULD BE REQUIRED. THIS AREA WOULD BE USED FOR THE TEMPORARY STORAGE OF CONTAMINATED SOIL PRIOR TO PROCESSING AND TEMPORARY STORAGE OF THE DECONTAMINATED SOIL PENDING PCB ANALYSIS AND SUBSEQUENT BACKFILLING. THE STAGING AREA WOULD COMPLY WITH RCRA REGULATIONS FOR TEMPORARY WASTE STORAGE FACILITIES. THIS ALTERNATIVE WOULD INVOLVE THE SAME GROUNDWATER DEWATERING, TREATMENT AND DISPOSAL AS ALTERNATIVE 2-1.

ALTERNATIVE 3-2. EXCAVATION OF SOILS GT 10 PPM PCBS AND ON-SITE THERMAL TREATMENT - PARCEL 2

THIS ALTERNATIVE WOULD INVOLVE EXCAVATION ACTIVITIES AND TREATED SOIL VOLUMES AS STATED IN ALTERNATIVE 2-2, EXCEPT THAT THE CONTAMINATED SOILS WOULD BE TRANSPORTED TO A TEMPORARY STORAGE AREA WHERE THEY WOULD BE THERMALLY TREATED PRIOR TO BEING USED AS BACKFILL AT THE SITE. THE CONCRETE SLAB WOULD BE CRUSHED TO MEET THE SIZE CRITERIA OF THE THERMAL TREATMENT UNIT. THE TREATED CONCRETE WOULD BE DISPOSED OF IN A MUNICIPAL LANDFILL. UPON COMPLETION OF ALL THERMAL PROCESSING, THE UNIT AND ALL RELATED EQUIPMENT AND FACILITIES WOULD BE DECONTAMINATED, DISASSEMBLED, AND REMOVED FROM THE SITE. LONG-TERM MONITORING OR DEED RESTRICTIONS WOULD NOT BE REQUIRED.

ALTERNATIVE 4-1. EXCAVATION OF SOILS GT 10 PPM AND PCBS ON-SITE FIXATION - PARCEL 1

THIS ALTERNATIVE WOULD INVOLVE EXCAVATING THE SAME VOLUME OF SOIL AS ALTERNATIVE 2-1. CONTAMINATED SOIL WOULD BE TRANSPORTED TO AN ON-SITE STORAGE AREA WHERE IT WOULD BE MIXED WITH A FIXATIVE AGENT AND SUBSEQUENTLY BACKFILLED AT THE SITE. THE ALTERNATIVE WOULD LEAVE A FIXED MASS OF CONCRETE-LIKE MATERIAL (A MONOLITH) TO A DEPTH OF APPROXIMATELY 29 FEET AND COVERING AT LEAST TWO ACRES ON THE SITE. A CAP OF CLEAN SOIL OR CLEAN FIXATIVE WOULD BE PLACED OVER THE FIXED MONOLITH. FUTURE SITE USE WOULD BE LIMITED BY THE PRESENCE OF THE MONOLITH AND CAP.

THE IMPLEMENTATION OF THIS ALTERNATIVE WOULD INVOLVE A STAGING AREA FOR ASSEMBLY AND OPERATION OF THE FIXATION EQUIPMENT. THE STAGING AREA WOULD COMPLY WITH RCRA REGULATIONS FOR TEMPORARY WASTE STORAGE FACILITIES. AS IN ALTERNATIVE 2-1, WASTEWATER GENERATED BY THIS PROCESS WOULD BE TREATED BY A MOBILE WATER TREATMENT UNIT AND DISPOSED OF IN A POTW OR IN ACCORDANCE WITH THE NORTH COAST BASIN PLAN.

SITE USE WOULD BE LIMITED DUE TO LAND USE RESTRICTIONS, AND ON-SITE GROUNDWATER AND AIR MONITORING WOULD BE REQUIRED INDEFINITELY.

ALTERNATIVE 4-2. EXCAVATION OF SOILS GT 10 PPM PCBS AND ON-SITE FIXATION - PARCEL 2

THIS ALTERNATIVE WOULD INVOLVE REMOVAL AND CRUSHING OF THE CONCRETE SLAB, SOIL EXCAVATION OF 2,856 CUBIC YARDS, ALONG WITH DISMANTLING OF THE CASTING PLANT BUILDING. SOIL AND CRUSHED CONCRETE WOULD BE PROCESSED THROUGH THE FIXATION MIXING EQUIPMENT; THE MIXTURE WOULD THEN BE USED TO BACKFILL THE EXCAVATION. OTHER ACTIVITIES WOULD BE THE SAME AS DESCRIBED FOR ALTERNATIVE 4-1.

LONG-TERM MAINTENANCE, GROUNDWATER AND AIR MONITORING, AND A LAND USE RESTRICTIONS WOULD BE REQUIRED.

ALTERNATIVE 5-1. IN SITU FIXATION OF SOILS GT 10 PCBS - PARCEL 1

THIS ALTERNATIVE WOULD INVOLVE TREATING 10,650 CUBIC YARDS OF CONTAMINATED SOIL WITH A FIXATIVE AGENT INJECTED DIRECTLY INTO THE GROUND. IMPLEMENTATION OF THIS ALTERNATIVE WOULD REQUIRE IN SITU FIXATION MACHINERY DESIGNED TO INJECT THE FIXATIVE INTO THE SOIL. MINOR EXCAVATION OF SHALLOW CONTAMINATED SOIL WEST OF THE PLANT WOULD BE REQUIRED. THIS EXCAVATED SOIL WOULD BE PLACED OVER HIGHLY CONTAMINATED SOIL PRIOR TO FIXATION. THE MACHINERY IS SELF-CONTAINED IN THAT ALL THE INJECTION COMPONENTS ARE HANDLED THROUGH ONE PIECE OF MACHINERY. ANY WASTEWATER GENERATED WOULD BE USED IN THE FIXATION PROCESS AND WASTEWATER DISPOSAL WOULD NOT BE REQUIRED. A CAP OF CLEAN SOIL OR CLEAN FIXATIVE WOULD BE PLACED OVER THE FIXED MONOLITH.

AS IN ALTERNATIVE 4-1, THIS ALTERNATIVE WOULD REQUIRE LONG-TERM GROUNDWATER AND AIR MONITORING, SITE ACCESS LIMITATIONS, AND LAND USE RESTRICTIONS AT THE SITE. LONG-TERM MAINTENANCE OF THE CAP WOULD ALSO BE REQUIRED.

ALTERNATIVE 5-2. IN SITU FIXATION OF SOILS GT 10 PPM PCBS - PARCEL 2

THIS ALTERNATIVE, WOULD INVOLVE DEMOLITION OF THE CASTING PLANT BUILDING AND REMOVAL OF THE CONCRETE SLAB. IT IS NOT FEASIBLE TO FIX THE CONCRETE SLAB USING IN SITU TECHNOLOGY. THEREFORE, THE CONCRETE SLAB WOULD BE DISPOSED OF IN AN OFF-SITE LANDFILL APPROPRIATE TO ITS LEVEL OF PCBS. SOIL BENEATH THE SLAB WOULD BE FIXED IN THE SAME MANNER AS ALTERNATIVE 5-1, WITH CLEAN SOIL OR FIXATIVE PLACED OVER THE MONOLITH.

SITE ACCESS WOULD BE RESTRICTED AND LAND USE DEED RESTRICTIONS WOULD BE REQUIRED, ALONG WITH LONG-TERM MONITORING AND MAINTENANCE OF THE SITE.

ALTERNATIVE 6-1. RCRA CAP - PARCEL 1

THIS ALTERNATIVE WOULD INVOLVE CAPPING THE PCB-CONTAMINATED SOIL USING THE CLOSURE AND POST-CLOSURE CARE REQUIREMENTS OF RCRA. A MULTI-LAYER CAP WOULD BE PLACED OVER APPROXIMATELY THREE ACRES OF CONTAMINATED AREA. BECAUSE MOST CONTAMINATION EXISTS SOUTH OF THE MGM BRAKES BUILDING, SOME SHALLOW CONTAMINATION WEST OF THE BUILDING WOULD BE EXCAVATED AND PLACED DIRECTLY OVER THE AREA TO BE CAPPED. THE AREA THAT WOULD BE CAPPED IS SHOWN IN FIGURE 4.

ACCESS TO THE SITE WOULD BE RESTRICTED INDEFINITELY. LONG-TERM GROUNDWATER MONITORING AND AIR MONITORING WOULD BE CONDUCTED TO MEASURE THE EFFECTIVENESS OF THE REMEDIAL ACTION. LONG-TERM MAINTENANCE, AND ACCESS AND LAND USE RESTRICTIONS WOULD BE REQUIRED.

ALTERNATIVE 6-2. RCRA CAP - PARCEL 2

THIS ALTERNATIVE WOULD INVOLVE THE SAME ACTIVITIES ASSOCIATED WITH CONSTRUCTION OF THE MULTI-LAYERED CAP DESCRIBED IN ALTERNATIVE 6-1. HOWEVER, THE BUILDING WOULD BE DISMANTLED AND THE CONCRETE SLAB REMOVED, CRUSHED, AND PLACED OVER THE AREA TO BE CAPPED. DESIGN CRITERIA, CLOSURE REQUIREMENTS, ACCESS AND LAND USE RESTRICTIONS, AND MAINTENANCE AND MONITORING WOULD BE THE SAME AS THOSE DESCRIBED IN ALTERNATIVE 6-1.

#SCAA

IX. SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES

LISTED BELOW IS AN EVALUATION AND COMPARISON OF THE ALTERNATIVES BASED ON THE NINE KEY CRITERIA WHICH DIRECTLY RELATE TO FACTORS 121(B)(1) (A-G) OF SARA MANDATES THAT THE AGENCY ASSESS. THE NINE CRITERIA ARE:

1. OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT.
2. COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS.
3. LONG-TERM EFFECTIVENESS AND PERMANENCE.
4. REDUCTION OF TOXICITY, MOBILITY AND VOLUME (TMV).
5. SHORT-TERM EFFECTIVENESS.
6. IMPLEMENTABILITY.
7. COST.
8. STATE ACCEPTANCE.
9. COMMUNITY ACCEPTANCE.

ALTERNATIVE 1-1. NO ACTION - PARCEL 1

1. OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

THIS ALTERNATIVE WOULD NOT REDUCE PRESENT OR FUTURE EXPOSURE TO PCBS; THEREFORE, THE THREAT TO HUMAN HEALTH WOULD CONTINUE TO EXIST. DIRECT CONTACT (SKIN ADSORPTION), INGESTION, AND

INHALATION OF PCBS WOULD REMAIN A HUMAN HEALTH CONCERN. UNDER THIS ALTERNATIVE, THE POTENTIAL FOR OFF-SITE, CONTAMINATED SOIL MOBILITY VIA SURFACE RUNOFF, AIR BORNE PARTICULATE, OR VOLATILE EMISSIONS WOULD REMAIN HIGH. THIS ALTERNATIVE ALSO DOES NOT MEET THE PROTECTIVE STANDARD ESTABLISH.ED IN THE SPILL POLICY, WHICH HAS BEEN ADOPTED AS A "TO BE CONSIDERED" (TBC) CRITERIA FOR THE SITE. (SEE PAGE 59 FOR A DISCUSSION ON THE SPILL POLICY). ON THE BASIS OF THIS EXISTING AND POTENTIAL HUMAN AND ENVIRONMENTAL HEALTH RISK, THIS ALTERNATIVE IS NOT ACCEPTABLE.

2. COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

A NO ACTION ALTERNATIVE WOULD NOT MEET ARARS IDENTIFIED FOR THE SITE.

3. LONG-TERM EFFECTIVENESS AND PERMANENCE

THIS ALTERNATIVE WOULD NOT PROVIDE A PERMANENT SOLUTION AND WOULD NOT BE EFFECTIVE IN REDUCING THE HUMAN HEALTH THREAT OVER TIME.

RELEASES OF PCBS WOULD CONTINUE. THE CONTAMINATION WOULD REMAIN ON SITE AND A LONG-TERM MONITORING PROGRAM WOULD BE REQUIRED.

THE LONG-TERM RELIABILITY OF THIS APPROACH IS DEPENDENT ON: (1) THE MAINTENANCE OF THE PEREMETER FENCE WHICH WOULD PRECLUDE DIRECT CONTACT WITH HIGHLY CONTAMINATED SOILS; (2) THE ENFORCEMENT OF THE LAND USE AND DEED RESTRICTIONS IMPOSED; AND (3) RESULTS OF GROUNDWATER AND AIR MONITORING PERFORMED TO DOCUMENT ENVIRONMENTAL DEGRADATION. EVALUATION OF THESE FACTORS WOULD DETERMINE THE NEED FOR REPLACEMENT OF THE NO ACTION ALTERNATIVE, IF IT WERE IMPLEMENTED.

4. REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

THIS ALTERNATIVE WOULD NOT EMPLOY ANY ACTIVE TREATMENT PROCESSES FOR SOILS. THE TOXICITY, MOBILITY, AND VOLUME (TMV) OF CONTAMINATED SOIL WOULD REMAIN UNCHANGED. CONTINUED OFF-SITE DISPERSAL OF CONTAMINANTS WOULD BE EXPECTED.

5. SHORT-TERM EFFECTIVENESS

BECAUSE THERE WOULD BE NO CONSTRUCTION ACTIVITIES WITH THE NO ACTION ALTERNATIVE, THERE WOULD BE NO INCREMENTAL INCREASE IN RISKS TO EMPLOYEES OR RESIDENTS DUE TO IMPLEMENTATION.

6. IMPLEMENTABILITY

THE NO ACTION ALTERNATIVE WOULD BE TECHNOLOGICALLY FEASIBLE. PERIODIC SITE INSPECTIONS, AND GROUNDWATER AND AIR MONITORING PROGRAMS WOULD BE ESTABLISHED, AS REQUIRED BY SARA. THEREFORE, NO EQUIPMENT WOULD BE REQUIRED EXCEPT THAT NEEDED TO PERFORM MONITORING.

7. COST

OPERATION, MAINTENANCE, AND MONITORING EXPENSES WOULD BE THE ONLY COSTS ASSOCIATED WITH THIS ALTERNATIVE (SEE TABLE 1).

8. STATE ACCEPTANCE

THIS ALTERNATIVE IS EXPECTED TO BE NEGATIVELY PERCEIVED BY THE STATE OF CALIFORNIA, BECAUSE THE CONTAMINATED SOIL IS NEITHER TREATED NOR REMOVED AND OFF-SITE RELEASES WILL CONTINUE. THEREFORE, THE POTENTIAL FOR EXPOSURE TO PCBS WOULD CONTINUE AND LONG-TERM RESTRICTIONS OF ON-SITE USE WOULD BE REQUIRED.

9. COMMUNITY ACCEPTANCE

THE NO ACTION ALTERNATIVE WOULD BE UNACCEPTABLE TO THE LOCAL COMMUNITY. WITH RESIDENTIAL DEVELOPMENT APPROACHING THE SITE, IT IS THE COMMUNITY'S DESIRE TO RETURN THE PROPERTY TO UNRESTRICTED USE.

ALTERNATIVE 1-2. NO ACTION - PARCEL 2

1. OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

THE CONCRETE SLAB BELOW THE CASTING BUILDING IS CONTAMINATED WITH SIGNIFICANTLY HIGH LEVELS (5,400 MG/KG) OF PCBS. ALTHOUGH THE INTERIOR SURFACE OF THE CASTING BUILDING, INCLUDING THE CONCRETE SLAB, WAS CLEANED IN 1982, THE SLAB IS POROUS AND, THEREFORE, PCBS POTENTIALLY COULD MIGRATE UP TO THE SURFACE OF THE CONCRETE. PCB MOBILITY WITHIN THE SLAB PRESENTS A POTENTIAL HEALTH THREAT TO CASTING PLANT WORKERS FROM EXPOSURE. A DISCUSSION OF PCB MOBILITY IN POROUS SURFACES IS PRESENTED IN THE PREAMBLE TO THE PCB SPILL CLEANUP POLICY. 52 FED.REG. 10688 (APRIL 2, 1987).

IN ADDITION, IF DEMOLITION OF THE BUILDING WERE TO OCCUR FOLLOWING TERMINATION OF USE AS A CASTING FACILITY AND NOT AS PART OF A REMEDIAL ACTION, THE THREAT TO HUMAN HEALTH WOULD INCREASE THROUGH INGESTION, INHALATION, AND DIRECT CONTACT WITH PCBS WITHIN AND BELOW THE CONCRETE SLAB.

AS LONG AS THE BUILDING AND SLAB REMAIN, THIS ALTERNATIVE WOULD POSE A MINIMAL THREAT TO THE ENVIRONMENT. CONTAMINATED SURFACE SOIL IS NOT EXPOSED, THEREBY LIMITING THE POTENTIAL FOR SURFACE AND AIR BORNE DISPERSION OF CONTAMINANTS BENEATH THE SLAB. THE POTENTIAL OF GROUNDWATER MOVEMENT AT A RATE OF 2-3 INCHES PER YEAR REMAINS. LONG-TERM LAND USE RESTRICTIONS WOULD BE REQUIRED TO PREVENT EXCAVATION OF CONTAMINATED SOIL.

2. COMPLIANCE WITH ARARS

THIS ALTERNATIVE WOULD NOT MEET ARARS FOR THE SAME REASONS DISCUSSED UNDER ALTERNATIVE 1-1.

3. LONG-TERM EFFECTIVENESS AND PERMANENCE

AS WITH ALTERNATIVE 1-1, THIS ALTERNATIVE WOULD NOT PROVIDE A PERMANENT SOLUTION AND IS NOT EFFECTIVE IN PROTECTING HUMAN HEALTH IN THE LONG-TERM.

4. REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

THIS ALTERNATIVE DOES NOT USE TREATMENT TO REDUCE THE TOXICITY, MOBILITY, OR VOLUME OF THE CONTAMINATED SOIL.

5. SHORT-TERM EFFECTIVENESS

IN THE SHORT TERM, AS LONG AS THE BUILDING REMAINS AND CAL OSHA REGULATIONS CONCERNING WORKER SAFETY ARE FOLLOWED, THERE WOULD BE AN EXTREMELY LIMITED RISK TO HUMAN HEALTH AND THE ENVIRONMENT. THERE WOULD BE NO INCREMENTAL INCREASE IN RISKS TO EMPLOYEES OR RESIDENTS DUE TO LACK OF CONSTRUCTION ACTIVITIES DURING IMPLEMENTATION.

6. IMPLEMENTABILITY

SAME AS DESCRIBED FOR ALTERNATIVE 1-1.

7. COSTS

AS WITH ALTERNATIVE 1-1, THE ONLY COSTS ASSOCIATED WITH THIS ALTERNATIVE WOULD BE OPERATION AND MAINTENANCE OF A MONITORING PROGRAM (SEE TABLE 1).

8. STATE ACCEPTANCE

STATE PERCEPTION OF THIS ALTERNATIVE IS EXPECTED TO BE THE SAME AS ALTERNATIVE 1-1.

9. COMMUNITY ACCEPTANCE

ALTHOUGH SOME MEMBERS OF THE COMMUNITY HAVE EXPRESSED THEIR DESIRE TO HAVE THE SITE REMEDIATED AS QUICKLY AS POSSIBLE, SOME MEMBERS OF THE COMMUNITY HAVE ALSO EXPRESSED CONCERN OVER THE POSSIBLE LOSS OF JOBS IF THE FACILITY WERE TO BE DISMANTLED. NO ACTION MAY BE ACCEPTABLE TO SOME COMMUNITY MEMBERS IF LOSS OF THE BUSINESS WERE TO RESULT IN A LOSS OF JOBS.

ALTERNATIVE 2-1. OFF-SITE DISPOSAL - PARCEL 1

1. OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

THIS ALTERNATIVE WILL MEET THE TBC SPILL POLICY AND, THEREFORE, WILL BE PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT. IT WILL ELIMINATE THE SOURCE OF CONTAMINATION ABOVE 10 PPM, THEREBY SIGNIFICANTLY REDUCING THE POTENTIAL FOR FUTURE EXPOSURE TO CONTAMINATED SOIL, RUNOFF, PARTICULATE, OR VAPORS AT THE SITE. ALTHOUGH SHORT-TERM CONSTRUCTION IMPACTS MAY EFFECT THE BIOTA OF THE SITE, THE SITE IS EXPECTED TO BE FULLY RESTORED WITH RESPECT TO THE ENVIRONMENT.

CONTAMINANTS WILL BE MOVED TO A CONTROLLED LANDFILL THAT HAS LONG-TERM MONITORING AND LAND USE RESTRICTIONS ALREADY IN PLACE. HUMAN HEALTH AND THE ENVIRONMENT AT THE LANDFILL WILL BE PROTECTED DUE TO THE ENGINEERING DESIGN CRITERIA OF THE DISPOSAL UNIT AND THE REGULATORY MECHANISMS TO ENFORCE THE MONITORING REQUIREMENTS.

2. COMPLIANCE WITH ARARS

THIS ALTERNATIVE CAN BE IMPLEMENTED TO MEET ALL ARARS. CONTAMINATED SOIL WITH PCBS GREATER THAN OR EQUAL TO 50 PPM WILL BE DISPOSED OF IN A LANDFILL MEETING THE TSCA/RCRA REQUIREMENTS. THE DISPOSAL FROM THIS SITE OF CONTAMINATED SOIL OF LESS THAN 50 PPM PCBS ARE NOT REGULATED UNDER TSCA. UNDER THE CA DOHS DISPOSAL POLICY NO. 81-2A, PCBS IN SOIL AT LESS THAN 50 PPM MUST BE DISPOSED OF IN LANDFILLS SPECIFICALLY DESIGNATED FOR PCB DISPOSAL. THESE LANDFILLS ARE REGULATED BY THE RWQCB AND EACH WASTE MUST BE APPROVED BY THE BOARD FOR DISPOSAL AT NON-TSCA/RCRA LANDFILLS. EXCAVATION AND DISPOSAL ACTIVITIES WILL BE PERFORMED TO MEET THE FEDERAL AND STATE REMEDIAL ACTION REQUIREMENTS PERTAINING TO HANDLING, SUCH AS DOT 40 CFR 267.3, 40 CFR 263, 40 CFR 172, 40 CFR 173 AND 177; OSHA 29 CFR 1926, SUBPART C; AND RCRA 40 CFR 261.

3. LONG-TERM EFFECTIVENESS AND PERMANENCE

THIS ALTERNATIVE OFFERS SIGNIFICANT LONG-TERM PROTECTION OF HUMAN HEALTH FOR THE CLOVERDALE COMMUNITY. THE SOURCE WILL BE REMOVED TO A 10 PPM LEVEL AND THE POTENTIAL FOR FUTURE EXPOSURE TO CONTAMINATED SOIL, RUNOFF, PARTICULATE, OR VAPORS WILL BE SIGNIFICANTLY REDUCED AT THE SITE. CONTAMINANTS WILL BE PLACED WITHIN A CONTROLLED ENVIRONMENT, ALLOWING UNRESTRICTED USE OF THE SITE. BECAUSE CONTAMINANTS ARE NOT TREATED BUT TRANSFERRED TO AN OFF-SITE DISPOSAL FACILITY, THIS ALTERNATIVE IS NOT A PERMANENT. THE ADVANTAGES OF TRANSPORTING THE CONTAMINATED SOIL OFF-SITE ARE THAT THE DISPOSAL FACILITIES ARE BETTER SUITED TECHNOLOGICALLY AND INSTITUTIONALLY TO MITIGATE ANY POTENTIAL HAZARD POSED BY THE CONTAMINATED SOIL. IN THIS MANNER, THE ALTERNATIVE WILL PROVIDE A PERMANENT SOLUTION AT THE SITE. LONG-TERM MONITORING WILL NOT BE REQUIRED FOR THE SITE.

4. REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

THIS ALTERNATIVE WILL NOT EMPLOY ANY ACTIVE TREATMENT PROCESS TO REDUCE TOXICITY, MOBILITY, AND VOLUME OF CONTAMINATED SOILS. BY PLACING PCBS IN A SECURE LANDFILL WITH ENGINEERING CONTROLS, THE POTENTIAL FOR MOBILITY OF THE PCBS WILL BE REDUCED.

5. SHORT-TERM EFFECTIVENESS

THIS ALTERNATIVE WILL HAVE MINIMAL SHORT-TERM IMPACTS. EXCAVATION ACTIVITIES WILL INCREASE THE RISK OF EXPOSURE OF WORKERS AND RESIDENTS TO CONTAMINATED SOIL AND GROUNDWATER AS WILL AS VOLATILE AND PARTICULATE PCBS. THE EXPOSURE RISK WILL BE CONTROLLED BY VARIOUS ACTIONS SUCH AS IMPLEMENTING PROPER HEALTH AND SAFETY PROCEDURES FOR EXCAVATION, DUST CONTROL,MISTING SOIL, AND USING TRUCKS WITH PROTECTIVE LININGS, SEALS AND TARPAULINS.

ACTUAL SOIL EXCAVATION ACTIVITIES WILL HAVE MINIMAL SHORT TERM IMPACTS ON THE ENVIRONMENT OF THE SITE. BIOTA DISPLACED DURING EXCAVATION ACTIVITIES CAN RETURN FOLLOWING RESTORATION. REGROWTH WOULD BE PROMOTED BY THE ADDITION OF MULCHING AND SEEDING.

6. IMPLEMENTABILITY

THE RESOURCES FOR IMPLEMENTING THIS ALTERNATIVE ARE READILY AVAILABLE. THERE ARE SUFFICIENT HAZARDOUS WASTE CLEAN-UP CONTRACTORS TO IMPLEMENT THE EXCAVATION AND TRANSPORTATION ACTIVITIES. HOWEVER, A LIMITING RESOURCE MAY BE LANDFILL DISPOSAL CAPACITY. THE FEASIBILITY STUDY IDENTIFIED THREE LANDFILLS THAT WILL ACCEPT PCB WASTE. PERMITTING STATUS OR CAPACITY MAY CHANGE AT ANY OF THESE LANDFILLS. IN ADDITION, TWO LANDFILLS WERE IDENTIFIED THAT CAN ACCEPT SOILS CONTAINING LESS THAN 50 PPM. APPROVAL TO DISPOSE OF PCB-CONTAMINATED SOILS MUST BE OBTAINED FROM DOHS AND THE RWQCB. THESE APPROVAL CAN TAKE THREE MONTHS TO TWO YEARS TO OBTAIN.

7. COST

TRANSPORT AND DISPOSAL COSTS REPRESENT NEARLY 53 PERCENT ,F THE TOTAL COSTS FOR THIS ALTERNATIVE. THE SOIL WITH CONCENTRATIONS GREATER THAN 50 PPM (APPROXIMATELY 4,260 CY) MUST BE DISPOSED OF IN A TSCA FACILITY. THE NEAREST FACILITY IS KETTLEMAN HILLS (APPROXIMATELY 300 MILES). THE UNIT COST USED FOR TRANSPORT AND DISPOSAL AT KETTLEMAN HILLS WAS PROVIDED FOR COSTING PURPOSES; THE ACTUAL COST MAY VARY. AN ADDITIONAL 25/CY WAS ADDED TO THE QUOTED PRICE TO COVER THE COST ASSOCIATED WITH LINING THE TRAILERS WITH A PVC LINER, AS REQUIRED BY DOT REGULATIONS. THERE ARE APPROXIMATELY 6,390 CY OF PCB CONTAMINATED SOIL WITH CONCENTRATIONS OF BETWEEN 10 AND 50 PPM THAT WOULD BE DISPOSED OF AT A CLASS II OR CLASS III FACILITY. BASED ON QUOTES PROVIDED BY APPROVED FACILITIES, THE COST FOR DISPOSAL AT SUCH LANDFILLS WAS ESTIMATED TO BE 30 PERCENT LESS THAN DISPOSAL AT A TSCA APPROVED FACILITY (SEE TABLE 1).

8. STATE ACCEPTANCE

THIS ALTERNATIVE IS EXPECTED TO BE FAVORABLY PERCEIVED BY THE STATE BECAUSE THE HEALTH THREAT REPRESENTED BY CONTAMINATED SOIL WILL BE REMOVED

9. COMMUNITY ACCEPTANCE

THIS ALTERNATIVE HAS BEEN VERY FAVORABLY RECEIVED BY THE COMMUNITY. THIS ALTERNATIVE ALLOWS UNRESTRICTED FUTURE USE OF THE SITE, WHICH MEMBERS OF THE COMMUNITY HAVE EXPRESSED AS A DESIRABLE GOAL. MEMBERS OF THE COMMUNITY LIVING NEAR THE SITE MAY BE INCONVENIENCED OVER THE SHORT-TERM DURING REMEDIAL IMPLEMENTATION DUE TO NOISE AND TRUCK TRAFFIC. AIR MONITORING WILL BE IMPLEMENTED TO ENSURE THAT DUST LEVELS DO NOT POSE A RISK TO THESE NEARBY RESIDENTS. BECAUSE THE SITE IS ON THE SOUTHERN END OF TOWN, THE OVERALL COMMUNITY WILL NOT BE AFFECTED BY THE

RESULTING TRAFFIC.

ALTERNATIVE 2-2. OFF-SITE DISPOSAL PARCEL 2

1. OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

THIS ALTERNATIVE, LIKE ALTERNATIVE 2-1, WILL REMOVE A LARGE PORTION OF CONTAMINATED SOIL, THUS SIGNIFICANTLY REDUCING THE POTENTIAL FOR FUTURE EXPOSURE TO CONTAMINATED SOIL, RUNOFF, PARTICULATE OR VAPORS AT THE SITE.

2. COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

COMPLIANCE WOULD BE THE SAME AS FOR ALTERNATIVE 2-1.

3. LONG-TERM EFFECTIVENESS AND PERMANENCE

THIS ALTERNATIVE WILL ACHIEVE THE SAME BENEFICIAL LONG TERM GOALS AND PERMANENT SOURCE REMOVAL FROM THE SITE AS ALTERNATIVE 2-1.

4. REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

THIS ALTERNATIVE WILL NOT USE TREATMENT TO REDUCE TOXICITY, MOBILITY, OR VOLUME OF CONTAMINANTS. BY REMOVING THE PCBS TO CONTROLLED LANDFILLS, MOBILITY OF CONTAMINANTS WILL BE REDUCED.

5. SHORT-TERM EFFECTIVENESS

THE SHORT-TERM IMPACTS OF THIS ALTERNATIVE ARE EQUIVALENT TO ALTERNATIVE 2-1.

6. IMPLEMENTABILITY

IMPLEMENTATION REQUIREMENTS FOR THIS ALTERNATIVE ARE EQUIVALENT TO ALTERNATIVE 2-1.

7. COST

THIS ALTERNATIVE HAS BEEN COSTED IN THE SAME MANNER AS ALTERNATIVE 2-1. DIFFERENCES BETWEEN THE TWO ALTERNATIVES INVOLVE THE VOLUME OF SOIL TO BE TRANSPORTED TO A TSCA FACILITY (1,140 CY) AND THE VOLUME OF SOIL AND CONCRETE TO BE TRANSPORTED TO A CLASS II OR CLASS ILI FACILITY (1,720 CY). IN ADDITION, THE COST OF DEMOLITION OF THE 5,000 SQUARE FEET (SQ. FT.) CASTING BUILDING AND CONCRETE SLAB DOES NOT INCLUDE MOVING THE INTERIOR COMPONENTS OR RECONSTRUCTION OF THE BUILDING. COSTS ASSUME DISPOSAL OF THE BUILDING AND CONCRETE AT A TSCA LANDFILL.

8. STATE ACCEPTANCE

THE STATE'S ACCEPTANCE OF THIS ALTERNATIVE IS EXPECTED TO BE THE SAME AS IT IS FOR ALTERNATIVE 2-1.

9. COMMUNITY ACCEPTANCE

OVERALL, THE COMMUNITY ACCEPTANCE OF THIS ALTERNATIVE IS EXPECTED TO BE FAVORABLE. HOWEVER, BECAUSE DEMOLITION OF THE BUILDING MAY RESULT IN CLOSURE OF THE CASTING PLANT, PORTIONS OF THE COMMUNITY MAY OBJECT TO THE POSSIBLE LOSS OF JOBS. TO ALLOW THE COMMUNITY AND MGM TO PLAN FOR IMPLEMENTATION OF THIS ALTERNATIVE, EPA IS ALLOWING THE ALTERNATIVE TO BE IMPLEMENTED ANY TIME DURING THE NEXT TEN YEARS.

ALTERNATIVE 3-1. ON-SITE THERMAL TREATMENT-PARCEL 1

1. OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

THIS ALTERNATIVE WOULD PROVIDE THE BE"E OVERALL HUMAN HEALTH AND ENVIRONMENTAL PROTECTION BECAUSE THERMAL TREATMENT WOULD DESTROY ALL PCBS OVER 10 PPM, AND THE SITE COULD BE RETURNED TO UNRESTRICTED USE. THIS ALTERNATIVE WOULD MEET THE CRITERIA OF THE TSCA SPILL POLICY.

2. COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

THIS ALTERNATIVE WOULD BE PERFORMED TO MEET OSHA HEALTH AND SAFETY REQUIREMENTS, FEDERAL AND STATE AIR EMISSION STANDARDS, INCLUDING TSCA/RCRA PCB THERMAL DESTRUCTION REMOVAL EFFICIENCY (DRE) OF 99.999 PERCENT, AND OTHER RCRA TREATMENT, STORAGE AND AND DISPOSAL REQUIREMENTS.

3. LONG-TERM EFFECTIVENESS AND PERMANENCE

THIS ALTERNATIVE OFFERS SIGNIFICANT LONG-TERM PROTECTION OF PUBLIC HEALTH. ALL SOIL PCBS EXCEEDING 10 PPM WOULD BE DESTROYED, THUS PROVIDING A PERMANENT SOLUTION. PCB TOXICITY, VOLUME AND MOBILITY WOULD BE SIGNIFICANTLY REDUCED THROUGH TREATMENT; THE POTENTIAL FOR FUTURE EXPOSURE WOULD ALSO BE SIGNIFICANTLY REDUCED. THE SITE WOULD BE RETURNED TO UNRESTRICTED USE AND LONG-TERM MONITORING AND MAINTENANCE FOR PCB CONTROL AT THE SITE OR AT AN OFF-SITE DISPOSAL FACILITY WOULD NOT BE REQUIRED.

4. REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

THIS ALTERNATIVE USES TREATMENT TO SIGNIFICANTLY REDUCE THE TOXICITY, MOBILITY, AND VOLUME (TMV) OF THE WASTE.

5. IMPLEMENTABILITY

THE USE OF MOBILE TREATMENT SYSTEMS IS A RELATIVELY NEW APPROACH. TO DATE, ONLY EIGHT MOBILE THERMAL UNITS ARE CURRENTLY IN SERVICE. VENDORS OF THERMAL UNITS HAVE BEEN IDENTIFIED FOR THE MGM BRAKES SITE. IT IS EXPECTED THAT A MOBILE UNIT WOULD BE AVAILABLE OR COULD BE FABRICATED IN A REASONABLE TIME PERIOD FOR USE AT THE MGM BRAKES SITE. ADMINISTRATIVELY INCINERATION IS DIFFICULT TO IMPLEMENT. SATISFACTION OF SUBSTANTIVE PERMIT REQUIREMENTS TYPICALLY TAKES UP TO TWO YEARS TO ACCOMPLISH.

6. SHORT-TERM EFFECTIVENESS

THIS ALTERNATIVE WOULD HAVE SHORT-TERM RISKS ASSOCIATED WITH EXCAVATION AND SOIL PROCESSING ACTIVITIES, ALONG WITH POTENTIAL SHORT-TERM AIR IMPACTS RESULTING FROM THERMAL TREATMENT. POLLUTION CONTROL EQUIPMENT WOULD REQUIRE DETAILED MONITORING AND MAINTENANCE TO MINIMIZE AIR IMPACTS. TRAFFIC IMPACTS TO THE SOUTHERN PART OF CLOVERDALE WOULD BE LESS THAN WITH ALTERNATIVE 2, SINCE SOIL IS NOT BEING TRANSPORTED, BUT TREATED ON-SITE.

7. COST

ON-SITE INCINERATION WOULD REQUIRE EXTENSIVE MOBILIZATION AND SET UP OF EQUIPMENT. SYSTEM MOBILIZATION COST IS HIGH AT $250,000.

THE INCINERATION PROCESS REPRESENTS 56 PERCENT OF THE TOTAL COST OR $3,395,000.

8. STATE ACCEPTANCE

ASSUMING THAT ALL NECESSARY AIR QUALITY STANDARDS ARE MET, IT IS EXPECTED THAT THE STATE WOULD ACCEPT INCINERATION AS A PERMANENT REMEDY FOR THE SITE.

9. COMMUNITY ACCEPTANCE

ALTHOUGH THE END POINT OF THIS ALTERNATIVE WOULD BE A PERMANENT SOLUTION, REPRESENTATIVES OF THE COMMUNITY HAVE ALREADY EXPRESSED STRONG OPPOSITION TO THE PLACEMENT OF A TEMPORARY INCINERATOR AT THE SITE. OPPOSITION INCLUDED LETTERS FROM LOCAL, STATE, AND U.S. POLITICIANS, AS WELL AS A PETITION SIGNED BY MEMBERS OF THE COMMUNITY.

ALTERNATIVE 3-2. ON-SITE THERMAL TREATMENT - PARCEL 2

1. OVERALL PROTECTION OF HUMAN HEALTH AND ENVIRONMENT

THIS ALTERNATIVE WOULD OFFER THE SAME PROTECTIVENESS AS IS OFFERED BY ALTERNATIVE 3-1.

2. COMPLIANCE WITH ARARS

THE ONLY REMEDIAL ACTIVITY UNDER THIS ALTERNATIVE THAT DIFFERS FROM THOSE UNDER ALTERNATIVE 3-1 WOULD BE THE DEMOLITION OF THE PROCESSING BUILDING AND CONCRETE SLAB. THESE ACTIVITIES WOULD BE PERFORMED TO MEET STATE AND FEDERAL DOT, OSHA, TSCA AND RCRA REQUIREMENTS.

3. LONG-TERM EFFECTIVENESS AND PERMANENCE

THIS ALTERNATIVE WOULD OFFER THE SAME LONG-TERM EFFECTIVENESS AND PERMANENCE AS ALTERNATIVE 3-1.

4. REDUCTION OF TOXICITY, MOBILITY AND VOLUME

THIS ALTERNATIVE WOULD USE TREATMENT TO SIGNIFICANTLY REDUCE CONTAMINANT TOXICITY, MOBILITY, AND VOLUME.

5. SHORT-TERM EFFECTIVENESS

THE SHORT-TERM IMPACTS OF THIS ALTERNATIVE WOULD BE THE SAME AS THOSE FOR ALTERNATIVE 3-1.

6. IMPLEMENTABILITY

IMPLEMENTATION REQUIREMENTS FOR THIS ALTERNATIVE WOULD BE THE SAME AS ALTERNATIVE 3-1, EXCEPT THAT ADDITIONAL CONSTRUCTION SERVICES WOULD BE REQUIRED FOR DEMOLITION OF THE PROCESSING BUILDING.

7. COST

THE MAJOR COSTS ASSOCIATED WITH THE ALTERNATIVE ARE FOR SYSTEMMOBILIZATION AND INCINERATION PROCESSING. THESE TWO ITEMS REPRESENT 47 PERCENT OF THE TOTAL COST OR $1,108,000. THIS ALTERNATIVE CONTAINS NO OPERATION AND MAINTENANCE COSTS BECAUSE CONTAMINATED SOILS AND CONCRETE WOULD BE TREATED SO THAT THE PCBS ARE COMPLETELY DETOXIFIED (TABLE 1).

8. STATE ACCEPTANCE

STATE ACCEPTANCE WOULD BE THE SAME AS FOR ALTERNATIVE 3-1.

9. COMMUNITY ACCEPTANCE

THE COMMUNITY'S PERCEPTION OF THIS ALTERNATIVE IS NEGATIVE.

ALTERNATIVE 4-1. ON-SITE FIXATION - PARCEL 1

1. OVERALL PROTECTION OF HUMAN HEALTH AND ENVIRONMENT

THIS ALTERNATIVE WOULD REDUCE BUT NOT ELIMINATE EXPOSURE RISKS ASSOCIATED WITH PCB-CONTAMINATED SOIL. IN TESTS PERFORMED BY K/J/C (1988), PCBS WERE NOT CHEMICALLY FIXED TO THE MATRIX, BUT INSTEAD REMAINED LEACHABLE. AIR EMISSIONS OF PCBS FROM SOIL SAMPLES TREATED WITH THE FIXATIVE WERE STILL DETECTED AFTER TREATMENT, BUT AT REDUCED RATES COMPARED TO UNFIXED SOIL. THE POTENTIAL PUBLIC HEALTH RISK ASSOCIATED WITH INGESTION WOULD ALSO BE REDUCED BECAUSE DIRECT SOIL CONTACT WOULD BE ELIMINATED BY PLACING AND MAINTAINING A COVER OVER THE FIXED SOIL. THIS ALTERNATIVE REDUCES MOBILITY, BUT NO EVIDENCE EXISTS THAT IT WOULD SIGNIFICANTLY REDUCE THE TOXICITY OF THE WASTE. THIS ALTERNATIVE WOULD REQUIRE LONG-TERM MONITORING TO ASSURE THE INTEGRITY OF THE FIXED MONOLITH AND A COVER TO ENSURE THAT AIR EMISSION LEVELS DO NOT EXCEED THOSE THAT WOULD POSE A PUBLIC HEALTH RISK.

THE CREATION OF A SOLIDIFIED BLOCK WOULD MAKE THE AREA UNSUITABLE FOR HABITATION BY BURROWING ANIMALS.

2. COMPLIANCE WITH ARARS

THE EXCAVATION AND TREATMENT PROCESS ASSOCIATED WITH THIS ALTERNATIVE WOULD BE PERFORMED TO MEET ACTION-SPECIFIC STATE AND FEDERAL, OSHA, AND RCRA REQUIREMENTS. PURSUANT TO 40 CFR 761.75(C)(4), THE FOLLOWING RCRA LANDFILL DISPOSAL REQUIREMENTS WOULD BE WAIVED: 40 CFR 761.75(B)(1), (2), AND (3).

3. LONG-TERM EFFECTIVENESS AND PERMANENCE

THIS ALTERNATIVE WOULD REQUIRE LONG-TERM ON-SITE MONITORING, LAND USE RESTRICTIONS, SITE ACCESS RESTRICTIONS, AND SITE MAINTENANCE TO ENSURE ITS LONG-TERM EFFECTIVENESS. THIS ALTERNATIVE DOES NOT USE TREATMENT AS A PRINCIPLE ELEMENT TO SIGNIFICANTLY AND PERMANENTLY REDUCE THE PRINCIPAL THREATS AT THE SITS, AND, THEREFORE, IT WOULD NOT RESULT IN A PERMANENT REMEDY. PCBS ARE MADE MORE SUITABLE FOR LONG-TERM STORAGE BY RENDERING THEM LESS LEACHABLE, BUT THIS ALTERNATIVE DOES NOT DETOXIFY PCBS.

IN THE LONG TERM, THIS ALTERNATIVE, IF PROPERLY MONITORED AND MAINTAINED, WOULD BE EFFECTIVE IN REDUCING THE POTENTIAL EXPOSURE RISKS TO THE PUBLIC. FIXATION WITH A CAP WOULD REDUCE THE POTENTIAL FOR MIGRATION OF PCBS VIA ANY MEDIA.

4. REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

THIS ALTERNATIVE DOES USE TREATMENT TO REDUCE THE MOBILITY OF PCBS IN SOIL. FIXED SOIL MAY BE LESS TOXIC TO HUMANS BECAUSE THE FIXED MATERIAL MAY BE LESS READILY ABSORBED IN THE DIGESTIVE TRACT. HOWEVER, AVAILABLE DATA IS INCONCLUSIVE ON WHETHER THIS TECHNOLOGY REDUCES TOXICITY. VOLUME IS NOT REDUCED, BUT IS ACTUALLY INCREASED BECAUSE THE PCB FIXATIVE AGENT ADDED TO THE SOIL WOULD INCREASE BULK UP TO 25-30 PERCENT.

5. IMPLEMENTABILITY

THE PERSONNEL EXPERTISE AND EQUIPMENT TO PERFORM FIXATION FOLLOWING EXCAVATION ARE AVAILABLE FROM A LIMITED NUMBER OF FIRMS ACROSS THE COUNTRY. THE AVAILABILITY OF MIXING UNITS MAY BE A

LIMITING FACTOR. THE RESOURCES FOR EXCAVATION ACTIVITIES ARE READILY AVAILABLE.

6. SHORT-TERM EFFECTIVENESS

THIS ALTERNATIVE WOULD HAVE THE SAME SHORT-TERM IMPACTS ASSOCIATED WITH EXCAVATION AS ALTERNATIVE 2-1, WITH THE EXCEPTION OF LESS TRAFFIC. VEGETATION REMOVAL WOULD BE THE ONLY SHORT-TERM ENVIRONMENTAL IMPACT. THE EXCAVATION OF LARGE VOLUMES OF SOIL WOULD CREATE A POTENTIAL FOR EXPOSURE. THIS POTENTIAL WOULD BE MITIGATED THROUGH IMPLEMENTATION OF PROPER HEALTH AND SAFETY PRACTICES AND DUST CONTROL MEASURES.

7. COST

THE FOLLOWING COSTS ARE ESTIMATED FOR THIS ALTERNATIVE:

*SYSTEM MOBILIZATION COSTS	$ 100,000
*SYSTEM MOBILIZATION COSTS	$ 100,000
STAGING AND STORAGE AREAS	50,000
STAGING AND STORAGE AREAS	50,000
O&M COST ($100/CUBIC YARD)	12,700
O&M COST ($100/CUBIC YARD)	12,700
FIXATION PROCESS COST	1,065,000
FIXATION PROCESS COST	1,065,000

FIVE PERCENT HAS BEEN INCLUDED IN THE CAPITAL COST (SEE TABLE 1) TO COVER PILOT STUDY.

*UNIT COST OBTAINED FROM PEPPER'S STEEL & ALLOYS SITE, FLORIDA

8. STATE ACCEPTANCE

STATE ACCEPTANCE OF THIS ALTERNATIVE IS ANTICIPATED TO BE LOW BECAUSE OF THE NEED FOR LONG-TERM MONITORING AND ENFORCEMENT OF SITE RESTRICTIONS.

9. COMMUNITY ACCEPTANCE

THE COMMUNITY'S PERCEPTION OF THIS ALTERNATIVE IS EXPECTED TOBE LESS FAVORABLE THAN ITS PERCEPTION OF OFF-SITE DISPOSAL. THE COMMUNITY PREFERS AN ALTERNATIVE WHICH ELIMINATES THE PROBLEM AT THE SITE, IN CONTRAST TO ONE WHICH RESULTS IN MINIMIZING THE PROBLEM, BUT STILL LEAVES CONTAMINATED SOIL AT THE SITE. DURING THE MOST RECENT PUBLIC COMMENT PERIOD AND COMMUNITY MEETING, NO COMMENTS WERE RECEIVED REGARDING FIXATION, EXCLUSIVE OF THOSE RECEIVED FROM THE PRF. CITY COUNCIL MEMBERS HAVE STATED TO EPA THAT THEY PREFER AN ALTERNATIVE ALLOWING UNRESTRICTED USE. SOME COMMUNITY MEMBERS HAD PREVIOUSLY INDICATED PREFERENCE FOR FIXATION OVER INCINERATION.

ALTERNATIVE 4-2 ON-SITE FIXATION - PARCEL 2

1. OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

OVERALL PROTECTION FROM THIS ALTERNATIVE WOULD BE THE SAME AS ALTERNATIVE 4-2, EXCEPT THAT BIOTA AND VEGETATION ARE NOT ASSOCIATED WITH THE BUILDING, SO THEY WOULD NOT BE IMPACTED.

2. COMPLIANCE WITH ARARS

THE ONLY ACTIVITIES THAT VARY FROM THOSE UNDER ALTERNATIVE 4-1 WOULD BE ACTIVITIES RELATED TO THE PROCESSING BUILDING AND CONCRETE SLAB. THESE ACTIVITIES WOULD BE PERFORMED TO MEET STATE

AND FEDERAL OSHA, TSCA, AND RCRA HANDLING REQUIREMENTS. AS WITH ALTERNATIVE 4-1, THE TSCA LANDFILL REQUIREMENTS RELATED TO GROUNDWATER PROTECTION {I.E., 40 CFR 761.75(B)(1), (2), AND (3)} WOULD BE WAIVED, PURSUANT TO 40 CFR 761.75(C)(4).

3. LONG-TERM EFFECTIVENESS

AS WITH ALTERNATIVE 4-1, THIS ALTERNATIVE WOULD NOT PROVIDE A PERMANENT SOLUTION FOR THE SITE. IT HAS THE SAME LONG TERM EFFECTIVENESS AS ALTERNATIVE 4-1, THAT IS, CONTAMINANT EXPOSURE WOULD BE REDUCED, BUT THE ALTERNATIVE WOULD REQUIRE ENFORCEMENT OF LONG-TERM MONITORING REQUIREMENTS AND LEND USE RESTRICTIONS.

4. REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

THIS ALTERNATIVE WOULD HAVE THE SAME EFFECTIVENESS IN REDUCING TMV AS ALTERNATIVE 4-1.

5. IMPLEMENTABILITY

IMPLEMENTATION REQUIREMENTS FOR THIS ALTERNATIVE WOULD BE THESAFE AS FOR ALTERNATIVE 4-1, IN ADDITION TO CONSTRUCTION SERVICES REQUIRED TO DEMOLISH THE BUILDING.

6. SHORT-TERM EFFECTIVENESS

THE SHORT-TERM EFFECTIVENESS OF THIS ALTERNATIVE WOULD BE EQUIVALENT TO THAT OF ALTERNATIVE 4-1.

7. COST

COST ASSUMPTIONS FOR THIS ALTERNATIVE ARE SIMILAR TO ALTERNATIVE 4-1, EXCEPT THAT ADDITIONAL COSTS FOR BUILDING DEMOLITION AND DISPOSAL ARE REQUIRED. COSTS ARE PRESENTED IN TABLE 1.

8. STATE ACCEPTANCE

STATE ACCEPTANCE IS EXPECTED TO BE LESS FOR THIS ALTERNATIVE COMPARED TO OTHER ALTERNATIVES WHICH REMOVE OR TREAT THE WASTE, DUE TO THE NEED TO ENFORCE LONG-TERM LAND USE RESTRICTIONS AND MONITORING REQUIREMENTS AT THE SITE.

9. COMMUNITY ACCEPTANCE

AS WITH OTHER ALTERNATIVES FOR PARCEL 2, COMMUNITY ACCEPTANCE OF THIS ALTERNATIVE MAY BE LOW BECAUSE THE ALTERNATIVE WOULD RESULT IN THE REMOVAL OF THE CASTING PLANT BUILDING, AND IMPLEMENTATION COULD RESULT IN A LOSS OF JOBS. OTHERWISE, THE COMMUNITY'S PERCEPTION OF THIS ALTERNATIVE IS EXPECTED TO BE THE SAME AS ALTERNATIVE 4-1.

ALTERNATIVE 5-1. IN SITU FIXATION - PARCEL 1

1. OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

OVERALL PROTECTION FROM THIS ALTERNATIVE WOULD BE POTENTIALLY LESS THAN THAT OF ALTERNATIVE 4-1, ON-SITE FIXATION. DUE TO THE STIFF, CLAYEY NATURE OF SOILS AT THE SITE, AND THE EXPERIENCE GAINED IN THE KPEG TESTING, IT DOESN'T APPEAR POSSIBLE TO FIX SOILS AS COMPLETELY AS FOR THE ON-SITE EXCAVATION AND FIXATION PROCESS. ADEQUATE REDUCTION OF MOBILITY WOULD BE QUESTIONABLE AND IS EXPECTED TO BE LESS THAN THAT FOR EXCAVATION AND FIXATION. THE EXACT EFFECT OF THIS NON-HOMOGENOUS MIXING ON AIR EMISSIONS IS UNKNOWN BUT PRESUMABLY EMISSIONS WOULD BE HIGHER THAN FOR ALTERNATIVE 4-1. THE CAP PLACED OVER THE FIXED MONOLITH WOULD REDUCE THE THREAT FROM DIRECT CONTACT AND EMISSIONS.

2. COMPLIANCE WITH ARARS

AS WITH ALTERNATIVE 4-1, THIS ALTERNATIVE WOULD MEET ALL ARARS. THE TSCA DISPOSAL REQUIREMENTS FOUND IN 40 CFR 761.75(B)(1), (2), AND (3) WOULD BE WAIVED, PURSUANT TO 40 CFR 761.75(C)(4).

3. LONG-TERM EFFECTIVENESS AND PERMANENCE

THIS ALTERNATIVE WOULD REQUIRE LONG-TERM ON-SITE MONITORING, LAND USE RESTRICTIONS, SITE ACCESS RESTRICTIONS, AND SITE MAINTENANCE, IN ORDER TO REMAIN EFFECTIVE IN PROTECTING HUMAN HEALTH AND THE ENVIRONMENT.

THE CREATION OF A SOLIDIFIED BLOCK WOULD MAKE THE AREA UNSUITABLE FOR HABITATION BY BURROWING ANIMALS.

THIS ALTERNATIVE IS EXPECTED TO OFFER SLIGHTLY LESS LONG-TERM EFFECTIVENESS THAN ALTERNATIVE 4-1, DUE TO THE INABILITY TO COMPLETELY FIX THE FIXATIVE AND SOIL IN SITU. THIS ALTERNATIVE DOES NOT DETOXIFY THE PCBS AND DOES NOT USE TREATMENT AS A PRINCIPLE ELEMENT TO SIGNIFICANTLY AND PERMANENTLY REDUCE THE PRINCIPAL THREATS AT THE SITE. THEREFORE, IN SITU FIXATION WOULD NOT RESULT IN A PERMANENT REMEDY.

4. REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

REDUCTION OF TOXICITY AND VOLUME WOULD BE SIMILAR TO THAT OF ALTERNATIVE 4-1. REDUCTION OF MOBILITY MAY BE LESS FOR THIS ALTERNATIVE, BECAUSE FIXATION MAY NOT BE AS COMPLETE AS FOR ON-SITE EXCAVATION AND FIXATION.

5. IMPLEMENTABILITY

THE PERSONNEL EXPERTISE AND EQUIPMENT TO PERFORM IN SITU FIXATION ARE AVAILABLE, BUT LIMITED. TWO BAY AREA FIRMS WHICH MIGHT BE AVAILABLE TO PERFORM THIS TYPE OF REMEDY HAVE BEEN IDENTIFIED, HOWEVER, THEY HAVE ONLY ONE OR TWO IN SITU UNITS AVAILABLE. IN ALTERNATIVES 3-1, 4-1 AND 5-1, EXCAVATION RESOURCES TO CONSOLIDATE CONTAMINATED MATERIALS ARE READILY AVAILABLE.

6. SHORT-TERM EFFECTIVENESS

THE SHORT-TERM IMPACTS FROM THIS ALTERNATIVE DIFFER FROM ALTERNATIVE 4-1 IN THAT POTENTIAL SHORT-TERM EXPOSURE TO WORKERS AND ADJACENT RESIDENTS WOULD BE LESS. HIGHLY CONTAMINATED SOIL WOULD NOT BE EXCAVATED AND THERE IS LESS RISK OF DUST GENERATION, AS ONLY MINOR SOIL EXCAVATION IS REQUIRED.

7. COSTS

BASED ON DISCUSSIONS WITH THE LIMITED AVAILABLE VENDORS, COSTS FOR THE IN SITU FIXATION PROCESS ARE HIGHLY VARIABLE. ACTUAL PILOT TESTS WOULD HAVE TO BE PERFORMED AT THE MGM BRAKES SITE IN ORDER TO BETTER ESTIMATE THE COST. SYSTEM MOBILIZATION COST IS ESTIMATED AT $120,000. O&M COSTS FOR THIS ALTERNATIVE ARE IDENTICAL TO THOSE OF ALTERNATIVE 4-1 (SEE TABLE 1).

8. STATE ACCEPTANCE

STATE ACCEPTANCE IS EXPECTED TO BE LOW DUE TO THE NEED TO ENFORCE LONG-TERM MONITORING AND LAND USE RESTRICTIONS AT THE SITE.

9. COMMUNITY ACCEPTANCE

THE COMMUNITY PERCEPTION OF THIS ALTERNATIVE IS GENERALLY EQUIVALENT TO THAT OF ALTERNATIVE 4-1. ALTHOUGH IN THE SHORT-TERM THERE WOULD BE LESS EXPOSURE TO WORKERS AND ADJACENT RESIDENTS COMPARED TO EXCAVATION, IN THE LONG-TERM THIS ALTERNATIVE DOES NOT PROVIDE A PERMANENT SOLUTION FOR THE SITE, AND REQUIRES LAND USE RESTRICTIONS.

ALTERNATIVE 5-2. IN SITU FIXATION - PARCEL 2

1. OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

OVERALL PROTECTION FROM THIS ALTERNATIVE WOULD BE THE SAME AS DESCRIBED FOR ALTERNATIVE 5-1.

2. COMPLIANCE WITH ARARS

THE ISSUES RELATIVE TO ARARS AND OTHER INSTITUTIONAL REQUIREMENTS ARE THE SAME AS FOR ALTERNATIVE 5-1.

3. LONG-TERM EFFECTIVENESS AND PERMANENCE

THE LONG-TERM EFFECTIVENESS OF THIS ALTERNATIVE IS THE SAME AS ALTERNATIVE 4-2. LT DOES NOT PROVIDE A PERMANENT SOLUTION AND REQUIRES LONG-TERM MONITORING, AND SITE ACCESS AND LAND USE RESTRICTIONS.

4. REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

TOXICITY AND VOLUME REDUCTIONS ARE THE SAME AS THOSE FOR ALTERNATIVE 5-1. DEPENDING ON THE DEPTH OF CONTAMINATION BELOW THE SLAB, MOBILITY REDUCTION COULD BE LESS THAN FOR ALTERNATIVE 4-2.

5. IMPLEMENTABILITY

THE RESOURCES REQUIRED FOR THIS ALTERNATIVE ARE THE SAME AS THOSE REQUIRED FOR ALTERNATIVE 5-1, INCLUDING CONSTRUCTION SERVICES TO DEMOLISH THE BUILDING. THE LIMITING FACTOR WOULD BE AVAILABILITY OF IN SITU EQUIPMENT.

6. SHORT-TERM EFFECTIVENESS

THE SHORT-TERM IMPACTS FOR THIS ALTERNATIVE WOULD BE GREATER THAN THOSE ASSOCIATED WITH ALTERNATIVE 5-1 DUE TO THE NEED TO REMOVE THE CONCRETE SLAB. OVERALL POTENTIAL SHORT-TERM EXPOSURE TO WORKERS AND ADJACENT RESIDENTS IS EXPECTED TO BE LESS THAN COMPLETE EXCAVATION, HOWEVER.

7. COSTS

COST ASSUMPTIONS ARE SIMILAR TO ALTERNATIVE 5-1 WITH THE EXCEPTION OF THE NEED TO DEMOLISH AND DISPOSE OF THE BUILDING AND SLAB. O&M COSTS WILL BE IDENTICAL TO THOSE DESCRIBED FOR ALTERNATIVE 4-2. (SEE TABLE 1).

8. STATE ACCEPTANCE

STATE ACCEPTANCE IS EXPECTED TO BE LOW DUE TO THE NEED TO ENFORCE LONG-TERM MONITORING AND LAND USE RESTRICTIONS.

9. COMMUNITY ACCEPTANCE

THE COMMUNITY'S PERCEPTION OF THIS ALTERNATIVE IS EXPECTED TO BE THE SAME AS FOR ALTERNATIVE 4-2.

ALTERNATIVE 6-1. RCRA CAP - PARCEL 1

1. OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

CAPPING OF THE SITE WOULD REDUCE MOBILITY OF CONTAMINANTS THROUGH SURFACE RUNOFF. A CAP WOULD ALSO REDUCE AIR EMISSIONS. HORIZONTAL GROUNDWATER MOBILITY OF CONTAMINANTS WOULD NOT BE REDUCED AND CONTAMINANTS WOULD REMAIN IN DIRECT CONTACT WITH SITE GROUNDWATER. THIS ALTERNATIVE WOULD NOT COMPLY WITH THE TSCA SPILL POLICY TBC CRITERIA FOR THE SITE. OVERALL PROTECTIVENESS OFFERED BY THIS ALTERNATIVE COULD ONLY BE MAINTAINED THROUGH LONG-TERM LAND USE RESTRICTIONS, MAINTENANCE, AND SITE MONITORING. THIS ALTERNATIVE PRESENTS THE GREATEST POTENTIAL FOR RELEASE OF CONTAMINANTS AND EXPOSURE TO PCBS SHOULD THE CAP FAIL, BE DAMAGED, OR BE REMOVED. THE ALTERNATIVE DOES NOT USE TREATMENT.

2. COMPLIANCE WITH ARARS

CONSTRUCTION OF A MULTI-LAYERED CAP OVER THE CONTAMINATED SOIL MEETS ALL ARARS.

3. LONG-TERM EFFECTIVENESS AND PERMANENCE

THIS ALTERNATIVE WOULD NOT PROVIDE A PERMANENT SOLUTION. CAPPING THE SITE COULD PROVIDE AN ACCEPTABLE MEANS OF ELIMINATING EXPOSURE TO CONTAMINATED SOILS VIA POTENTIAL INHALATION, DIRECT CONTACT AND INHALATION PATHWAYS. HOWEVER, TO ENSURE LONG-TERM PROTECTIVENESS, LAND USE AND ACCESS RESTRICTIONS, MONITORING AND MAINTENANCE WOULD BE REQUIRED IN PERPETUITY.

4. REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

THIS ALTERNATIVE WOULD NOT USE TREATMENT TO REDUCE TOXICITY, MOBILITY, OR VOLUME. HOWEVER, THE CAP WOULD RESTRICT POTENTIAL HUMAN CONTACT WITH CONTAMINATED SOIL, REDUCE SURFACE WATER RUN-OFF AND INFILTRATION, AND EMISSIONS OF AIR BORNE PCBS. GROUNDWATER MOBILITY WOULD NOT BE REDUCED.

5. IMPLEMENTABILITY

THE EQUIPMENT, MATERIALS AND PERSONNEL NECESSARY FOR THE CONSTRUCTION OF A CAP WOULD BE AVAILABLE THROUGH LOCAL MARKETS. IT IS NOT ANTICIPATED THAT RESOURCE LIMITATIONS WILL PRESENT A PROBLEM.

6. SHORT-TERM EFFECTIVENESS

THE SHORT-TERM IMPACTS FOR CAPPING FIXATION WOULD BE THE SAME AS THOSE FOR ALTERNATIVE 5-1. POTENTIAL PUBLIC HEALTH RISKS ASSOCIATED WITH THE CONSOLIDATION OF CONTAMINATED SOIL WOULD BE MINIMIZED THROUGH STANDARD WORK PRACTICES.

7. COSTS

THIS ALTERNATIVE WOULD INVOLVE COVERING TWO ACRES OF CONTAMINATED SOIL WITH A RCRA CAP. A RCRA CAP WOULD BE THE LEAST COSTLY OF THE ACTION ALTERNATIVES. O&M COSTS INCLUDE A SITE INVESTIGATION AT ELIMINATE OF EVERY FIVE YEARS TO EVALUATE THE INTEGRITY OF THE CAP AND TO TAKE PERIMETER SOIL SAMPLES AND GROUNDWATER SAMPLES (SEE TABLE 1).

8. STATE ACCEPTANCE

STATE ACCEPTANCE IS EXPECTED TO BE LOW DUE TO THE NEED TO ENFORCE LONG-TERM MONITORING REQUIREMENTS AND LAND USE RESTRICTIONS.

9. COMMUNITY ACCEPTANCE

BASED ON THE COMMENTS RECEIVED DURING THE FIRST PUBLIC COMMENT PERIOD, THE COMMUNITY'S PERCEPTION OF THIS ALTERNATIVE IS NOT FAVORABLE. LIKE ALTERNATIVE 4-1 AND 5-1, THE REMEDIAL ACTION WOULD NOT RESULT IN A PERMANENT SOLUTION, NOR WOULD IT ALLOW UNRESTRICTED FUTURE USE OF THE SITE.

ALTERNATIVE 6-2. RCRA CAP - PARCEL 2

1. OVERALL PROTECTIVENESS OF HUMAN HEALTH AND THE ENVIRONMENT

OVERALL PROTECTIVENESS OF THIS ALTERNATIVE WOULD BE THE SAME AS THAT FOR ALTERNATIVE 6-1.

2. COMPLIANCE WITH ARARS

THE ISSUES RELATIVE TO ARARS ARE THE SAME AS THOSE FOR ALTERNATIVE 6-1.

3. LONG-TERM EFFECTIVENESS AND PERMANENCE

THE LONG-TERM EFFECTIVENESS OF THIS ALTERNATIVE WOULD BE THE SAME AS THAT FOR ALTERNATIVE 6-1. THIS ALTERNATIVE WOULD NOT BE A PERMANENT SOLUTION.

4. REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

REDUCTION OF TMV FOR THIS ALTERNATIVE WOULD BE THE SAME AS THAT FOR ALTERNATIVE 6-1.

5. IMPLEMENTABILITY

THE RESOURCES REQUIRED FOR THIS ALTERNATIVE WOULD BE THE SAME AS THOSE REQUIRED FOR ALTERNATIVE 6-1, IN ADDITION TO CONSTRUCTION SERVICES REQUIRED TO DEMOLISH THE BUILDING.

6. SHORT-TERM EFFECTIVENESS

THE SHORT-TERM EFFECTIVENESS ASSOCIATED WITH THIS ALTERNATIVE WOULD BE THE SAME AS THAT FOR ALTERNATIVE 6-1.

7. COST

COST ASSUMPTIONS FOR A RCRA CAP FOR PARCEL 2 ARE SIMILAR TO THOSE FOR THE RCRA CAP FOR PARCEL 1, WITH THE ADDITIONAL COST OF DISMANTLING THE BUILDING. THE CAP WOULD COVER APPROXIMATELY 5,000 SQUARE FEET OF THE CONTAMINATED PORTION OF THE BUILDING. O&M COSTS WOULD BE SIMILAR TO THOSE DESCRIBED IN ALTERNATIVE 4-2 (SEE TABLE 1).

8. STATE ACCEPTANCE

STATE ACCEPTANCE IS EXPECTED TO BE THE SAME AS FOR ALTERNATIVE 6-1.

9. COMMUNITY ACCEPTANCE

THE COMMUNITY PERCEPTION OF THIS ALTERNATIVE IS EXPECTED TO BE THE SAME AS FOR ALTERNATIVE 6-1. IN ADDITION, IF THE IMPLEMENTATION OF THE ALTERNATIVE RESULTED IN THE LOSS OF JOBS, THE ALTERNATIVE WOULD BE PERCEIVED LESS FAVORABLY BY THE COMMUNITY.

#SR
X. THE SELECTED REMEDY

BASED ON THE ANALYSES IN THE REVISED FS AND PUBLIC COMMENTS RECEIVED, EPA'S SELECTED REMEDY FOR THE MGM BRAKES SITE IS EXCAVATION ANDOFF-SITE DISPOSAL OF SOILS CONTAMINATED ABOVE 10 PPM PCBS. SOILS WILL BE EXCAVATED TO A DEPTH OF AT LEAST FIVE FEET FOR MOST OF THE CONTAMINATED PORTIONS OF THE SITE, WITH LIMITED AREAS BEING EXCAVATED DOWN TO 29 FEET. THE SOIL EXCAVATION WILL ENCOUNTER GROUNDWATER AT FIVE FEET, WHICH WILL REQUIRE DEWATERING OF THE DEEPER EXCAVATION. GROUNDWATER PUMPED FROM THE EXCAVATION WILL BE TREATED TO REMOVE SUSPENDED SEDIMENT, PCBS, AND VOCS.

SOIL CONTAINING LESS THAN 50 PPM PCBS WILL BE DISPOSED OF IN A CLASS II LANDFILL, APPROVED BY THE RWQCB. SOIL CONTAMINATED WITH PCBS AT CONCENTRATIONS GREATER THAN OR EQUAL TO 50 PPM PCBS WILL BE DISPOSED OF IN A TSCA-APPROVED DISPOSAL FACILITY IN COMPLIANCE WITH 121(D)(3) OF SARA. THE EXCAVATED AREAS OF THE SITE WILL BE BACKFILLED WITH CLEAN SOIL WHICH WILL MEET A LESS THAN 1 PPM PCB CRITERIA. THE SITE WILL THEN BE FULLY REGRADED AND SEEDED TO ENSURE GROWTH OF GRASSES TO MINIMIZE EROSION.

THE REMEDY WILL ALSO INCLUDE EXCAVATION AND OFF-SITE DISPOSAL OF CONTAMINATED SEDIMENTS SUCH THAT THE REQUIREMENTS OF THE NCRWQCB'S WATER QUALITY CONTROL PLAN ARE MET.

THE SELECTED REMEDY ALSO INCLUDES MEASURES FOR LOCATING AND REMEDIATING THE VOC CONTAMINATION AT THE SITE. ACTIVITIES INVOLVED WITH THIS REMEDIATION INCLUDE LOCATING THE SOURCE OF THE VOC SPILL, REMOVAL AND TREATMENT/DISPOSAL OF VOC CONTAMINATED SOIL, EVALUATION OF THE EXTENT OF THE VOC CONTAMINATION, AND, AS NECESSARY, DEVELOPMENT AND IMPLEMENTATION, ADDITIONAL REMEDIAL MEASURES, TO ENSURE THAT THE GROUNDWATER IS RESTORED TO A 10-1 RISK LEVEL AT THE SITE BOUNDARY.

IN PREPARING THE REVISED FEASIBILITY STUDY, EPA INCORPORATED RESULTS OF EXPOSURE ASSESSMENTS PRESENTED IN THE DOCUMENT, "DEVELOPMENT OF ADVISORY LEVELS FOR POLYCHLORINATED BIPHENYLS." THIS DOCUMENT WAS WRITTEN BY EPA'S OFFICE OF HEALTH AND ENVIRONMENTAL ASSESSMENT (OHEA) EXPOSURE ENFORCEMENT GROUP (EAG) AND HAS BEEN PEER REVIEWED BOTH WITHIN AND OUTSIDE THE AGENCY.

THE OHEA ASSESSMENT CONCLUDES THAT A PCB LEVEL OF 1 TO 6 PPM IN A COMMERCIAL OR RESIDENTIAL AREA WOULD RESULT IN AN ON-SITE ONCOGENIC RISK (I.E. RISK OF DEVELOPING CANCER) OF 10(-5).

ON APRIL 2, 1987, 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 SPILL POLICY ESTABLISHES A 10 PPM CLEAN-UP LEVEL IN RESIDENTIAL AND COMMERCIAL AREAS, WHEN A 10 INCH CAP OF CLEAN SOIL (DEFINED AS LT 1 PPM PCB) IS PLACED OVER THE RESIDUAL (I.E., LT 10 PPM) PCBS. THE 1 TO 6 PPM SOIL VALUE FOR PCBS REFLECTS A 10-5 RISK. DUE TO THE VARIANCES INHERENT IN SAMPLING, ANALYSIS, AND CALCULATING PCB SOIL RISK LEVELS, THERE IS NOT A QUANTIFIABLE DIFFERENCE IN THE RISK AFFORDED BY 1, 6, OR 10 PPM SOIL CONCENTRATIONS. SUBSEQUENT TO ISSUANCE OF THE SPILL POLICY, THE PCB CANCER POTENCY FACTOR HAS BEEN RAISED FROM 4.3 TO 7.7 MG PCB PER KILOGRAM OF BODY WEIGHT PER DAY. THIS CHANGE IS LESS THAN AN ORDER OF MAGNITUDE; THUS, THE RISK LEVEL CORRESPONDING TO 10 PPM IS STILL 10-5. A 10-5 RISK IS CONSIDERED ACCEPTABLE BY EPA AND THEREFORE, EPA HAS ELECTED TO USE 10 PPM AS THE CLEAN-UP LEVEL. PLACING A 10 INCH COVER OVER THE RESIDUAL PCBS REDUCES THE OVERALL RISK TO 10-6. AT MOST AREAS OF THE SITE, THE EXCAVATION AND SUBSEQUENT SOIL COVER WILL WELL EXCEED 10 INCHES, AND, THEREFORE, THE RISK REDUCTION IS

EXPECTED TO BE EVEN GREATER.

THE SELECTED REMEDY IS PREFERRED OVER THE OTHERS FOR SEVERAL REASONS. IT PROVIDES A PERMANENT SOLUTION AT THE SITE SINCE THE SOURCE OF THE PROBLEM IS REMOVED AND FUTURE, RISKS FROM CONTAMINATED SOIL, RUNOFF (E.G. FROM RAINS) OR PCB VAPORS ARE SIGNIFICANTLY AND PERMANENTLY REDUCED. IN ADDITION THIS REMEDY DOES NOT REQUIRE LONG-TERM MONITORING, LAND USE RESTRICTIONS, OR ENFORCEMENT OF INSTITUTIONAL CONTROLS TO PREVENT EXPOSURE AT THE SITE. IT ALLOWS UNRESTRICTED FUTURE USE OF THE PROPERTY WHICH, BASED ON COMMUNITY INPUT, IS IMPORTANT FOR FUTURE CITY PLANS. THE ONLY OTHER ALTERNATIVE THAT OFFERS THIS SAME LEVEL OF LONG-TERM PROTECTION AT THE SITE IS INCINERATION, WHICH HAS MET OPPOSITION FROM THE CLOVERDALE COMMUNITY. DISPOSAL AT A FACILITY REGULATED UNDER FEDERAL OR STATE LAW WOULD ENSURE THAT THE PCBS ARE HANDLED IN A SAFE AND EFFECTIVE MANNER. IN ADDITION, OFF-SITE DISPOSAL IS THE EASIEST ALTERNATIVE TO IMPLEMENT IN TWO STAGES, ALLOWING THE COMMUNITY TIME TO PLAN FOR THE CLOSURE OR RELOCATION OF THE CASTING PLANT.

THE FINAL REMEDY WILL INCLUDE PROVISIONS FOR GROUNDWATER MONITORING AS LONG AS VOCS ARE PRESENT IN THE GROUNDWATER. MONITORING WILL ALSO BE PERFORMED TO ENSURE THAT PCBS HAVE NOT IMPACTED GROUNDWATER DURING REMEDIATION AND TO VERIFY THAT THE SOURCE OF TCE CONTAMINATION HAS BEEN REMOVED. THE PERIOD DURING WHICH MONITORING WILL BE REQUIRED FOLLOWING REMEDIATION WILL BE SPECIFIED BY THE NCRWQCB.

#SD

XI. STATUTORY DETERMINATIONS

1. PROTECTIVENESS

BY REMOVING ALL SOIL WITH PCB LEVELS GREATER THAN 10 PPM, THE PRESENT THREAT AND POTENTIAL FOR FUTURE EXPOSURE TO CONTAMINATED SOIL, RUNOFF, OR PCB VAPORS IS SIGNIFICANTLY REDUCED. UNDER ANY PLAUSIBLE FUTURE USE SCENARIO, THE EXCESS RISK AFFORDED BY REMAINING SOILS WOULD BE, AT WORST, A 10(-5) RISK. THERE IS A POTENTIAL FOR SHORT-TERM PUBLIC HEALTH IMPACTS RELATED TO THE EXCAVATION AND TRANSPORTATION OF SOIL. THESE ACTIVITIES WILL INCREASE THE RISK OF EXPOSURE TO CONTAMINATED SOIL, AS WILL AS TO VOLATILE AND PCB-CONTAMINATED PARTICULATE EMISSIONS. EXCAVATION RELATED EXPOSURE CAN BE CONTROLLED BY PROPER HEALTH AND SAFETY PROCEDURES, AS WILL AS PRACTICES SUCH AS MISTING SOIL WITH WATER TO SUPPRESS AIRBORNE PARTICULATE. THE USE OF TRUCKS WITH PROTECTIVE LININGS, SEALS, AND TARPAULINS, AND THE USE OF ON-SITE DECONTAMINATION PROCEDURES, WILL MINIMIZE EXPOSURE TO WASTE HAULERS AND TO THE PUBLIC ALONG ROUTE TO THE DISPOSAL FACILITY. THERE WILL BE A SHORT-TERM INCREASE IN TRANSPORTATION TRAFFIC DUE TO TRUCKS TRAVELING TO AND FROM THE SITE AND NOISE LEVELS WILL INCREASE. THE IMPACT ON THE COMMUNITY SHOULD BE NEGLIGIBLE SINCE MOST RESIDENCES ARE TO THE NORTH OF THE SITE AND TRANSPORT WILL BE ALONG HIGHWAY 101 TO THE SOUTH. GROUNDWATER WILL BE RESTORED TO LEVELS EACH THAT THE TOTAL RISK AT THE SITE BOUNDARY WILL NOT EXCEED 10(-6).

THIS ALTERNATIVE WILL HAVE MINIMAL SHORT-TERM ENVIRONMENTAL IMPACTS DURING SOIL EXCAVATION. BIOTA WILL BE DISPLACED BY THE EXCAVATION PRACTICES. HOWEVER, THESE IMPACTS ARE TEMPORARY AND CAN BE MITIGATED. VEGETATION REGROWTH CAN BE ENHANCED THROUGH PROPER SEEDING AND MULCHING PRACTICES.

LONG-TERM ENVIRONMENTAL IMPACTS AT THE SITE ARE NOT ANTICIPATED AND THE SITE IS EXPECTED TO BE FULLY RESTORED

2. ATTAINMENT OF APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

SECTION 121(D)(2) OF SARA REQUIRES REMEDIAL ACTIONS TO ACHIEVE A LEVEL OF CONTROL THAT IS PROTECTIVE OF PUBLIC HEALTH AND THAT MEETS APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

(ARARS). THE FEDERAL ARARS FOR A SITE COULD INCLUDE REQUIREMENTS UNDER ANY OF THE FEDERAL ENVIRONMENTAL LAWS (E.G., THE CLEAN AIR ACT, THE CLEAN WATER ACT, THE SAFE DRINKING WATER ACT). STATE ARARS INCLUDE PROMULGATED REQUIREMENTS UNDER STATE ENVIRONMENTAL OR FACILITY SITING LAWS THAT ARE MORE STRINGENT THAN ANY FEDERAL ARARS AND HAVE BEEN IDENTIFIED TO EPA BY THE STATE IN A TIMELY MANNER.

APPLICABLE REQUIREMENTS ARE DEFINED AS THOSE CLEAN-UP STANDARDS, STANDARDS OF CONTROL, AND OTHER SUBSTANTIVE ENVIRONMENTAL PROTECTION REQUIREMENTS, CRITERIA, OR LIMITATIONS PROMULGATED UNDER FEDERAL OR STATE LAW THAT SPECIFICALLY ADDRESS A HAZARDOUS SUBSTANCE, POLLUTANT, CONTAMINANT, REMEDIAL ACTION, LOCATION OR OTHER CIRCUMSTANCE AT A CERCLA SITE.

RELEVANT AND APPROPRIATE REQUIREMENTS ARE DEFINED AS THOSE CLEAN-UP STANDARDS OF CONTROL, AND OTHER SUBSTANTIVE ENVIRONMENTAL PROTECTION REQUIREMENTS, CRITERIA, OR LIMITATIONS PROMULGATED UNDER FEDERAL OR STATE LAW THAT, WHILE NOT "APPLICABLE" TO A HAZARDOUS SUBSTANCE, POLLUTANT, CONTAMINANT, REMEDIAL ACTION, LOCATION OR OTHER CIRCUMSTANCE AT A CERCLA SITE, ADDRESS PROBLEMS OR SITUATIONS SUFFICIENTLY SIMILAR TO THOSE ENCOUNTERED AT THE CERCLA SITE THAT THEIR USE IS WELL-SUITED TO THE PARTICULAR SITE.

CONTAMINANT SPECIFIC ARARS

THE CONTAMINANT-SPECIFIC ARARS ARE DESCRIBED BELOW

1. TSCA PCB DISPOSAL AND TREATMENT REQUIREMENTS

REGULATIONS PROMULGATED UNDER TSCA STATE THAT ANY NON-LIQUID PCBS AT CONCENTRATIONS OF 50 PPM OR GREATER IN THE FORM OF CONTAMINATED SOIL SHALL BE TREATED IN AN INCINERATOR OR DISPOSED IN A CHEMICAL WASTE LANDFILL 40 CFR 761.60 (A)(4). ONCE THE CONTAMINATED SOILS ARE EXCAVATED, THE REQUIREMENTS BECOME APPLICABLE TO THE MGM BRAKES SITE. EPA HAS ALSO DETERMINED THAT THESE REQUIREMENTS ARE RELEVANT AND APPROPRIATE TO ALTERNATIVES NOT INVOLVING EXCAVATION; THIS DETERMINATION IS BASED ON THE SIMILARITY OF THE AFFECTED MEDIA, THE FACT THAT THE SAME HAZARDOUS SUBSTANCE IS INVOLVED, AND THE FACT THAT THESE REGULATIONS WERE DEVELOPED TO ADDRESS A PROBLEM SUFFICIENTLY SIMILAR TO THAT FACED AT THE MGM SITE TO JUSTIFY THEIR ADOPTION. THEREFORE, THESE REQUIREMENTS ARE CONSIDERED AN ARAR FOR THE SITE. THE SPECIFIC CHEMICAL WASTE LANDFILL REQUIREMENTS INVOLVED ARE FOUND IN 40 CFR 761.75. THESE REQUIREMENTS ARE AS FOLLOWS:

LANDFILL REQUIREMENTS

- SOILS

  THE LANDFILL SITE SHALL BE LOCATED IN THICK, RELATIVELY IMPERMEABLE FORMATIONS SUCH AS LARGE-AREA CLAY PANS. WHERE THIS IS NOT POSSIBLE, THE SOIL SHALL HAVE A HIGH CLAY AND SILT CONTENT WITH THE FOLLOWING PARAMETERS:

  1. IN-PLACE SOIL THICKNESS, 4 FEET OR COMPACTED SOIL LINER THICKNESS OF 3 FEET;
  2. PERMEABILITY (CM/SEC), EQUAL TO OR LESS THAN 1X10(-7);
  3. PERCENT SOIL PASSING NO. 200 SIEVE, GT 30;
  4. LIQUID LIMIT, GT 30; AND
  5. PLASTICITY INDEX GT 15.

- SYNTHETIC MEMBRANE LINERS

  SYNTHETIC MEMBRANE LINERS SHALL BE USED WHEN, IN THE JUDGMENT OF THE REGIONAL ADMINISTRATOR, THE HYDROLOGIC OR GEOLOGIC CONDITIONS AT THE LANDFILL REQUIRE SUCH A LINER IN ORDER TO PROVIDE AT LEAST A PERMEABILITY EQUIVALENT TO THE SOILS DESCRIBED ABOVE. SEE 761.75 (B)(2) FOR LINER REQUIREMENTS.

- HYDROLOGIC CONDITIONS

  THE BOTTOM OF THE LANDFILL SHALL BE AT LEAST 50 FEET ABOVE THE HISTORICAL HIGH GROUND WATER TABLE AND THERE SHALL BE NO HYDRAULIC CONNECTION BETWEEN THE SITE AND STANDING OR FLOWING SURFACE WATER.

- FLOOD PROTECTION

  VARIOUS SURFACE WATER DIVERSION STRUCTURES ARE REQUIRED DEPENDING UPON WHETHER THE SITE IS ABOVE OR BELOW THE 100-YEAR FLOODWATER ELEVATION.

- TOPOGRAPHY

  SITE SHALL BE LOCATED IN AN AREA OF LOW TO MODERATE RELIEF.

- MONITORING SYSTEMS

  GROUND AND SURFACE WATER QUALITY FROM THE DISPOSAL SITE AREA WILL BE MONITORED PRIOR TO COMMENCING OPERATIONS, DURING AND AFTER OPERATIONS. PARAMETERS WILL INCLUDE PCBS, PH, AND SPECIFIC CONDUCTANCE.

  ADDITIONAL SPECIFICATIONS IN SECTION 761.75 ADDRESS ISSUES CONCERNING APPROVAL OF LANDFILL OPERATORS, LANDFILL SITE APPROVAL, AND THE TRANSFER OF PROPERTY OWNERSHIP OF A LANDFILL SITE.

SOIL REQUIREMENTS ARE NOT FULLY MET. ALTHOUGH THE SITE HAS A SILTY-CLAY SOIL LAYER WITH A PERMEABILITY OF 1X10(-7)CM/SEC OR LESS, BORINGS INDICATE IT DOES NOT APPEAR TO BE ENTIRELY CONTINUOUS.

HYDROLOGIC REQUIREMENTS ARE NOT MET. GROUNDWATER LEVELS FLUCTUATE WITHIN CONTAMINATED SOIL; THE REQUIRED 50 FEET ABOVE THE HISTORICAL GROUNDWATER TABLE IS NOT MET.

TSCA ALSO PROVIDES THE EPA WITH THE ABILITY TO GRANT A WAIVER WHEN ONE OR MORE OF THE TECHNICAL REQUIREMENTS UNDER 40 CFR SECTION 761.75(B) ARE NOT MET AS LONG AS IT CAN BE DEMONSTRATED THAT THE LANDFILL WILL NOT PRESENT AN UNREASONABLE RISK TO HEALTH AND THE ENVIRONMENT. 40 CFR 761.75(C)(4). BASED ON INFORMATION CONTAINED IN THE ADMINISTRATIVE RECORD, IT HAS BEEN DETERMINED THAT GRANTING A WAIVER OF THE REQUIREMENTS CONTAINED IN 40 CFR 761.75(B)(1), (2), AND (3) WOULD NOT RESULT IN AN UNREASONABLE RISK OF INJURY TO HUMAN HEALTH OR THE ENVIRONMENT FOR THIS SITE. THIS FINDING IS BASED ON EPA'S DETERMINATION THAT ALTHOUGH THE GROUNDWATER DIRECTLY BENEATH THE SITE IS ALREADY CONTAMINATED WITH LOW LEVELS OF PCBS, THE CONTAMINATED AQUIFER IS NOT USABLE DUE TO LOW YIELDS AND, BECAUSE THE RATE OF MOVEMENT OF THE PCBS IS HIGHLY ATTENUATED, IMPACTS TO THE DOWNGRADIENT AQUIFER ARE NOT ANTICIPATED. THE REQUIREMENTS OF 40 CFR 761.75(B)(1), (2), AND (3) ARE, THEREFORE, WAIVED FOR ALL ALTERNATIVES THAT WOULD HAVE CONTAMINANTS ON-SITE.

2. FEDERAL SAFE DRINKING WATER ACT

THE FEDERAL SAFE DRINKING WATER ACT (SDWA) ESTABLISHES DRINKING WATER MAXIMUM CONTAMINANT LEVEL (MCLS) STANDARDS FOR PUBLIC WATER SYSTEMS. THE ACT AND REGULATIONS INDICATE THAT THE STANDARDS APPLY ONLY TO PUBLIC WATER SUPPLY SYSTEMS AT THE TAP. HOWEVER, UNDER SARA, MCLS MAY BE CONSIDERED RELEVANT AND APPROPRIATE FOR CONTAMINATED GROUNDWATER WHICH MAY RESULT IN A POTENTIAL EXPOSURE VIA DRINKING WATER.

3. WATER QUALITY CONTROL PLAN FOR THE NORTH COASTAL BASIN

THE WATER QUALITY CONTROL PLAN, ADOPTED ON APRIL 17, 1975, PURSUANT TO THE FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972 (PL 92-500) AND 40 CFR 131.202, ESTABLISHES WATER QUALITY OBJECTIVES FOR THE WATERS OF THE STATE IN ORDER TO ATTAIN THE HIGHEST WATER QUALITY WHICH IS REASONABLE CONSIDERING ALL DEMANDS BEING MADE AND TO BE MADE ON THOSE WATERS AND THE BENEFICIAL USES INVOLVED. THESE OBJECTIVES HAVE BEEN IDENTIFIED AS ARARS FOR THE DRAINAGE DITCH LEADING FROM THE MGM BRAKES SITE.

LOCATION-SPECIFIC ARARS

PHYSICAL CHARACTERISTICS OF THE SITE MAY INFLUENCE THE TYPE AND LOCATION OF REMEDIAL RESPONSES CONSIDERED FOR PCB DECONTAMINATION. FEDERAL LAWS ON REGULATIONS MAY REQUIRE MITIGATION MEASURES OR MAY IMPOSE CONSTRAINTS ON THE LOCATION OF REMEDIAL MEASURES.

LOCATION-SPECIFIC ARARS RELATE TO FISH AND WILDLIFE, WETLANDS, FLOODPLAINS, AND WORK IN NAVIGABLE WATERS. THERE WERE NO LOCATION-SPECIFIC ARARS IDENTIFIED FOR THE MGM BRAKES SITE

ACTION-SPECIFIC ARARS

THE ACTION-SPECIFIC ARARS FOR THE MGM BRAKES SITE DEAL WITH REQUIREMENTS FOR THE TREATMENT, STORAGE, OR DISPOSAL OF CONTAMINATED SOIL.

1. RCRA AND HAZARDOUS SOLID WASTE AMENDMENT (HSWA) STANDARDS

REMEDIAL ACTIVITIES THAT INVOLVE THE EXCAVATION OR REMOVAL OF HAZARDOUS SUBSTANCES, ON-SITE MANAGEMENT OF THESE SUBSTANCES, OR REMOVAL TO OFF-SITE FACILITIES MUST BE IN COMPLIANCE WITH STANDARDS UNDER RCRA AND AMENDMENTS TO RCRA ENACTED THROUGH THE HSWA STANDARDS, AND WITH THE REQUIREMENT OF THE STATE STANDARDS AUTHORIZED UNDER RCRA. THE REQUIREMENTS ARE APPLICABLE TO ANY SOIL FOUND TO BE CONTAMINATED WITH VOC AND ANY SOIL FOUND CONTAMINATED WITH VOCS WILL BE DISPOSED OF IN ACCORDANCE WITH RCRA. BECAUSE PCBS ARE NOT REGULATED BY RCRA, THE REQUIREMENTS ARE NOT APPLICABLE, BUT RELEVANT AND APPROPRIATE TO PCB CONTAMINATION.

THE FOLLOWING RCRA SECTIONS ARE APPLICABLE OR RELEVANT AND APPROPRIATE TO REMEDIAL ALTERNATIVES FOR THE MGM BRAKES SITE.

- IDENTIFICATION AND LISTING OF HAZARDOUS WASTES (40 CFR 261).
- INTERIM STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES (40 CFR 265), IN PARTICULAR:

  SUBPART B - GENERAL FACILITY STANDARD
  SUBPART F - GROUND WATER MONITORING
  SUBPART G - CLOSURE AND POSTCLOSURE
  SUBPART J - TANKS
  SUBPART L - WASTE PILES
  SUBPART N - LANDFILLS

- INTERIM STANDARDS FOR OWNERS AND OPERATORS OF NEW HAZARDOUS WASTE LAND DISPOSAL FACILITIES (40 CFR 267).

HSWA PROHIBITS THE CONTINUED LAND DISPOSAL OF HAZARDOUS WASTES BEYOND CERTAIN SPECIFIED DATES, UNLESS THEY MEET CERTAIN TREATMENT STANDARDS OR CONTAMINANT LEVELS. STANDARDS WERE ESTABLISHED TO SET LEVELS OR METHODS OF TREATMENT TO SUBSTANTIALLY DIMINISH THE TOXICITY OF THE WASTE OR RESTRICT ITS MIGRATION SO THAT SHORT-TERM AND LONG-TERM THREATS TO HUMAN HEALTH OR THE ENVIRONMENT ARE MINIMIZED. WASTES THAT MEET TREATMENT STANDARDS ARE NOT SUBJECT TO LAND DISPOSAL PROHIBITIONS. CERCLA-GENERATED WASTES HAVE A 48-MONTH STATUTORY EXEMPTION FROM THE

NOVEMBER 8. 1984, ENACTMENT OF HSWA. TO DATE, EXISTING HSWA STANDARDS REGARDING PCBS ONLY APPLY TO LIQUID PCBS OR PCBS MIXED WITH A RCRA HAZARDOUS WASTE. THEREFORE, THE RCRA LAND DISPOSAL RESTRICTIONS ARE NOT ARARS FOR THE PCB CONTAMINATED SOIL.

SHOULD ANY SOILS BE FOUND TO BE CONTAMINATED WITH TCE, A VARIANCE FROM THE LAND DISPOSAL RESTRICTIONS FOR THIS UNIQUE SITE WOULD BE SOUGHT.

2. USDOT AND DOHS HAZARDOUS MATERIAL TRANSPORTATION RULES

OFFSITE TRANSPORTATION OF HAZARDOUS MATERIALS WILL BE GOVERNED BY THE FEDERAL DEPARTMENT OF TRANSPORTATION (USDOT) AND STATE DEPARTMENT OF TRANSPORTATION (DOT) REGULATIONS. THESE REQUIREMENTS ARE INCORPORATED BY REFERENCE INTO RCRA REGULATIONS AND THE CALIFORNIA CODE OF REGULATIONS (CCR; FORMERLY CALIFORNIA ADMINISTRATIVE CODE), CHAPTER 30, MINIMUM STANDARDS FOR MANAGEMENT OF HAZARDOUS AND EXTREMELY HAZARDOUS WASTES. THE REQUIREMENTS ARE APPLICABLE TO THE MGM BRAKES SITE, AND THUS ARE IDENTIFIES AS ARARS FOR THE SITE.

A PERMIT WOULD BE NEEDED TO GENERATE OR TRANSPORT HAZARDOUS SOLIDS, LIQUIDS, OR SLUDGES. THE MGM BRAKES SITE IS TECHNICALLY CONSIDERED A "GENERATOR" BECAUSE IT IS THE SOURCE OF HAZARDOUS WASTE OR MATERIALS THAT MAY BE TRANSPORTED OFF-SITE FOR DISPOSAL. THEREFORE, THESE REQUIREMENTS WOULD APPLICABLE. GENERATOR REQUIREMENTS ARE FOUND IN 49 CFR 172 AND 177, 40 CFR 263, AND CCR CHAPTER 30, ARTICLES 4 AND 5.

DOHS ADMINISTERS RCRA AND USDOT REGULATIONS. WASTE TRANSPORTED OUT OF THE STATE MUST BE HANDLED BY A LICENSED HAULER/TRANSPORTER, WHO WILL NEED A DOHS PERMIT FOR IN-STATE MOVEMENTS AND FEDERAL OR STATE PERMITS FOR OUT-OF-STATE TRANSPORT TO SECURE LANDFILLS OR INCINERATION DEPOTS. THE HAULER/TRANSPORTER MUST OPERATE IN COMPLIANCE WITH STATE AND FEDERAL REGULATIONS ON DRIVER TRAINING; WASTE IDENTIFICATION; CONTAINER MARKING, LABELING, AND PLACARDING; AND TRANSPORT PAPERS. PACKING AND SHIPPING MUST BE PERFORMED IN ACCORDANCE WITH 40 CFR 262.3 AND 49 CFR 173.

3. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS

ALL OSHA REQUIREMENTS ARE APPLICABLE TO WORKERS IMPLEMENTING THE REMEDIAL ALTERNATIVES. OF PARTICULAR CONCERN WILL BE EXPOSURES TO PARTICULATE AND VOLATILES IN THE AIR, AS WELL AS DIRECT CONTACT WITH CONTAMINATED MATERIALS AND HAZARDOUS CHEMICALS USED IN TREATMENT PROCESSES. THE REQUIREMENTS ERE APPLICABLE TO THE MGM BRAKES SITE, AND THUS ARE IDENTIFIED AS ARARS FOR THE SITE.

SARA REQUIRES THAT THE SECRETARY OF LABOR PROMULGATE STANDARDS FOR THE HEALTH AND SAFETY PROTECTION OF EMPLOYEES ENGAGED IN HAZARDOUS WASTE OPERATIONS PURSUANT TO SECTION 6 OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970.

FINAL REGULATIONS UNDER THIS SECTION SHALL TAKE EFFECT ONE YEAR AFTER THEY ARE PROMULGATED. UNTIL THEN, HAZARDOUS WASTE OPERATIONS ARE GOVERNED BY THE INTERIM REGULATIONS PUBLISHED IN 1986 THAT PROVIDED NO LESS PROTECTION FOR WORKERS EMPLOYED BY CONTRACTORS AND EMERGENCY RESPONSE WORKERS THAN THE PROTECTION CONTAINED IN THE OCCUPATIONAL SAFETY END HEALTH GUIDANCE MANUAL FOR HAZARDOUS WASTE SITE ACTIVITIES (NIOSH 1985) AND EXISTING STANDARDS UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, FOUND IN SUBPART C OF 29 CFR 1926.

4. CALIFORNIA CODE OF REGULATIONS CHAPTER 30

CHAPTER 30 ESTABLISHES REQUIREMENTS FOR "MINIMUM STANDARDS FOR MANAGEMENT OF HAZARDOUS AND EXTREMELY HAZARDOUS WASTES." ARTICLE 10 CLASSIFIES PCBS OF CONCENTRATION BETWEEN 50 AND 5,000 PPM AS HAZARDOUS AND GREATER THAN 5,000 PPM AS EXTREMELY HAZARDOUS WASTES; SUCH WASTE MAY NOT BE HANDLED OR DISPOSED WITHOUT A PERMIT ISSUED BY THE DOHS. THESE STANDARDS ARE APPLICABLE TO THE

MGM BRAKES SITE, AND THUS ARE ARARS FOR THE SITE.

5. CALIFORNIA CODE OF REGULATIONS CHAPTER 3

CCR CHAPTER 3 SUBCHAPTER 15 ESTABLISHES STANDARDS FOR THE DISCHARGE OF WASTE TO LAND. THIS SUBCHAPTER PROVIDES STANDARDS FOR CONSTRUCTION, MONITORING, AND CLOSURE AND POST-CLOSURE MAINTENANCE WHICH ARE ARARS FOR THE CONTAINMENT OF ANY WASTES AT THE MGM BRAKES SITE, AND THUS ARE IDENTIFIED AS ARARS FOR THE SITE.

6. CALIFORNIA WATER CODE SECTIONS 13260, 13370, AND 13370.5

SECTIONS 13260, 13370, AND 13370.5 OF THE CALIFORNIA PORTER-COLOGNE WATER QUALITY ACT HAVE BEEN IDENTIFIED AS ACTION-SPECIFIC ARARS FOR THE SITE. THE REQUIREMENTS OF THESE SECTIONS APPLY TO ANY DISCHARGES TO WATERS OF THE STATE OR TO A PUBLICLY OWNED TREATMENT WORK (POTW).

NON-PROMULGATED REQUIREMENTS

THE FOLLOWING IS A DESCRIPTION OF "TO BE CONSIDERED" CRITERIA (TBCS). IF NO ARAR COVERS A PARTICULAR SITUATION, OR AN ARAR IS NOT SUFFICIENT TO PROTECT HUMAN HEALTH NOR ENVIRONMENT, THEN NON-PROMULGATED STANDARDS, CRITERIA, GUIDANCE AND ADVISORIES MAY BE USED TO PROVIDE A PROTECTIVE REMEDY. THESE "TO BE CONSIDERED" CRITERIA ARE REFERRED TO AS TBCS.

1. PCB CLEAN-UP POLICY

A TSCA POLICY FOR THE CLEAN UP OF PCBS WAS ESTABLISHED BY EPA ON APRIL 2, 1987. THIS TSCA SPILL POLICY ESTABLISHES THE MEASURES WHICH EPA CONSIDERS TO BE ADEQUATE FOR THE MAJORITY OF SITUATIONS WHERE PCB CONTAMINATION OCCURS DURING ACTIVITIES REGULATED UNDER TSCA. THE POLICY ESTABLISHED REQUIREMENTS FOR DECONTAMINATING SPILLS IN BOTH RESTRICTED AND NON-RESTRICTED ACCESS AREAS. REGION IX EPA HAS DETERMINED THAT THE CLEAN-UP LEVEE,IS ESTABLISHED IN THE POLICY (BASED ON A 1986 PUBLICATION BY EPA OFFICE OF HEALTH AND ENVIRONMENTAL ASSESSMENT, OHEA) ARE NECESSARY TO PROVIDE AN ADEQUATE LEVEL OF PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT FOR THE SITE.

THIS, DETERMINATION IS SUPPORTED BY THE FACT THAT IN JUNE, 1987, EPA OFFICE OF EMERGENCY REMEDIAL RESPONSE ISSUED A NATIONAL POLICY THAT MET LEVELS OF PCB IN SOIL CONSIDERED PERMISSIBLE FOR THE PROTECTION OF PUBLIC HEALTH AFFECTED BY CONTAMINATED SITES REGULATED UNDER CERCLA. THIS POLICY WAS ALSO BASED ON THE 1986 OHEA DOCUMENT. THE POLICY STATES THAT IT IS INTENDED TO ALLEVIATE THE BURDEN OF REGULATORS OF THE CUMBERSOME PROCESS OF DETERMINING PERMISSIBLE LEVELS OF PCBS FOR EACH SITE UNDER THEIR JURISDICTION.

EPA HAS DETERMINED THAT THE EXPOSURE ASSUMPTIONS USED IN DEVELOPING THE OHEA RISK ASSESSMENT AND SUBSEQUENTLY THE SPILL POLICY ARE APPROPRIATE TO THE CONDITIONS AT THE MGM BRAKES SITE. THE SPILL POLICY ESTABLISHES DIFFERENT CLEAN-UP LEVELS FOR AREAS WITH DIFFERENT USES AND CONSEQUENTLY DIFFERENT EXPOSURE PATHWAYS. FOR THE MGM BRAKES SITE, THE 10 PPM LEVEL DESIGNED TO BE PROTECTIVE FOR RESIDENTIAL/UNRESTRICTED ACCESS IS MOST APPROPRIATE, BECAUSE THREE RESIDENTS LIVE EXTREMELY CLOSE TO THE SITE AT PRESENT AND, BASED ON DISCUSSIONS WITH THE CITY COUNCIL, THE MOST LIKELY FUTURE USE OF THE SITE IS AN UNRESTRICTED ACCESS RESIDENTIAL AREA. 10 PPM REPRESENTS A 10 ON-SITE ONCOGENIC RISK, WHICH IS CONSIDERED BY EPA TO BE AN ACCEPTABLE LEVEL OF RISK.

2. CALIFORNIA DEPARTMENT OF HEALTH SERVICES (DOHS)

DOHS HAS ESTABLISHED PCB SPILLS CLEANUP POLICY NUMBER 81-2A. THIS POLICY IDENTIFIES THE WASTE DISPOSAL AND CLEAN-UP REQUIREMENTS FOR PCB CONTAMINATED LIQUIDS, SOLIDS, AND DEBRIS OF VARYING CONCENTRATIONS (I.E., GT 500 PPM, AND LT 500 PPM AND GT 50 PPM). POLICY NUMBER 81-2A CANNOT BE

CONSIDERED AN ARAR BECAUSE IT IS NOT PROMULGATED, BUT HAS BEEN IDENTIFIED AS A TBC BECAUSE EPA HAS DETERMINED THAT THIS POLICY IS NECESSARY TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT AT THE SITE.

THIS POLICY CONTAINS PROVISIONS FOR THE DISPOSAL OF NON-TSCA REGULATED SOILS, RAGS, AND DEBRIS CONTAINING PCB WASTE OF LESS THAN 50 PPM ARE PROVIDED. THE POLICY INDICATES THAT SUCH WASTE IS NOT NORMALLY CONSIDERED HAZARDOUS AND MAY BE DISPOSED OF AT A CLASS II, CLASS 11-1, OR CLASS II-2 DISPOSAL SITE WITH APPROVAL FROM THE RWQCB. LANDFILLS IN CALIFORNIA ARE REGULATED BY THE RWQCB. SPECIFIC LANDFILLS IN CALIFORNIA ARE DESIGNATED FOR DISPOSAL OF PCB-CONTAMINATED SOIL CONTAINING LESS THAN 50 PPM PCBS. APPROVAL FROM THE RWQCB MUST BE RECEIVED PRIOR TO DISPOSAL.

COST EFFECTIVENESS

COST ESTIMATES PRESENTED IN THE FEASIBILITY STUDY WERE PREPARED IN ACCORDANCE WITH THE REMEDIAL ACTION COSTING PROCEDURE MANUAL. COSTS FOR REMEDIATING PARCEL 1 AND PARCEL 2 SEPARATELY OR JOINTLY WERE COMPARED. IN ESTIMATING COSTS FOR REMEDIATING PARCEL 1 AND PARCEL 2 SEPARATELY IT WAS ASSUMED REMEDIATION OF PARCEL 2 WOULD NOT OCCUR FOR ANOTHER TEN YEARS. THIS TEN-YEAR DELAY IN REMEDIATION IS AN OPTION PROVIDED SO THAT THE COMMUNITY CAN NEGOTIATE RECONSTRUCTION OF THE MGM FACILITY AT THE EXISTING OR NEW SITE, OR ALLOW TIME TO OTHERWISE COMPENSATE FOR THE POTENTIAL BUSINESS LOSS.

ALL ALTERNATIVES EXCEPT FOR THE RCRA CAP, RESULT IN THE SAME ORDER OF MAGNITUDE FOR CAPITAL AND PRESENT WORTH COSTS. SINCE COSTS WERE COMPARABLE FOR ALL ALTERNATIVES, SELECTION OF THE PREFERRED ALTERNATIVE - OFFSITE DISPOSAL - WAS BASED ON HOW WILL EACH ALTERNATIVE MET THE OTHER EVALUATION CRITERIA, (I.E., PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT, ABILITY TO MEET ARARS, REDUCTION OF TOXICITY, MOBILITY, AND VOLUME, SHORT- AND LONG-TERM EFFECTIVENESS, AND STATE/COMMUNITY ACCEPTANCE). BASED ON THE EVALUATION OF ALL REMEDIAL ALTERNATIVES PROVIDED IN THE FS, EPA BELIEVES THAT THE OFF-SITE DISPOSAL REMEDY PROVIDES OVERALL EFFECTIVENESS COMMENSURATE TO ITS COSTS SUCH THAT IT REPRESENTS A REASONABLE VALUE FOR THE MONEY.

PREFERENCE FOR TREATMENT AS A PRINCIPAL REMEDY

THE SELECTED REMEDY DOES NOT MEET THE STATUTORY PREFERENCE FOR ALTERNATIVES INVOLVING PERMANENT TREATMENT AS A PRINCIPAL ELEMENT. SUCH TREATMENT WAS FOUND TO BE IMPRACTICABLE FOR THE FOLLOWING REASONS: (1) COMMUNITY OPPOSITION TO INCINERATION; (2) PREFERENCE OF THE COMMUNITY FOR UNRESTRICTED FUTURE USE; (3) THE FACT THAT THE FIXATION ALTERNATIVES DO NOT USE TREATMENT AS A PRINCIPLE ELEMENT TO REDUCE THE SIGNIFICANT HEALTH RISKS AT THE SITE THROUGH A REDUCTION IN TOXICITY, MOBILITY, OR VOLUME (I.E., WHILE THEY REDUCE MOBILITY THROUGH TREATMENT, THIS REDUCTION DOES NOT ADDRESS A SIGNIFICANT EXPOSURE PATHWAY - E.G., THE INHALATION OF PCB VAPORS, INGESTION, AND DIRECT CONTACT.); AND (4) THE LACK OF DEVELOPED INSTITUTIONS FOR CONTINUAL MAINTENANCE/OVERSIGHT OF ON-SITE REMEDIES, AND THE INVESTIGATORY AND ENFORCEMENT BURDEN ENTAILED IN THE NEED TO ENGAGE IN SUCH OVERSIGHT INDEFINITELY.

USE OF PERMANENT SOLUTIONS, ALTERNATIVE TREATMENT, OR RESOURCE RECOVERY TECHNOLOGIES TO THE MAXIMUM PRACTICABLE.

OF THE ALTERNATIVES EVALUATED IN THE FS, OFF-SITE DISPOSAL REPRESENTS THE BEST BALANCE OF THE NINE EVALUATION CRITERIA DESIGNED TO REFLECT THE STATUTORY REQUIREMENTS OF SARA. TREATMENT ALTERNATIVES CONSIDERED IN THE FS WERE CHEMICAL DECHLORINATION, INCINERATION, AND FIXATION.

CHEMICAL DECHLORINATION WAS UNSUCCESSFUL IN REDUCING PCB LEVELS TO AN ACCEPTABLE LEVEL DUE TO THE NATURE OF THE SOILS AT THE SITE. INCINERATION, ALTHOUGH EFFECTIVE IN SIGNIFICANTLY REDUCING THE OVERALL TOXICITY, MOBILITY, AND VOLUME OF THE CONTAMINANTS BY DESTROYING THE PCBS, WAS VIGOROUSLY OPPOSED BY THE COMMUNITY DURING AND AFTER PUBLIC COMMENT ON THE FIRST FS. IN

ADDITION, AN INCINERATION ALTERNATIVE WOULD BE DIFFICULT TO IMPLEMENT DUE TO THE LIMITED NUMBER OF AVAILABLE INCINERATORS, THE COMMUNITY'S BROAD-BASED OPPOSITION, AND THE ADMINISTRATIVE BURDEN INVOLVED IN MEETING FEDERAL AND STATE PERMIT REQUIREMENTS. FIXATION COMBINED WITH A CAP WOULD BE EFFECTIVE IN REDUCING THE MOBILITY OF THE PCBS; HOWEVER, IN ORDER TO ENSURE THE LONG-TERM PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT, FIXATION WOULD HAVE TO BE ACCOMPANIED BY A CAP, INSTITUTIONAL CONTROLS SUCH AS DEED AND LAND USE RESTRICTIONS, AND LONG-TERM AIR AND GROUNDWATER MONITORING REQUIREMENTS. THESE REQUIREMENTS WOULD REPRESENT A CONTINUED INVESTIGATORY AND ENFORCEMENT BURDEN FOR THE INDEFINITE FUTURE. EPA ALSO DOES NOT HAVE WILL-DEVELOPED ADMINISTRATIVE CAPABILITIES TO OVERSEE AND ENFORCE INSTITUTIONAL CONTROLS. IN ADDITION, COMMUNITY MEMBERS, INCLUDING MEMBERS OF THE CITY COUNCIL, HAVE INDICATED THAT A LIKELY FUTURE USE OF THE SITE IS RESIDENTIAL; SUCH USE WOULD BE INCOMPATIBLE WITH THE LAND USS RESTRICTIONS NECESSARY IF FIXATION WERE SELECTED AS THE REMEDY. FIXATION WOULD ALSO BE MORE DIFFICULT TO IMPLEMENT THAN OFF-SITE DISPOSAL BECAUSE OF THE LIMITED NUMBER OF QUALIFIED FIRMS AND EQUIPMENT.

IN CONTRAST, THE ALTERNATIVE, INVOLVING EXCAVATION OF ALL SOILS ABOVE 10 PPM PCBS AND OFF-SITE DISPOSAL SIGNIFICANTLY REDUCES ANY PRESENT RISKS OF EXPOSURE TO THE CONTAMINANTS. THE HEALTH RISKS ASSOCIATED WITH EXPOSURE AT THE SITE IN THE FUTURE ARE ALSO SIGNIFICANTLY REDUCED WITHOUT THE NEED FOR ON-SITE LAND USE RESTRICTIONS OR LONG-TERM MONITORING. MEMBERS OF THE COMMUNITY HAVE EXPRESSED SUPPORT FOR THE OFF-SITE DISPOSAL ALTERNATIVE. ALTHOUGH THE PCB-CONTAMINATED SOIL WILL NOT BE TREATED, IT WILL BE TRANSPORTED TO A FACILITY ESPECIALLY DESIGNED AND CONSTRUCTED FOR THE DISPOSAL OF HAZARDOUS WASTE. THESE FACILITIES ARE HIGHLY REGULATED BY THE FEDERAL AND STATE GOVERNMENTS SUCH THAT LONG-TERM MONITORING AND DEED RESTRICTIONS ARE SURE TO BE ENFORCED AND ANY FAILURE OF THE LANDFILL DETECTED QUICKLY. THE DISPOSAL FACILITIES ARE SUITED TECHNOLOGICALLY AND INSTITUTIONALLY TO MITIGATE ANY POTENTIAL HAZARD POSED BY THE CONTAMINATED SOIL.