EPA/ROD/R06-86/010
1986

EPA Superfund
Record of Decision:

ODESSA CHROMIUM #1
EPA ID: TXD980867279
OU 01
ODESSA, TX
09/08/1986

ODESSA CHROMIUM I, ODESSA, TEXAS.

#DR
DOCUMENTS REVIEWED

I AM BASING MY DECISION ON THE FOLLOWING DOCUMENTS DESCRIBING THE ANALYSIS OF COST EFFECTIVENESS OF REMEDIAL ALTERNATIVES (OPERABLE UNIT) FOR THE ODESSA CHROMIUM I SITE.

ODESSA CHROMIUM I REMEDIAL INVESTIGATION REPORT (APRIL 1986)

ODESSA CHROMIUM I ALTERNATIVE WATER SUPPLY FEASIBILITY STUDY (JUNE 1986)

SUMMARY OF REMEDIAL ALTERNATIVE SELECTION

RESPONSIVENESS SUMMARY.

#DE
DECLARATION

CONSISTENT WITH THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (CERCLA) AND THE NATIONAL CONTINGENCY PLAN (40 CFR PART 300), I HAVE DETERMINED THAT THE SELECTED REMEDY FOR THE ODESSA CHROMIUM I SITE IS A COST-EFFECTIVE REMEDY AND PROVIDES ADEQUATE PROTECTION OF PUBLIC HEALTH, WELFARE AND THE ENVIRONMENT. THE STATE OF TEXAS HAS BEEN CONSULTED AND AGREES WITH THE APPROVED REMEDY (ATTACHMENT A). IN ADDITION, THE ACTION WILL REQUIRE FUTURE OPERATION AND MAINTENANCE ACTIVITIES TO ENSURE THE CONTINUED EFFECTIVENESS OF THE REMEDY. THESE ACTIVITIES WILL BE CONSIDERED PART OF THE APPROVED ACTION AND ELIGIBLE FOR TRUST FUND MONIES FOR A PERIOD OF 1 YEAR.

I HAVE ALSO DETERMINED THAT THE ACTION BEING TAKEN IS APPROPRIATE WHEN BALANCED AGAINST THE AVAILABILITY OF TRUST FUND MONIES FOR USE AT OTHER SITES AND IS NECESSARY TO PROTECT PUBLIC HEALTH, WELFARE OR THE ENVIRONMENT.

SEPT. 8, 1986
DATE

DICK WHITTINGTON, P.E.
REGIONAL ADMINISTRATOR
REGION VI.

SUMMARY OF REMEDIAL ALTERNATIVE SELECTION
OPERABLE UNIT - ALTERNATIVE WATER SUPPLY
ODESSA CHROMIUM I
ODESSA, TEXAS

SEPTEMBER 1986

#SLD
SITE LOCATION AND DESCRIPTION

THE ODESSA CHROMIUM I SUPERFUND SITE CONSISTS OF A SERIES OF CHROMIUM CONTAMINATED WELLS WITHIN 300 ACRES OF RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL PROPERTIES AND FACILITIES IMMEDIATELY WEST OF WEST COUNTY ROAD JUST OUTSIDE THE NORTHWESTERN CITY LIMITS OF ODESSA, ECTOR COUNTY, TEXAS (FIGURE 1-1). BASED ON THE BOUNDARIES OF THE KNOWN CHROMIUM GROUNDWATER CONTAMINATION IN THE TRINITY AQUIFER, THE AFFECTED AREA IS BOUNDED BY 48TH STREET TO THE NORTH, WEST COUNTY ROAD TO THE EAST, 43RD STREET TO THE SOUTH, AND ONE-HALF BLOCK WEST OF BRAZOS TO THE WEST (FIGURE 2-11). THE SITE AREA IS COMPOSED OF A MIXTURE OF RESIDENTIAL, COMMERCIAL AND INDUSTRIAL FACILITIES. NEARLY EVERY RESIDENCE OR COMMERCIAL FACILITY IS SERVED BY ONE OR MORE WATER WELLS COMPLETED IN THE TRINITY AQUIFER WHICH OFFERS THE ONLY SOURCE OF POTABLE GROUNDWATER.

#SH
SITE HISTORY

TWO POTENTIAL SOURCES OF GROUNDWATER CONTAMINATION AT THE SITE HAVE BEEN IDENTIFIED. THEY ARE THE PAST OPERATIONS AT THE 4318 BRAZOS (FIGURE 2-11) PROPERTY AND NIPCO AT 2104 WEST 42ND STREET (FIGURE 2-11). THE 4318 BRAZOS SITE WAS FIRST DEVELOPED BETWEEN 1954 AND 1961. SEVERAL CHROME PLATING OPERATIONS HAVE FUNCTIONED AT THE PROPERTY BETWEEN 1972 AND 1977. PRIOR TO 1979 A WATER WELL AT 4313 WEST COUNTY ROAD BECAME CONTAMINATED BY CHROMIUM AND WAS ABANDONED. IN DECEMBER 1979, THE TEXAS DEPARTMENT OF WATER RESOURCES (TDWR) IDENTIFIED 4318 BRAZOS AS A POTENTIAL SOURCE OF CHROMIUM CONTAMINATION. A WATER WELL AND DRUMS AT THE PROPERTY WERE CONTAMINATED WITH CHROMIUM. ALTHOUGH CHROMIUM IS THE CONTAMINANT OF GREATEST CONCERN AT THE ODESSA CHROMIUM I SITE, OTHER HEAVY METALS HAVE BEEN FOUND IN SOILS AT 4318 BRAZOS AND 2104 WEST 42ND STREET.

THE SITE AT 2104 WEST 42ND STREET WAS FIRST DEVELOPED IN 1954. NIPCO IS PRESENTLY OPERATING A METAL PLATING FACILITY ON THE SITE. THE NIPCO PROPERTY WAS FIRST IDENTIFIED AS BEING A POSSIBLE SOURCE OF CHROMIUM CONTAMINATION IN GROUNDWATER IN 1978 WHEN TDWR INVESTIGATED A COMPLAINT OF CHROMIUM IN A WELL AT 38TH STREET AND RASCO. IN 1979 NIPCO MODIFIED ITS WASTEWATER FACILITIES IN AN ATTEMPT TO ALLEVIATE THE PROBLEM.

IN NOVEMBER, 1983, TDWR REQUESTED THE ENVIRONMENTAL PROTECTION AGENCY (EPA) TO CONDUCT A "PLANNED REMOVAL ACTION" TO EXTEND THE CITY WATER LINES TO THE AFFECTED AREA. IN JUNE 1984, TDWR NOTIFIED EPA THAT THE PROPOSED WATER SYSTEM EXTENSION DID NOT APPEAR FEASIBLE DUE TO THE OPPOSITION BY RESIDENTS TO ANNEXATION BY THE CITY OF ODESSA. WITH THE EXCEPTION OF SPECIALLY DEFINED INDUSTRIAL AREAS, THE CITY OF ODESSA IS PROHIBITED BY ORDINANCE FROM SUPPLYING WATER TO CUSTOMERS OUTSIDE OF THE CITY LIMITS.

IN SEPTEMBER, 1984, THE ODESSA CHROMIUM I SITE WAS ADDED TO THE NATIONAL PRIORITIES LIST (SITES WHICH APPEAR TO PRESENT A SIGNIFICANT RISK TO PUBLIC HEALTH OR THE ENVIRONMENT). THE STATE OF TEXAS ENTERED INTO COOPERATIVE AGREEMENT WITH EPA FOR $530,000 ON SEPTEMBER 26, 1984, TO PERFORM FORWARD PLANNING AND REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES (RI/FS) AT THE SITE. THE RI BEGAN IN AUGUST 1985 AND A DRAFT REPORT WAS SUBMITTED APRIL 1986.

IN JANUARY 1986, EPA AND THE TEXAS WATER COMMISSION (TWC) DECIDED TO PRODUCE A "FOCUSED" FEASIBILITY STUDY (FFS). THE SINGLE PURPOSE OF THE FFS WAS TO BE THE EXAMINATION OF POSSIBLE ALTERNATIVE WATER SUPPLIES WHICH COULD PROVIDE POTABLE WATER TO THE AREA(S) WITHIN THE GREATER ODESSA CHROMIUM I SITE WHERE GROUNDWATER IS CONTAMINATED OR COULD REASONABLY BE EXPECTED TO BECOME CONTAMINATED BY CHROMIUM WITHIN 24 MONTHS. WHILE THE GOAL OF EPA IS TO DETERMINE A PLAN FOR ADDRESSING THE CHROMIUM CONTAMINATION IN THE GROUNDWATER, THE FFS PLACED A PORTION OF THE FULL FEASIBILITY STUDY ON A "FAST TRACKED" SCHEDULE. BY DOING SO, IT OPENED THE POSSIBILITY OF EXPEDITING THE SUPPLY OF POTABLE WATER TO AFFECTED RESIDENTS WITHOUT WAITING FOR COMPLETION OF THE FULL FS. THE FFS BEGAN IN MARCH 1986, AND A REVISED DRAFT REPORT HAS BEEN SUBMITTED.

#CSS
CURRENT SITE STATUS

GEOLOGY

THE SURFICIAL SOIL IN THE SITE AREA IS PRINCIPALLY AMARILLO LOAM. GENERALLY, IT IS A REDDISH-BROWN, FINE SANDY LOAM WHICH RANGES IN DEPTH FROM 8 TO 12 INCHES BELOW GRADE. BELOW THAT, TO DEPTHS VARYING FROM 18 TO 24 INCHES, THE RED OR CHOCOLATE-RED SUBSOIL GRADES FROM FINE SANDY LOAM TO SANDY CLAY, GRADUALLY BECOMING HEAVIER WITH DEPTH. PLEISTOCENE WINDBLOWN SAND, PLAYA DEPOSITS AND ALLUVIUM DEPOSITS UNDERLIE THE SOIL SECTION. BENEATH THE PLEISTOCENE ARE PLIO-PLEISTOCENE CALICHE DEPOSITS.

UNDERLYING THE CALICHE ARE SCATTERED EROSIONAL REMNANTS OF THE TERTIARY OGALLALA FORMATION COMPOSED OF GRAVELS, SANDS, SILTS AND CLAYS. THESE BASAL SEDIMENTS OCCUPY PREVIOUSLY ERODED DRAINAGE VALLEYS AND ARE NOT PRESENT EVERYWHERE. CEMENTATION OF THE SANDS IS VARIABLE WITHIN THE OGALLALA. THIS FORMATION DOES NOT GENERALLY EXTEND TO DEPTHS BELOW 75 FEET IN THE AREA.

THE CRETACEOUS TRINITY FORMATION, THE MAIN FRESH WATER PRODUCING AQUIFER IN THE AREA, UNDERLIES THE OGALLALA INTERVAL. IT IS COMPOSED OF SANDS AND SANDSTONES WITH MINOR AMOUNTS OF SILTSTONE, CLAY AND GRAVEL. CEMENTATION OF THE TRINITY IN THE SITE AREA RANGES IN DEGREE FROM MODERATE TO HEAVY. THE AQUITARD BENEATH THE TRINITY FORMATION IS THE DOCKUM GROUP OF TRIASSIC AGE, LOCALLY KNOWN AS "REDBEDS". THE UPPER UNIT, THE CHINLE FORMATION, CONSISTS OF UP TO 600 FEET OF RED AND REDDISH-BROWN CLAYS AND SHALES.

GROUNDWATER

THE MAJOR HYDROLOGIC UNITS CONTAINING POTABLE WATER IN THE SITE AREA ARE THE OGALLALA FORMATION AT APPROXIMATELY 70 FEET BELOW THE AREA AND THE TRINITY SAND AT APPROXIMATELY 90 FEET BELOW THE AREA (FIGURE 2-2). IN GENERAL, THE OGALLALA IS HYDROLOGICALLY CONNECTED WITH THE UNDERLYING TRINITY AND HAS LITTLE OR NO SATURATED THICKNESS. A FEW MILES TO THE SOUTHWEST THE OGALLALA HAS BEEN TOTALLY ERODED AND WITHIN THE SITE AREA IS ONLY A THIN REMNANT CONTAINING LITTLE WATER. GROUNDWATER OCCURS BENEATH THE SITE MAINLY IN THE TRINITY SAND.

THE HYDRAULIC CHARACTERISTICS OF THE OGALLALA ARE OF GREATER IMPORTANCE LOCALLY THAN THE QUANTITY OF WATER PRESENT DUE TO THE FACT THAT THE OGALLALA MAY POTENTIALLY ACT AS A MEDIUM THROUGH WHICH CONTAMINANTS MAY ENTER THE UNDERLYING TRINITY AQUIFER. BARRIERS TO VERTICAL MOVEMENT EXIST IN THE OGALLALA AS DISCONTINUOUS LENSES OF CALCITE OR CEMENTED SANDSTONE. THESE LENSES WERE ENCOUNTERED IN DRILLING AT THE SITE AND VARY FROM LESS THAN 6 INCHES TO SEVERAL FEET IN THICKNESS. ALTHOUGH NO PERCHED WATER ZONES WERE ENCOUNTERED IN DRILLING, THESE LENSES COULD ACT LOCALLY AS A BARRIER TO VERTICAL MIGRATION OF WATER.

IT WAS SUSPECTED PRIOR TO ANY DEEP BORINGS BEING CONSTRUCTED, AS PART OF THE SITE INVESTIGATION, THAT A "PERCHED" WATER TABLE MAY EXIST BENEATH AT SOME PORTIONS OF THE SITE AREA. ALTHOUGH SOME THIN CLAY AND SILTSTONE LAYERS AND A WELL CEMENTED SANDSTONE LAYER WERE ENCOUNTERED ABOVE THE REGIONAL WATER TABLE, NO WATER WAS FOUND TO BE "PERCHED" ON THESE POTENTIAL AQUITARDS OR CONFINING BEDS. THIS INDICATES THAT THERE IS FRACTURING SUFFICIENT TO ENHANCE DOWNWARD MIGRATION OF GROUNDWATER PRESENT AND/OR THAT THE LAYERS THEMSELVES ARE OF LIMITED AREAL EXTENT AND DISCONTINUOUS.

ANOTHER INFLUENCE ON CONTAMINATION MOVEMENT SEEMS TO BE THE CALICHE LAYER NEAR THE SURFACE. SHALLOW BORINGS INDICATE THAT IT ACTED AS A RELATIVELY EFFECTIVE BARRIER TO THE DOWNWARD MIGRATION OF CONTAMINATION CAUSED BY LEACHING OF THE SOIL.

WELL INVENTORY

AN INVENTORY OF EXISTING WATER WELLS IN AND AROUND THE PREVIOUSLY IDENTIFIED AREA OF CHROMIUM CONTAMINATION WAS CONDUCTED IN SEPTEMBER 1985. THE PRIMARY GOAL OF THIS WORK WAS TO CONFIRM AND REFINE THE BOUNDARIES OF THE PLUME OF CHROMIUM CONTAMINATION. OVER 200 WELLS WERE IDENTIFIED DURING THE INVENTORY, OF WHICH MORE THAN 150 WERE SAMPLED AND ANALYZED, FOR HEXAVALENT CHROMIUM. THE INVENTORY COVERED AN AREA EXTENDING IN A RADIAL DIRECTION ABOUT HALF-A-MILE FROM THE KNOWN AREAS OF GROUNDWATER CONTAMINATION. FIFTEEN WELLS WERE FOUND TO BE CONTAMINATED WITH CHROMIUM.

FROM THE WELL INVENTORY, SEVERAL CONCLUSIONS WERE DRAWN ABOUT THE CONTAMINATION PLUME. THE

SHAPE OF THE PLUME ASSOCIATED WITH 4318 BRAZOS SITE HAS BECOME MORE RESTRICTED AS A RESULT OF INFORMATION GAINED DURING THE WELL INVENTORY. ONE OF THE WELLS TO THE EAST OF 4318 BRAZOS WHICH PREVIOUSLY HAD BEEN CONTAMINATED DID NOT SHOW ANY DETECTABLE LEVELS OF CHROMIUM DURING THE INVENTORY. CONSEQUENTLY, THE SOUTHERN PORTION OF THE PLUME IS CONFINED SOLELY TO 4318 BRAZOS. THE PLUME EXTENDS NORTHWARD AND BROADENS FURTHER TO THE EAST. BASED ON THE WATER LEVEL MEASUREMENTS AND CORRESPONDING GRADIENT, THE SOURCE AREA APPEARS TO BE 4318 BRAZOS.

THE WELL AT 38TH AND RASCO PREVIOUSLY IDENTIFIED AS BEING CONTAMINATED, DID NOT SHOW CHROMIUM IN THIS RECENT SURVEY. A WELL ONE BLOCK TO THE EAST, AT 3911 BRAZOS, WAS DETECTED AS HAVING CHROMIUM CONCENTRATIONS WELL ABOVE THE DRINKING WATER STANDARD. THIS WAS THE ONLY WELL IDENTIFIED IN THE STUDY AREA SOUTH OF THE MAIN PLUME AREA TO HAVE ANY DETECTABLE CHROMIUM CONCENTRATIONS. BASED ON INVENTORY RESULTS, WATER FROM THE WELL IS NOT USED FOR DRINKING WATER PURPOSES AND IS TOO SALTY FOR HUMAN CONSUMPTION. THE WELL PROVIDES WATER FOR WASHING AND TOILET PURPOSES ONLY AT A COMMERCIAL ESTABLISHMENT.

A NEW AREA OF CONTAMINATION CONSISTING OF FIVE WELLS WAS IDENTIFIED ON THE WEST PERIMETER OF THE WELL INVENTORY STUDY AREA. THE CHROMIUM CONTAMINATION LEVELS RANGED FROM 0.02 TO 0.21 MG/L. NO READILY OBVIOUS SOURCE OF THE CONTAMINATION WAS IDENTIFIED AND THE ODESSA CHROMIUM I SITE RI/FS OR FFS WAS NOT EXPANDED TO INCLUDE THIS AREA. THE FIVE WELLS ARE SERVING COMMERCIAL ESTABLISHMENTS AND ARE NOT BEING USED FOR DRINKING WATER PURPOSES. USE OF THE WATER IS LIMITED TO WASHING, TOILET OR INDUSTRIAL USE.

PRESENT AND PROJECTED CONTAMINATION AREA

THE ESTIMATED EXTENT OF CHROMIUM CONTAMINATION IN THE TRINITY AQUIFER IS SHOWN IN FIGURE 2-7. HISTORICAL LEVELS OF CHROMIUM CONCENTRATIONS MEASURED IN AREA WELLS BETWEEN 1978 AND 1986 ARE PRESENTED IN TABLE 2-4. AS SEEN IN THE FIGURE, THE PLUME EXTENDS NORTHWARD FROM 4318 BRAZOS BEYOND 46TH STREET. SAMPLES COLLECTED FROM THE NEWLY INSTALLED MONITORING WELLS HAVE CONFIRMED THE CHROMIUM CONTAMINATION WITHIN THE PLUME AND ALSO HAVE AIDED IN THE CLOSER DEFINITION OF THE AREAL EXTENT OF THE CONTAMINATION.

THE CONTAMINATION BENEATH THE 4318 BRAZOS SITE IS HEAVILY CONCENTRATED IN THE UPPER PORTION OF THE TRINITY. WASTE WATER FROM THE PLATING OPERATIONS IS BELIEVED TO HAVE BEEN DUMPED DIRECTLY ON TO THE GROUND ON THE NORTHERN SIDE OF THE BUILDING AND/OR PIPED INTO STORAGE TANKS/DRUMS WHICH FREQUENTLY WERE ALLOWED TO OVERFLOW. AN ABANDONED WELL ON THE SOUTHEASTERN CORNER OF THE BUILDING IS SUSPECTED OF PROVIDING A DIRECT PATHWAY TO THE AQUIFER DURING PERIODS OF SUBSTANTIAL DISPOSAL OR HEAVY RAINS. APPROXIMATELY 200 TO 500 FEET TO THE NORTH, THE LAYER WITHIN THE TRINITY WHICH RESTRICTS DOWNWARD MIGRATION OF THE CONTAMINATION BELOW 100 FEET, NO LONGER IS PRESENT AND THE CONTAMINATION IS FREE TO DISSIPATE THROUGHOUT THE ENTIRE TRINITY SECTION.

SEDIMENTS, SOILS AND ROCK AT 4318 BRAZOS SHOW CONTAMINATION FROM THE SURFACE TO APPROXIMATELY 10 FEET AND AGAIN AT AROUND 53 FEET. THIS INDICATES THAT WASTE FLUIDS GENERATED BY THE ACTIVITIES THERE AND CONTAINING CHROMIUM AND OTHER HEAVY METALS WERE SPILLED ON THE SURFACE. THE CONTAMINATION THEN ENTERED THE SOILS THROUGH A SEPTIC TANK DRAIN FIELD, TRAVELED LATERALLY ALONG THE UPPER SURFACE OF THE SHALLOW CALICHE LAYER, DOWNWARD THROUGH FRACTURES IN THE CALICHE, OR THROUGH THE ABANDONED OPEN WELL BORE ON THE PROPERTY, TO THE OGALLALA FORMATION AND ULTIMATELY TO THE TRINITY AQUIFER. IN ADDITION TO THESE CONTAMINANT PATHWAYS, IT IS POSSIBLE THAT HEAVY METAL CONTAMINATION SPILLED ON THE SURFACE WAS CARRIED BY SURFACE WATER RUNOFF INTO THE ABANDONED OPEN WELL BORE ON THE PROPERTY, AND THEN, TO THE ZONE AT AROUND 50 FEET.

OVER THE ENTIRE AREA OF THE ODESSA CHROMIUM I SITE, THE REGIONAL GROUNDWATER GRADIENT IN THE TRINITY IS TO THE NORTH AND NORTHEAST AT BETWEEN 10 AND 15 FEET PER MILE. CONTAMINATED WATER ENTERING THE TOP OF THE TRINITY AQUIFER SPREADS OUT HORIZONTALLY IN A NORTHERLY DIRECTION. VERTICALLY, IT CAN BE PRESUMED THAT THE CONTAMINANTS ARE INITIALLY "PERCHED" IN THE UPPER PORTION OF THE TRINITY UNTIL THE HARD STREAK AT ABOUT 100 FEET DISAPPEARS. THE CONTAMINANTS THEN MOVE PROGRESSIVELY DEEPER WITH INCREASING DISTANCE FROM THE SOURCE IN THIS RELATIVELY HOMOGENEOUS AQUIFER.

AS SHOWN IN FIGURE 2-7, THERE APPEARS TO BE ONE MAJOR PLUME OF CHROMIUM CONTAMINATION IN THE TRINITY WITHIN THE SITE AREA. BASED ON THE START OF MANUFACTURING OR PROCESS OPERATIONS, AND HISTORICAL SAMPLING DATA (TWC RECORDS), IT IS POSSIBLE TO ESTIMATE CONTAMINANT MIGRATION RATES FOR THIS PLUME.

THE NORTHERN EXTENT OF THE CONTAMINATION IS BEYOND 46TH STREET, MORE THAN 1100 FEET BEYOND THE SOURCE AREA. CONSIDERING THAT THE PLATING OPERATIONS BEGAN DISPOSING OF WASTEWATER AT THE 4318 BRAZOS LOCATION, BEGINNING BETWEEN 14 AND 25 YEARS AGO, THE AVERAGE VELOCITY OF THE CONTAMINANT MIGRATION CAN BE ESTIMATED AT BETWEEN 45 AND 80 FEET PER YEAR.

USING VALUES OBTAINED FROM A PUMPING TEST PERFORMED DURING THE RI, CALCULATED MIGRATION VELOCITIES FOR TRINITY WATER RANGE FROM 50 TO 100 FEET PER YEAR. EMPIRICALLY DERIVED RATES FOR CONTAMINANT MIGRATION WITHIN THE TRINITY APPEAR TO BE REASONABLY SIMILAR. A CONSERVATIVE PROJECTION OF 100 FEET PER YEAR HAS BEEN USED FOR ESTIMATING THE MAXIMUM EXTENT OF CONTAMINATION.

EXPOSURE ASSESSMENT/APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS THE PUBLIC HEALTH EVALUATION PROCESS AS DESCRIBED IN THE EPA DRAFT SUPERFUND PUBLIC HEALTH EVALUATION MANUAL (DECEMBER 18, 1985) STATES THAT THE PROJECTED CONCENTRATION OF THE INDICATOR CHEMICALS AT THE EXPOSURE POINTS SHOULD BE COMPARED TO APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS. THE NATIONAL CONTINGENCY PLAN (NCP) DEFINES WHAT IS CONSIDERED POTENTIALLY "APPLICABLE OR RELEVANT AND APPROPRIATE"; THE FEDERALLY SET DRINKING WATER LIMITS ARE INCLUDED IN THE LIST. COMPARISON OF THE DATA COLLECTED IN THE RI TO HEALTH GUIDELINES AIDS IN DETERMINING WHETHER A REMEDIAL RESPONSE ACTION IS NECESSARY TO PROTECT THE PUBLIC HEALTH AND ENVIRONMENT.

FOR THE ODESSA CHROMIUM I SITE, THE RECEPTOR EXPOSURE POINTS ARE ASSUMED TO BE THE WATER SUPPLY WELLS. THE INDICATOR CHEMICAL IS CHROMIUM AND THE APPLICABLE OR RELEVANT REQUIREMENT IS THE FEDERAL DRINKING WATER STANDARD PROMULGATED UNDER THE SAFE DRINKING WATER ACT (SDWA).

DURING THE REMEDIAL INVESTIGATION, TWO CONTAMINANTS, ZINC AND CHROMIUM, WERE FOUND AT LEVELS ABOVE THE DETECTION LIMITS OF 0.05 AND 0.01 MG/L RESPECTIVELY IN THE EXISTING SUPPLY WELLS TESTED. ALL REPORTED VALUES FOR ZINC ARE BELOW THE EPA SECONDARY MAXIMUM CONTAMINANT LEVEL IN DRINKING WATER OF 5 MG/L. ZINC AT THESE CONCENTRATIONS IS NOT CONSIDERED A PUBLIC HEALTH CONCERN AND IS EXCLUDED FROM FURTHER CONSIDERATION IN THE EVALUATION PROCESS.

HOWEVER, REPORTED CHROMIUM CONCENTRATIONS MAY BE SIGNIFICANT FROM A PUBLIC HEALTH PERSPECTIVE. TWELVE OUT OF FIFTEEN CONTAMINATED WELLS SAMPLED DURING THE RI HAD CHROMIUM LEVELS AT OR ABOVE 0.05 MG/L (THE MAXIMUM CONCENTRATION LIMIT (MCL)). NINE OF THESE TWELVE WELLS HAD VALUES AT OR ABOVE 0.12 MG/L (THE PROPOSED RECOMMENDED MAXIMUM CONCENTRATION LIMIT (RMCL) FEDERAL REGISTER, NOV. 13, 1985), ALTHOUGH TWO WERE ABANDONED. SEE TABLE 2-3 FOR DATA AND SUMMARY STATISTICS.

I.E., THE EPA DRINKING WATER STANDARDS, THAT REQUIREMENT IS USED AS THE BASIS FOR THE TARGET CONCENTRATION. CONSEQUENTLY, THE PUBLIC HEALTH EVALUATION IS COMPLETE WHEN THE CONCENTRATION OF CHROMIUM IN THE WELLS IS COMPARED TO THE STANDARD.

THE WELLS WITH VALUES ABOVE THE MCL OF 0.05 MG/L ARE NOT SUITABLE FOR USE AS A LIFETIME DRINKING WATER SUPPLY AND AN ALTERNATE WATER SUPPLY IS INDICATED.

AS REQUIRED BY THE SDWA, EPA ACTED QUICKLY FOLLOWING THE PASSAGE OF THE SDWA IN PUBLISHING INTERIM PRIMARY DRINKING WATER REGULATIONS. REGULATIONS WERE ESTABLISHED FOR TEN INORGANIC CHEMICALS, SIX PESTICIDES AND TWO MICROBIOLOGICAL INDICATORS.

THE MAXIMUM CONTAMINANT LEVEL (MCL) FOR TOTAL CHROMIUM UNDER THE NATIONAL INTERIM PRIMARY DRINKING WATER REGULATIONS WAS SET AT 0.05 MG/L IN 1977 AND WAS BASED ON THE 1962 PUBLIC HEALTH SERVICE LIMITS.

AS A SECOND STEP, EPA WAS REQUIRED TO PROPOSE AND PROMULGATE REVISED PRIMARY DRINKING WATER REGULATIONS. TO REVISE THE INTERIM PRIMARY DRINKING WATER REGULATIONS, THE AGENCY MUST FIRST PROPOSE AND PROMULGATE A RECOMMENDED MAXIMUM CONCENTRATION LIMIT, WHICH IS A NON-ENFORCEABLE HEALTH GOAL BASED ON THE PREMISE THAT "NO KNOWN OR ANTICIPATED ADVERSE EFFECTS ON THE HEALTH OF PERSONS WILL OCCUR AND WHICH ALLOWS AN ADEQUATE MARGIN OF SAFETY". (FEDERAL REGISTER, NOV. 13, 1985, P. 46937).

CHROMIUM IS CLASSIFIED IN EPA'S GUIDELINES FOR CARCINOGENIC RISK ASSESSMENT AS A CLASS A CARCINOGEN, BASED UPON POSITIVE INHALATION DATA FOR HEXAVALENT CHROMIUM IN HUMANS AND ANIMALS. THE CLASS A CATEGORY IS AT THE TOP OF THE SCALE, INDICATING THE GREATEST STRENGTH OF EVIDENCE SUGGESTING THE CHEMICAL'S CARCINOGENICITY.

THE EVIDENCE INDICATES, HOWEVER, THAT HEXAVALENT CHROMIUM IS CARCINOGENIC WHEN INHALED AS A FUME BUT NOT WHEN INGESTED. SINCE CHROMIUM HAS NOT BEEN SHOWN TO BE CARCINOGENIC THROUGH INGESTION EXPOSURE, EPA HAS RECENTLY PROPOSED A RMCL BASED ON CHRONIC TOXICITY DATA. A RMCL OF 0.12 MG/L IS PROPOSED FOR TOTAL CHROMIUM, I.E., CR III PLUS CR VI IN DRINKING WATER (FEDERAL REGISTER, NOV. 13, 1985).

THE THIRD STEP WILL BE FOR EPA TO PROPOSE A MCL AS CLOSE TO THE RMCL AS FEASIBLE. FEASIBLE IS DEFINED AS "WITH THE USE OF BEST TECHNOLOGY TREATMENT TECHNIQUES AND OTHER MEANS WHICH EPA FINDS ARE GENERALLY AVAILABLE (TAKING COST INTO CONSIDERATION)". THE NEW CHROMIUM MCL WILL PROBABLY BE PROPOSED BY EPA IN THE FALL OF 1986. SINCE THE RMCL IS A GOAL, THE MCL WILL MOST LIKELY BE SET AT OR ABOVE THE RMCL LIMIT OF 0.12 MG/L.

#CR
COMMUNITY RELATIONS

THIS SECTION WILL BE COMPLETED AFTER THE PUBLIC COMMENT PERIOD. (SEE ATTACHMENT B).

#ENF
ENFORCEMENT

THE GOAL OF THE EPA IS TO HAVE THOSE PARTIES RESPONSIBLE FOR CONTAMINATION OF THE SITE PERFORM THE CLEANUP OF THE SITE. THE AGENCY HAS IDENTIFIED AT LEAST FIVE POTENTIALLY RESPONSIBLE PARTIES AT THE ODESSA CHROMIUM I SITE. THESE PARTIES HAVE BEEN NOTIFIED THAT THEY MAY UNDERTAKE, OR PARTICIPATE IN, THE CHOSEN REMEDY. IF THEY DECLINE INVOLVEMENT IN THE REMEDIAL ACTION, EPA WILL PURSUE APPROPRIATE ENFORCEMENT ACTION.

#AE
ALTERNATIVES EVALUATION

THE PRESENCE OF CHROMIUM IN WATER SUPPLY WELLS AT LEVELS ABOVE THE MAXIMUM CONTAMINANT LEVEL ESTABLISHED UNDER THE NATIONAL INTERIM PRIMARY DRINKING WATER REGULATIONS REPRESENTS A THREAT TO PRESENT AND FUTURE PUBLIC HEALTH AND WELFARE. A RESPONSE TO THE RELEASE OF CHROMIUM IN THE GROUNDWATER IS APPROPRIATE IN ACCORDANCE WITH THE NATIONAL CONTINGENCY PLAN (NCP), 40 CFR PART 300. THE RESPONSE ACTION TOWARD MITIGATING THE RELEASE OF CHROMIUM IS CURRENTLY UNDER STUDY IN ACCORDANCE WITH THE NCP, 40 CFR 300.68(D).

A DISCRETE PART OF AN ENTIRE ACTION THAT WILL DECREASE THE PATHWAY OF EXPOSURE IS KNOWN AS AN OPERABLE UNIT. AN OPERABLE UNIT, 40 CFR 300.68(C), MAY BE IMPLEMENTED BEFORE FINAL REMEDIAL ACTION IS SELECTED FOR A SITE. THE CLEANUP OF GROUNDWATER CONTAMINATION PLUMES IS SO TIME-CONSUMING THAT A NEED FOR ALTERNATIVE WATER SUPPLY IS OFTEN REQUIRED TO PROTECT PUBLIC HEALTH AND WELFARE UNTIL THE COMPLETION OF THE REMEDY. ALTERNATE WATER SUPPLIES CAN BE PROVIDED AS AN OPERABLE UNIT OF THE ENTIRE ACTION. TO SATISFY NCP REQUIREMENTS, INCLUDING THE REQUIREMENT THAT THE OPERABLE UNIT BE COST-EFFECTIVE AND CONSISTENT WITH A PERMANENT REMEDY, 40 CFR 300.68(C)(3), A FFS WAS COMPLETED FOR THE ODESSA CHROMIUM I SITE. THE PURPOSE OF THE FFS WAS TO DEVELOP AND EVALUATE ALTERNATIVE WATER SUPPLY OPTIONS IN TERMS OF COST, ACCEPTABLE ENGINEERING PRACTICES AND EFFECTIVENESS IN CONTRIBUTING TO THE PROTECTION OF PUBLIC HEALTH, WELFARE AND THE ENVIRONMENT.

THE FFS WAS WRITTEN IN ACCORDANCE WITH CURRENT EPA GUIDANCE, SPECIFICALLY "GUIDANCE DOCUMENT FOR PROVIDING ALTERNATIVE WATER SUPPLIES" (DRAFT) AND "GUIDANCE ON FEASIBILITY STUDIES UNDER CERCLA". SEVEN WATER SUPPLY OPTIONS WERE IDENTIFIED FOR EVALUATION IN THE FFS:

- NO ACTION (ALTERNATIVE I),
- DEVELOPMENT OF SURFACE WATER SUPPLY (ALTERNATIVE II),
- DEVELOPMENT OF AN OVERSIZED COMMUNITY STORAGE FACILITY TO COMPENSATE FOR LOSS OF EXISTING SYSTEM CAPACITY (ALTERNATIVE III),
- BLENDING THE CONTAMINATED PORTION OF THE WATER SUPPLY WITH UNCONTAMINATED WATER SUPPLIES TO REDUCE CONTAMINANTS TO SAFE LEVELS (ALTERNATIVE IV),

- REMOVAL OF CONTAMINANTS VIA TREATMENT (ALTERNATIVE V), DEVELOPMENT OF A NEW WATER WELL FIELD OUTSIDE THE AREA OF CONTAMINATION (ALTERNATIVE VI), OR

- CONNECTION WITH AN EXISTING MUNICIPAL OR PRIVATE SUPPLY (ALTERNATIVE VII).

THESE SEVEN ALTERNATIVES WERE SUBJECTED TO AN INITIAL SCREENING PROCESS TO NARROW THE LIST OF POTENTIAL REMEDIAL ACTIONS FOR FURTHER DETAILED ANALYSIS (40 CFR 300.68(G)). THE THREE BROAD CRITERIA USED IN THE INITIAL SCREENING ARE COST, ACCEPTABLE ENGINEERING PRACTICES AND EFFECTIVENESS. A BRIEF DESCRIPTION OF THE ALTERNATIVES AND SUMMARY OF THE INITIAL SCREENING FOLLOWS.

NO ACTION (ALTERNATIVE I)

A NEW SOURCE OF POTABLE WATER WOULD NOT BE SUPPLIED TO THE AREA UNDER THIS ALTERNATIVE. THE THREAT TO THE PUBLIC HEALTH AND ENVIRONMENT WOULD REMAIN UNCHANGED SINCE THE AFFECTED PEOPLE WOULD CONTINUE TO HAVE THEIR HEALTH THREATENED DUE TO USE OF CHROMIUM CONTAMINATED WATER. THIS ALTERNATIVE FAILS THE INITIAL SCREENING CRITERIA OF EFFECTIVELY PROTECTING THE PUBLIC HEALTH AND WELFARE.

DEVELOPMENT OF SURFACE WATER SUPPLY (ALTERNATIVE II)

THE DEVELOPMENT OF SURFACE WATER (RIVERS, STREAMS, LAKES, PONDS AND RESERVOIRS) WOULD BE CONSIDERED UNDER THIS ALTERNATIVE. THE POTENTIAL FOR DEVELOPING A NEW SURFACE WATER SUPPLY FROM STREAMS, LAKES OR RIVERS IS NONEXISTENT IN THE SITE DUE TO THE LACK OF A RELIABLE YEAR ROUND SOURCE. THE POSSIBILITY DOES EXIST OF PURCHASING WATER FROM THE COLORADO RIVER MUNICIPAL WATER DISTRICT WHICH MAINTAINS STORAGE RESERVOIRS ONE-HALF MILE EAST OF THE ODESSA CHROMIUM I SITE. THIS ALTERNATIVE WILL BE EXPENSIVE AND DIFFICULT TO ARRANGE BUT IS EFFECTIVE AND FEASIBLE. ALTERNATIVE II WAS BE SUBJECTED TO A MORE DETAILED ANALYSIS.

DEVELOPMENT OF AN OVERSIZE COMMUNITY STORAGE FACILITY (ALTERNATIVE III)AND BLENDING OF CONTAMINATED WATER WITH UNCONTAMINATED WATER

(ALTERNATIVE IV)

BOTH THESE ALTERNATIVES HAVE TWO BASIC PREREQUISITES: A CENTRAL DISTRIBUTION SYSTEM AND AN EXISTING, LOW YIELD SUPPLY OF POTABLE WATER WHICH COULD BE PUMPED INTO A STORAGE FACILITY. NEITHER OF THE PREREQUISITES IS MET AT ODESSA CHROMIUM I AND BOTH ALTERNATIVES ARE ELIMINATED FROM FURTHER CONSIDERATION.

REMOVAL OF CONTAMINANTS VIA TREATMENT (ALTERNATIVE V)

A TREATMENT PROCESS TO REMOVE CHROMIUM FROM THE GROUNDWATER TO BRING THE WATER WITHIN THE DRINKING WATER STANDARDS IS CONSIDERED IN THIS ALTERNATIVE. THIS CAN BE ACCOMPLISHED BY TREATMENT AT INDIVIDUAL WELLS OR AT A CENTRAL TREATMENT PLANT. THREE TREATMENT METHODS, PRECIPITATION, ION EXCHANGE AND REVERSE OSMOSIS, WERE CONSIDERED. PRECIPITATION AND REVERSE OSMOSIS, WHILE CAPABLE OF REMOVING MOST OF THE CHROMIUM, WOULD NOT REDUCE THE CONCENTRATION BELOW THE DRINKING WATER STANDARD OF 0.05 MG/L. ONLY ION EXCHANGE IS A VIABLE TREATMENT PROCESS. INDIVIDUAL HOUSEHOLD ION EXCHANGE UNITS ARE COSTLY AND REQUIRE SENSITIVE WATER QUALITY CONTROL. A CENTRAL ION EXCHANGE SYSTEM OFFERS THE FEWEST NUMBER OF SERIOUS DRAWBACKS AND WAS CONSIDERED IN MORE DETAIL.

DEVELOPMENT OF A NEW WELL FIELD (ALTERNATIVE VI)

UNDER THIS ALTERNATIVE, A SUPPLY OF WATER COULD BE DEVELOPED BY DRILLING NEW WELLS AWAY FROM THE CONTAMINATED AREA AND BRINGING THE WATER TO THE AFFECTED AREA. DUE TO LAND USE RESTRICTIONS, OWNERSHIP RESTRICTIONS AND LOCATIONS OF POOR QUALITY WATER, ONLY THE AREA SOUTH OF YUKON ROAD AND EAST OF ECTOR AVENUE, 3 MILES EAST OF THE SITE, CAN BE CONSIDERED FOR A NEW WELL FIELD. THIS ALTERNATIVE WILL BE EXPENSIVE BUT IS FEASIBLE AND IS CONSIDERED FOR FURTHER ANALYSIS.

CONNECTION WITH AN EXISTING MUNICIPAL WATER SUPPLY (ALTERNATIVE VII)

THIS ALTERNATIVE WOULD CONSIST OF THE EXTENSION OF THE CITY OF ODESSA LINES BEYOND THE CITY LIMITS INTO THE AFFECTED AREAS. THE CITY OF ODESSA IS FORBIDDEN BY ORDINANCE FROM SUPPLYING

WATER TO CUSTOMERS OUTSIDE THE CITY LIMITS. ANNEXATION OF AN AREA IS REQUIRED IN ORDER TO EXTEND WATER SERVICE BUT RESIDENTS OF THE AFFECTED AREA HAVE EXPRESSED OPPOSITION TO ANNEXATION. THE ALTERNATIVE DOES APPEAR FEASIBLE IN SPITE OF THIS PROBLEM AND IS CONSIDERED FOR FURTHER ANALYSIS.

DETAILED ANALYSIS

THE PRELIMINARY SCREENING PROCESS HAS REDUCED THE SEVEN OPTIONS FOR ALTERNATIVE WATER SUPPLIES DOWN TO FOUR OPTIONS:

- DEVELOPMENT OF A SURFACE WATER SUPPLY (ALTERNATIVE II)
- REMOVAL OF CONTAMINANTS VIA TREATMENT (ALTERNATIVE V)
- DEVELOPMENT OF A NEW WELL FIELD (ALTERNATIVE VI)
- CONNECTION WITH AN EXISTING MUNICIPAL WATER SUPPLY SYSTEM (ALTERNATIVE VII).

THE PRELIMINARY SCREENING PROCESS HAS ALSO SHOWN THAT FOR ALTERNATIVE II AND ALTERNATIVE VI COST SAVINGS CAN BE REALIZED FOR BOTH BY COMBINING CERTAIN PORTIONS OF THE WATER SUPPLY SYSTEM FOR THE ODESSA CHROMIUM I AND II PROJECTS. FURTHER DISCUSSION WILL ADDRESS THIS CONDITION.

THE DETAILED ANALYSIS OF THE FINAL FOUR ALTERNATIVES FOLLOWS THE OUTLINE OF 40 CFR 300.68(H) WHICH REQUIRES AN EXTENSIVE EVALUATION OF THE POTENTIAL PLANS. THIS EVALUATION INCLUDES AN ENGINEERING ANALYSIS, ANALYSIS OF IMPLEMENTABILITY, COST ANALYSIS, ENVIRONMENTAL PROTECTION ANALYSIS, PUBLIC HEALTH ANALYSIS AND REGULATORY/INSTITUTIONAL ANALYSIS. THE COST ANALYSIS IS SUMMARIZED IN TABLE 6-1. TABLE 6-2 GIVES THE AVERAGE RESIDENTIAL MONTHLY WATER BILL THAT CAN BE EXPECTED UNDER EACH PLAN. THE DETAILED ANALYSIS OF THE FOUR PLANS IS SUMMARIZED IN TABLE 6-3. IMPORTANT FINDINGS FROM THE DETAILED ANALYSIS OF EACH ALTERNATIVE FOLLOWS.

DEVELOPMENT OF SURFACE WATER SUPPLY (ALTERNATIVE II)

THE WATER SUPPLY OF THE COLORADO RIVER MUNICIPAL WATER DISTRICT IS (CRMWD) ADEQUATE, RELIABLE AND OF GOOD QUALITY. A WATER ASSOCIATION OR PRIVATE CORPORATION WILL BE NECESSARY TO OWN AND OPERATE THE TREATMENT SYSTEM AND DISTRIBUTION SYSTEM. THE TOTAL CAPITAL COST IS ESTIMATED AT $372,400 WITH ANNUAL OPERATION AND MAINTENANCE COST OF $67,150. THE PUBLIC HEALTH WILL BE WELL SERVED AND NO ADVERSE ENVIRONMENTAL IMPACTS WOULD TAKE PLACE DUE TO THIS ALTERNATIVE. THE CITY OF ODESSA HAS RIGHT OF FIRST REFUSAL WITH CRMWD THEREBY COMPLICATING NEGOTIATIONS FOR THE WATER.

REMOVAL OF CONTAMINANTS VIA TREATMENT (ALTERNATIVE V)

A CENTRAL SYSTEM UTILIZING ION EXCHANGE WOULD REQUIRE AT LEAST THREE WATER WELLS PUMPING CONTAMINATED WATER FROM THE AFFECTED AREA TO THE SYSTEM. THE TREATMENT SYSTEM WOULD BE SOPHISTICATED AND REQUIRE TRAINED PERSONNEL WORKING FOR A WATER ASSOCIATION TO RUN AND MAINTAIN THE EQUIPMENT. THE CAPITAL COST ESTIMATE IS $852,900 WITH OPERATION AND MAINTENANCE COST ESTIMATED AT $302,750 ANNUALLY. A MAJOR NEGATIVE ASPECT IS THE REQUIREMENT OF THE THREE WATER WELLS PUMPING FROM THE CONTAMINATED AREA. THE CHARACTERISTICS OF THE AQUIFER WOULD DICTATE THAT THE WELLS BE SPREAD THROUGHOUT THE PLUME AREA CAUSING THREE PUMPING CENTERS WITH CORRESPONDING CONES OF DEPRESSION LEADING TO FURTHER MIGRATION OF CONTAMINANTS.

DEVELOPMENT OF A NEW WELL FIELD (ALTERNATIVE VI)

THE 100-ACRE TRACT ENVISIONED FOR THIS ALTERNATIVE REPORTEDLY CONTAINS ENOUGH GOOD QUALITY WATER TO MEET THE DEMAND OF THE ODESSA CHROMIUM I SITE. VALUABLE WATER RIGHTS WOULD NEED TO BE PURCHASED AND A TREATMENT/DISTRIBUTION SYSTEM CONSTRUCTED. THE ESTIMATED CAPITAL COST IS $1,759,250 WITH ANNUAL OPERATION AND MAINTENANCE COST OF $59,000. NO ADVERSE ENVIRONMENTAL IMPACTS WOULD OCCUR AND THE PUBLIC HEALTH WOULD BE WELL SERVED BY THIS ALTERNATIVE.

CONNECTION WITH AN EXISTING MUNICIPAL WATER SUPPLY (ALTERNATIVE VII)

THIS IS THE ONLY ALTERNATIVE WHICH CONSIDERS THE PURCHASE OF TREATED WATER RATHER THAN RAW WATER. THE CITY OF ODESSA HAS AN ADEQUATE SUPPLY OF GOOD QUALITY WATER WHICH MORE THAN MEETS PUBLIC HEALTH REQUIREMENTS. THE EXTENSION OF THE CITY WATER LINES IS SIMPLE AND INEXPENSIVE AT $247,920 IN CAPITAL COST WITH ANNUAL OPERATION AND MAINTENANCE COST OF $14,350.

NO ADVERSE ENVIRONMENTAL IMPACTS WOULD OCCUR. THE CITY POLICY OF NONSERVICE TO AREAS OUTSIDE OF THE CITY LIMITS IS A MAJOR RESTRICTION BUT THE CITY OF ODESSA HAS INDICATED A WILLINGNESS IN THE FORM OF A MARCH 25, 1986, CITY RESOLUTION TO CONSIDER A SPECIAL EXTENSION OF CITY WATER TO THE SITE AREA.

#RA
RECOMMENDED ALTERNATIVE

THE NATIONAL CONTINGENCY PLAN (40 CFR 300.68(I)) REQUIRES EPA TO SELECT THE COST-EFFECTIVE REMEDIAL ALTERNATIVE THAT EFFECTIVELY MITIGATES AND MINIMIZES THE THREAT TO AND PROVIDES ADEQUATE PROTECTION OF PUBLIC HEALTH AND WELFARE AND THE ENVIRONMENT. FURTHERMORE, THE SELECTED REMEDY MUST ATTAIN OR EXCEED APPLICABLE OR RELEVANT AND APPROPRIATE FEDERAL PUBLIC HEALTH AND ENVIRONMENTAL REQUIREMENTS THAT HAVE BEEN IDENTIFIED FOR THE SITE. THE FOUR ALTERNATIVES UNDER CONSIDERATION MEET THIS REQUIREMENT BY REDUCING THE CHROMIUM LEVELS BELOW THE MAXIMUM CONTAMINANT LEVEL OF 0.05 MG/L. EPA MUST SELECT FROM THE FOUR ALTERNATIVES THE PLAN WHICH IS COST-EFFECTIVE. EPA RECOMMENDS THAT ALTERNATIVE VII, CONNECTION WITH AN EXISTING MUNICIPAL WATER SUPPLY, BE SELECTED AS THE COST-EFFECTIVE ALTERNATIVE FOR THE ODESSA CHROMIUM I SITE. THIS ALTERNATIVE CONSISTS OF THE EXTENSION OF THE CITY OF ODESSA WATER LINES TO THE AFFECTED AREA AND SUBSEQUENT SUPPLY OF WATER FROM THE CITY. DETAILS ON THE WATER LINE EXTENSION ARE PROVIDED IN FIGURES 5-9 AND 5-10.

IN FIRST ANALYZING THE COST OF THE ALTERNATIVES, THE RECOMMENDED ALTERNATIVE IS CLEARLY THE ADVANTAGEOUS PLAN. THE NUMBERS IN TABLE 6-1 TRANSLATE INTO CONSIDERABLE SAVINGS IF THE EXTENSION OF MUNICIPAL WATER SERVICE IS IMPLEMENTED OVER THE OTHER THREE ALTERNATIVES. A SAVINGS OF 150% TO 780% IS REALIZED BY ALTERNATIVE VII. THE PROPERTY OWNERS WILL ALSO HAVE MUCH LOWER WATER BILLS UNDER ALTERNATIVE VII.

IN TERMS OF EFFECTIVENESS, ALL THE PLANS MEET THE GOAL OF SUPPLYING WATER THAT WILL PROTECT THE PUBLIC HEALTH AND WELFARE. ONLY ALTERNATIVE VII SUPPLIES TREATED WATER WITHOUT THE NEED FOR CONSTRUCTION AND OPERATION OF A TREATMENT SYSTEM. THIS IS AN ADVANTAGE FOR THE EXTENSION OF MUNICIPAL WATER SERVICE.

INSTITUTIONAL DRAWBACKS ARE PRESENT IN ALL THE ALTERNATIVES. THE PURCHASE OF SURFACE WATER OR WATER RIGHTS IN ALTERNATIVE II AND VI WILL BE DIFFICULT. THE OPERATION OF A WATER ASSOCIATION AS CALLED FOR BY THE THREE OTHER ALTERNATIVES WOULD BE A BURDEN TO THE PEOPLE IN THE AFFECTED AREA. THESE INSTITUTIONAL ISSUES ARE NOT PRESENT IN THE RECOMMENDED ALTERNATIVE, HOWEVER THE EXTENSION OF THE CITY'S WATER LINES WILL REQUIRE AN EXCEPTION TO THE RULES GOVERNING WATER SUPPLY ACROSS CITY LIMITS. THIS PROBLEM HAS SHOWN TO BE SOLVABLE DUE TO THE COOPERATIVE SPIRIT OF THE CITY OF ODESSA, GIVING ALTERNATIVE VII ANOTHER ADVANTAGE OVER THE OTHER PLANS.

IN SUMMARY, EPA RECOMMENDS THE EXTENSION OF MUNICIPAL WATER SERVICE TO THE AFFECTED AREA OF THE ODESSA CHROMIUM I SITE AS THE COST-EFFECTIVE REMEDY FOR THIS OPERABLE UNIT OF THE PROJECT. THE ESTIMATED COST IS $357,070 AND TIME OF IMPLEMENTATION IS 9-12 MONTHS.

#SCH
SCHEDULE

THE SCHEDULE FOR THE DESIGN AND CONSTRUCTION OF THE ALTERNATE WATER SUPPLY AT THE ODESSA CHROMIUM I SITE IS CURRENTLY DEPENDENT UPON REAUTHORIZATION OF SUPERFUND. THE DESIGN PHASE OF THE PROJECT WILL BEGIN AS SOON AS FUNDING BECOMES AVAILABLE, EITHER THROUGH REAUTHORIZATION OR A CONTINUING RESOLUTION. WHEN FUNDING IS AVAILABLE, THE DESIGN AND CONSTRUCTION WILL TAKE APPROXIMATELY 12 MONTHS TO COMPLETE.

#TMA
TABLES, MEMORANDA, ATTACHMENTS

ATTACHMENT A

TEXAS WATER COMMISSION

AUGUST 21, 1986

MR. DICK WHITTINGTON, P.E.
REGIONAL ADMINISTRATOR
U. S. ENVIRONMENTAL PROTECTION AGENCY
REGION VI
1201 ELM STREET
DALLAS, TEXAS 75270

ATTN: MR. PAUL SIEMINSKI

RE: ODESSA CHROMIUM I AND
ODESSA CHROMIUM II SUPERFUND SITES

DEAR MR. WHITTINGTON:

THIS IS IN RESPONSE TO YOUR LETTER OF AUGUST 5, 1986 WHICH REQUESTS OUR COMMENTS AND/OR CONCURRENCE WITH REGARD TO THE PROPOSED REMEDY FOR PROVIDING AN ALTERNATIVE DRINKING WATER SUPPLY TO THE AFFECTED AREAS AT THE ODESSA CHROMIUM I AND II SUPERFUND SITES. THE DRAFT SUMMARIES OF REMEDIAL ALTERNATIVES SELECTION RECOMMEND THAT CONNECTION WITH AN EXISTING MUNICIPAL WATER SUPPLY BE SELECTED AS THE COST EFFECTIVE ALTERNATIVE FOR THE TWO SITES. THIS ALTERNATIVE CONSISTS OF THE EXTENSION OF THE CITY OF ODESSA WATER LINES TO THE AFFECTED AREAS AND THE SUBSEQUENT SUPPLY OF WATER FROM THE CITY. A PUBLIC MEETING WAS HELD IN ODESSA ON AUGUST 13, 1986, TO DISCUSS THE VARIOUS METHODS OF PROVIDING AN ALTERNATIVE DRINKING WATER SUPPLY AND TO RECEIVE COMMENTS FROM THE PUBLIC.

THE TEXAS WATER COMMISSION HAS NO OBJECTION TO EPA'S SELECTION OF THE PROPOSED REMEDY FOR PROVIDING A POTABLE WATER SUPPLY TO THE AFFECTED AREAS AT THE TWO SITES.

IF YOU HAVE ANY QUESTIONS, PLEASE HAVE YOUR STAFF CONTACT GREG TIPPLE OF OUR SUPERFUND SECTION AT 512/463-7798.

SINCERELY,

LARRY R. SOWARD
EXECUTIVE DIRECTOR.

#RS

ATTACHMENT B

COMMUNITY RELATIONS RESPONSIVENESS SUMMARY
ON POTENTIAL REMEDY MODIFICATION
ODESSA CHROMIUM I & II, TEXAS

THIS COMMUNITY RELATIONS RESPONSIVENESS SUMMARY IS DIVIDED INTO THE FOLLOWING SECTIONS:

I. OVERVIEW - THIS SECTION DISCUSSES EPA'S PREFERRED ALTERNATIVE FOR REMEDIAL ACTION, AND LIKELY PUBLIC REACTION TO THIS ALTERNATIVE.

II. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS - THIS SECTION PROVIDES A BRIEF HISTORY OF COMMUNITY INTEREST AND CONCERNS RAISED DURING REMEDIAL PLANNING ACTIVITIES THROUGH A FEASIBILITY STUDY AT THE ODESSA CHROMIUM I & II SITES.

III. SUMMARY OF MAJOR COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND THE EPA RESPONSES TO THE COMMENTS.

IV. REMAINING CONCERNS - THIS SECTION DESCRIBES REMAINING COMMUNITY CONCERNS THAT EPA AND THE PRPS SHOULD BE AWARE OF IN CONDUCTING THE REMEDIAL DESIGN AND REMEDIAL ACTION AT THE ODESSA CHROMIUM I & II SITES.

I. OVERVIEW

IN THE PRESENTATION FOR THE PUBLIC MEETING ON AUGUST 13, 1986, THE EPA DISCUSSED THE ALTERNATIVES DEVELOPED FOR IMPLEMENTATION OF A CORRECTIVE ACTION WHICH ADDRESSES AN ALTERNATE WATER SUPPLY FOR THE ODESSA CHROMIUM I & II SITES AND ADJACENT AND NEARBY RESIDENTIAL PROPERTIES.

BASED ON THE REMEDIAL INVESTIGATION AND THE ANALYSES PERFORMED IN THE FEASIBILITY STUDY, THE EPA PROPOSED TO EXTEND THE CITY OF ODESSA'S WATER SUPPLY SYSTEM TO AFFECTED HOUSEHOLDS. THIS ALTERNATIVE, IF IMPLEMENTED, WOULD PROVIDE NEGOTIATED AGREEMENTS BETWEEN THE CITY OF ODESSA AND CONSUMERS FOR EXTENDING THE CITY WATER SYSTEM TO CURRENT WELL USERS AND FOR THE CONSTRUCTION OF A WATER DISTRIBUTION SYSTEM. COMMENTS FROM LOCAL OFFICIALS AND RESIDENTS FAVORED THIS OPTION, PROVIDED THAT THE IMPACTED AREA WOULD NOT BE ANNEXED TO THE CITY OF ODESSA NOW OR IN THE FUTURE. THE COMMENTS ON THE FOUR ALTERNATIVES, ALONG WITH EPA'S RESPONSE TO EACH, ARE PRESENTED LATER IN THIS DOCUMENT.

AT THIS TIME, THE EPA HAS PRESENTED THE FINDINGS OF THE ALTERNATE WATER SUPPLY STUDY ONLY. THE OVERALL STUDY ON THE GROUNDWATER CONTAMINATION AT THE ODESSA SITES, INCLUDING REMEDIAL ALTERNATIVES, WILL BE COMPLETED LATER THIS YEAR, WITH PUBLIC COMMENT TO FOLLOW.

II. MAJOR CONCERNS AND ISSUES

ODESSA CHROMIUM I

COMMUNITY INTEREST, HISTORICALLY AT A LOW LEVEL, IN THE ODESSA CHROMIUM I SITE, DATES BACK TO NOVEMBER 8, 1978, WHEN THE OWNER OF A DOMESTIC WATER WELL REGISTERED A COMPLAINT WITH THE TEXAS DEPARTMENT OF WATER RESOURCES (TDWR) - NOW KNOWN AS THE TEXAS WATER COMMISSION (TWC). THIS LOCAL RESIDENT COMPLAINED THAT THERE WERE ODORS AND AN "OILY" FILM PRESENT IN THE WATER COMING FROM HIS WELL. IN 1979, A WATER WELL AT ANOTHER PARTICULAR RESIDENCE WAS INVESTIGATED AND FOUND TO BE HEAVILY CONTAMINATED WITH CHROMIUM.

ODESSA CHROMIUM II

A LOW LEVEL OF COMMUNITY INTEREST HAS ALSO EXISTED HISTORICALLY AT THE ODESSA CHROMIUM II SITE. PUBLIC AWARENESS FIRST SURFACED IN 1977, WHEN THE TDWR INVESTIGATED THE AREA AND FOUND HEAVY METALS IN THREE LOCAL WATER WELLS.

SEVERAL LOCAL INDUSTRIES WERE SUSPECTED AS POSSIBLE SOURCES OF CONTAMINATION. THESE INDUSTRIES GENERATED CHROMIUM-CONTAMINATED WASTEWATER AS A RESULT OF METAL PLATING ACTIVITIES AND CLEANING RADIATORS.

BOTH THE ODESSA CHROMIUM I & II SITES WERE ADDED TO THE NATIONAL PRIORITIES LIST IN OCTOBER 1984. BOTH SITES ARE LOCATED OUTSIDE THE CITY LIMITS OF THE CITY OF ODESSA IN ECTOR COUNTY, TEXAS. THE APPROXIMATE POPULATION OF THE CITY IS 135,000 RESIDENTS. THE TWO SITES ARE SURROUNDED BY A FEW SMALL INDUSTRIAL BUSINESSES, SINGLE FAMILY RESIDENCES, A MOTEL, A CHURCH, A SMALL CITY PARK, AND SEVERAL MOBILE HOME COMMUNITIES. APPROXIMATELY 550 - 600 RESIDENTS ARE AFFECTED BY THE TWO SITES. THESE RESIDENTS ARE NOT SERVED BY THE CITY OF ODESSA MUNICIPAL WATER SYSTEM. THE VAST MAJORITY ARE ON BOTTLED WATER, AND, WHILE THEY DO NOT PARTICULARLY OBJECT TO BEING PUT ON THE CITY OF ODESSA WATER SYSTEM, THEY STRONGLY OBJECT TO ANNEXATION BY THE CITY AND THE SUBSEQUENT ENCUMBRANCE OF CITY TAXES AND FEES.

ACTIVITIES TO ELICIT INPUT AND ADDRESS CONCERNS

AFTER PREPARATION AND SUBMITTAL OF A HAZARD RANKING PACKAGE FOR EACH SITE, THE TDWR INITIATED COMMUNICATIONS WITH THE CITY OF ODESSA, IN ORDER TO DETERMINE THE BEST MEANS AVAILABLE TO PROVIDE AN UNCONTAMINATED SUPPLY OF DRINKING WATER TO THE RESIDENTS IN THE ODESSA CHROMIUM I AREA.

ON APRIL 25, 1984, DISCUSSIONS WERE HELD IN ODESSA WITH AFFECTED RESIDENTS IN THE ODESSA CHROMIUM I AREA TO DETERMINE THEIR FEELINGS AND WISHES WITH REGARD TO ANNEXATION. THE OVERWHELMING SENTIMENT OF RESIDENTS PRESENT AT THIS MEETING WAS AGAINST ANNEXATION.

ON-SITE DISCUSSIONS WERE HELD CONCERNING ODESSA CHROMIUM II ON OCTOBER 9-10, 1984. DURING THESE DISCUSSIONS THE RESIDENTS EXPRESSED THE FOLLOWING CONCERNS:

1. LOCAL HEALTH OFFICIALS WERE CONCERNED THAT THERE WERE NOT ANY LEGAL STANDARDS FOR DISALLOWING HEAVY METALS IN DRINKING WATER.

2. THE SAME HEALTH OFFICIALS WONDERED IF SOME OF THE RESIDENTS NEAR THE SITE WERE UNKNOWINGLY DRINKING CONTAMINATED WATER FROM SMALL WELLS THAT HAD NOT BEEN TESTED.

3. ONE RESIDENT WAS CONCERNED THAT WATER USED BY BOTH A CHURCH AND A SMALL CITY PARK NEAR THE SITE MIGHT BE CONTAMINATED.

ON JANUARY 10, 1985, A PUBLIC MEETING WAS HELD CONCERNING ODESSA CHROMIUM II. PRIMARY CONCERNS AT THIS MEETING FOCUSED ON THE AVAILABILITY OF A POTABLE DRINKING WATER SUPPLY. AT THAT TIME, SOME RESIDENTS WHO WERE PROVIDING THEIR OWN BOTTLED WATER BECAUSE OF CONTAMINATION IN THEIR RESIDENCE WELLS, WERE INTERESTED IN THE POSSIBILITY OF EPA PROVIDING A BOTTLED WATER SUPPLY AS AN EMERGENCY MEASURE UNTIL A MORE PERMANENT REMEDY COULD BE STUDIED AND DETERMINED. AT THIS MEETING, THERE WERE ADDITIONAL RESIDENTS WHO HAD CONTAMINATED WATER WELLS AND WERE NOT ON BOTTLED WATER WHO WANTED EPA TO PROVIDE WATER.

SUBSEQUENT TO COMPLETION OF THE FEASIBILITY STUDY FOR AN ALTERNATE WATER SUPPLY, THE EPA HELD A PUBLIC MEETING IN THE ODESSA CITY COUNCIL CHAMBERS ON AUGUST 13, 1986. DURING THE PUBLIC MEETING, THE ENVIRONMENTAL PROTECTION AGENCY SUMMARIZED AND EXPLAINED THE RESULTS OF ALL PREVIOUS INVESTIGATIONS, WITH PARTICULAR EMPHASIS ON RESULTS FROM THE ALTERNATE WATER SUPPLY FEASIBILITY STUDY. THE EPA DESCRIBED THE VARIOUS CORRECTIVE MEASURES BEING CONSIDERED BY THE AGENCY FOR THE RESIDENTS AFFECTED BY THE SITES, AND OUTLINED OPPORTUNITIES FOR PUBLIC INVOLVEMENT. THE EPA EXPLAINED THAT THE GOAL OF THE EPA AT BOTH THE ODESSA CHROMIUM I AND II SITES IS TO IMPLEMENT A CORRECTIVE ACTION WHICH ADDRESSES THE GROUNDWATER CONTAMINATION. THE PROCESS LEADING TO THE GROUNDWATER CLEANUP IS TIME-CONSUMING; THEREFORE, TO PROTECT PUBLIC HEALTH UNTIL COMPLETION OF THE ENTIRE REMEDY, EPA DECIDED TO EXPLORE ALTERNATE WATER SUPPLY OPTIONS FOR THOSE PEOPLE IN THE AREA WITH CONTAMINATED WELLS.

EPA DISCUSSED ITS PROPOSED ALTERNATIVE, EXTENSION OF ODESSA'S WATER SUPPLY SYSTEM TO IMPACTED PERSONS, AT THE AUGUST 13 MEETING AND RECEIVED COMMENTS CONCERNING THIS ALTERNATIVE AND THE OTHERS CONSIDERED IN THE FEASIBILITY STUDY. THE OVERWHELMING SENTIMENT OF RESIDENTS AT THE MEETING WAS THEIR OPPOSITION TO ANNEXATION BY THE CITY OF ODESSA.

III. SUMMARY OF PUBLIC COMMENTS RECEIVED DURING PUBLIC COMMENT PERIOD AND AGENCY RESPONSES.

THE PUBLIC COMMENT PERIOD ON THE FOCUSED FEASIBILITY STUDY FOR THE ODESSA CHROMIUM I AND II SUPERFUND SITES OPENED ON JULY 30 AND CLOSED ON AUGUST 27, 1986. A PUBLIC MEETING WAS HELD ON AUGUST 13, 1986, IN ODESSA, TEXAS WITH APPROXIMATELY 40 PEOPLE IN ATTENDANCE; 8 PEOPLE SPOKE.

REPRESENTATIVES FOR THE PRPS AT EACH SITE AND 7 LOCAL RESIDENTS SUBMITTED WRITTEN COMMENTS DURING THE COMMENT PERIOD. A SUMMARY OF THESE COMMENTS IS PROVIDED BELOW.

COMMENT #1
ONE PERSON ASKED THAT THE PROPOSED WATER SUPPLY SYSTEM BE EXTENDED TO INCLUDE GOLDER AVENUE (400 FEET WEST OF CURRENT PROPOSAL). THE EXTENSION WAS REQUESTED DUE TO HIGH LEVELS OF SALT IN THE RESIDENT'S WELLS.

EPA RESPONSE TO COMMENT #1
TEXAS WATER COMMISSION SUGGESTED, DURING THE PUBLIC MEETING, THAT THE COMMENTOR CONTACT THE TEXAS RAILROAD COMMISSION AS THEY HAVE THE REGULATORY JURISDICTION OF PRODUCTS WHICH RESULT FROM THE PRODUCTION OF OIL AND NATURAL GAS SUCH AS SALT WATER (I.E. SODIUM CHLORIDE).

EPA CANNOT CONSIDER EXTENDING THE WATER SUPPLY TO THIS AREA BECAUSE THERE IS NO EVIDENCE THAT THE MATERIAL FOUND IN THE COMMENTOR'S WELL IS HAZARDOUS NOR IS THE LOCATION OF THE INDIVIDUAL'S WELL WITHIN THE ALTERNATE WATER SUPPLY BOUNDARY.

COMMENT #2
WHAT ACTIONS WILL EPA PURSUE AGAINST THE COMPANIES RESPONSIBLE FOR THE CONTAMINATION?

EPA RESPONSE TO COMMENT #2
EPA PREFERS THAT PARTIES RESPONSIBLE FOR CONTAMINATION OF SITE PERFORM THE CLEANUP. POTENTIALLY RESPONSIBLE PARTIES (PRPS) HAVE BEEN IDENTIFIED AT THE ODESSA CHROMIUM I AND THE ODESSA CHROMIUM II SITES. THESE PARTIES HAVE BEEN NOTIFIED THAT THEY MAY UNDERTAKE, OR PARTICIPATE IN, THE CHOSEN REMEDY. IF THEY DECLINE INVOLVEMENT IN THE REMEDIAL ACTION, EPA WILL PROCEED WITH THE IMPLEMENTATION OF THE REMEDY AND PURSUE APPROPRIATE ENFORCEMENT ACTION INCLUDING COST RECOVERY.

COMMENT #3
TWO WELLS LOCATED AT 5329 ANDREW HIGHWAY (ODESSA CHROMIUM II) SHOULD BE PLUGGED TO LIMIT THE VERTICAL MOVEMENT OF CONTAMINATION THROUGH THE WELL.

EPA RESPONSE TO COMMENT #3
THE AGENCY WILL SOON COMPLETE AN OVERALL STUDY OF THE SITES TO EVALUATE ALTERNATIVES FOR REMEDIATING THE CHROMIUM CONTAMINATED GROUNDWATER. AFTER COMPLETION OF THIS STUDY, THE AGENCY MAY RECOMMEND PLUGGING OF THESE WELLS AS PART OF THE REMEDIAL ACTION TO BE TAKEN AT THE SITE. IN THE MEANTIME, THERE SHOULD NOT BE SIGNIFICANT ADDITIONAL ADVERSE EFFECTS ON THE QUALITY OF THE TRINITY AQUIFER FROM THESE WELLS. IN ADDITION, THE UNPLUGGED WELLS MAY BE OF FURTHER VALUE TO EPA IN DOCUMENTING THE NATURE OF THE INTERCONNECTION BETWEEN THE PERCHED AND REGIONAL AQUIFER.

COMMENT #4
THE CONCERN AT BOTH ODESSA CHROMIUM I AND II APPEARS ONLY TO BE WITH THE POTABLE WATER. WHY THEN ARE THE PROPOSED ALTERNATIVES DESIGNED TO MEET THE TOTAL ANNUAL USAGE OF WATER WITHIN THE TWO AREAS?

EPA RESPONSE TO COMMENT #4
THE AGENCY'S PRIMARY GOAL IS TO SUPPLY POTABLE WATER. EXTENDING THE CITY WATER LINES (WHICH IS THE MOST EFFECTIVE REMEDY) ALSO ALLOWS THESE RESIDENTS IMPACTED BY CHROMIUM CONTAMINATION THE OPPORTUNITY TO USE IT FOR THEIR TOTAL NEEDS. THE SECONDARY GOAL IS TO REDUCE THE RATE OF PLUME MIGRATION AND PREVENT OTHER AREAS FROM BECOMING CONTAMINATED.

COMMENT #5
THE COMMENTORS STATED THEIR CONCERNS REGARDING THE POSSIBLE HEALTH HAZARDS DUE TO CHROMIUM CONSUMPTION.

EPA RESPONSE TO COMMENT #5
THE CENTER FOR DISEASE CONTROL HAS DETERMINED THROUGH STUDIES, THAT IN THE OCCUPATIONAL SETTING CHROMIUM DUST HAS BEEN FOUND TO BE A CARCINOGEN WHEN INHALED. HEALTH EFFECTS FROM CHROMIUM IN WATER SUPPLIES WERE EXTRAPOLATED FROM INFORMATION OBTAINED FROM THE OCCUPATIONAL STUDIES, AND FROM ANIMAL STUDIES WHERE THE ANIMALS WERE INDUCED WITH WATER CONTAINING ELEVATED LEVELS OF CHROMIUM. FROM THESE STUDIES THERE APPEARS TO BE INCREASED BODY BURDENS (I.E. LIVER, KIDNEY) FROM DRINKING CHROMIUM CONTAMINATED WATER. HOWEVER, THE STUDIES HAVE NOT CONFIRMED THAT

CHROMIUM IS A CARCINOGEN WHEN INGESTED.

COMMENT #6
SINCE THE MAJORITY OF THE LOCAL RESIDENTS HAVE FOUND OTHER WAYS OF OBTAINING POTABLE WATER (I.E. BOTTLED WATER), WHY WOULD THIS CURRENT ARRANGEMENT NOT CONTINUE TO BE SATISFACTORY?

EPA RESPONSE TO COMMENT #6
THE AGENCY DOES NOT KNOW EXACTLY WHAT PERCENTAGE OF HOUSEHOLDS ARE DRINKING BOTTLED WATER. AS LONG AS WELLS PROVIDE POTABLE WATER TO THE TAPS OF INDIVIDUAL HOUSEHOLDS, THERE IS AN UNACCEPTABLE RISK THAT PEOPLE WILL DRINK CONTAMINATED WATER. SUPPLYING BOTTLED WATER, OVER A 15 YEAR DESIGN LIFE, WOULD BE LABOR AND COST INTENSIVE; THEREFORE, WAS NOT CONSIDERED A VIABLE ALTERNATIVE.

COMMENT #7
WILL THE PROPOSED ACTION BE THE FINAL CLEANUP AT THE SITE, IF NOT HOW IS THIS REMEDY CONSISTENT WITH A FINAL REMEDY?

EPA RESPONSE TO COMMENT #7
THE CLEANUP OF CONTAMINATED GROUNDWATER PLUMES IS SO TIME-CONSUMING (10-15 YEARS) THAT A NEED FOR ALTERNATIVE WATER SUPPLY IS OFTEN REQUIRED TO PROTECT PUBLIC HEALTH AND WELFARE UNTIL THE COMPLETION OF THE REMEDY. THE EXTENSION OF THE MUNICIPAL WATER SUPPLY THROUGH THE IMPACTED AREAS OF ODESSA CHROMIUM I AND II IS NOT THE FINAL REMEDY AND WILL BECOME PART OF A MORE COMPREHENSIVE REMEDY AT A LATER DATE. A FINAL REMEDY WILL BE PROPOSED FOLLOWING THE COMPLETION OF THE FEASIBILITY STUDY (40 CFR 300.68 (I)(3)).

COMMENT #8
JECTIONS WERE RAISED TO THE PROVIDING ALTERNATE WATER TO COMMERCIAL FACILITIES WITHIN ODESSA CHROMIUM I STUDY AREA.

EPA RESPONSE TO COMMENT #8
THE ODESSA CHROMIUM I STUDY AREA IS COMPOSED OF 44 LOTS OF WHICH 23 ARE RESIDENTIAL AND 21 ARE BUSINESSES. THE MUNICIPAL WATER SYSTEM WILL BE EXTENDED THROUGHOUT THE IMPACTED AREA; HOWEVER, COMMERCIAL FACILITIES WILL NOT BE GIVEN THE OPPORTUNITY TO CONNECT WITH THE SYSTEM.

COMMENT #9
EPA SHOULD CONDUCT A DETAILED REVIEW OF THE REMOVAL OF CONTAMINANTS BY INDIVIDUAL ION EXCHANGE UNITS.

EPA RESPONSE TO COMMENT #9
SUCH A REVIEW WAS CONSIDERED IN THE ALTERNATE WATER SUPPLY FEASIBILITY STUDY AND IT WAS FOUND TO BE COSTLY AND UNRELIABLE WHEN COMPARED WITH EXTENDING THE CITY'S WATER LINES.

COMMENT #10
WHY IS THE EPA PROPOSING TO USE EIGHT INCH WATER MAINS WHEN A SYSTEM OF THREE INCH MAINS WOULD MEET THE AREA'S NEEDS AT A SIGNIFICANT COST SAVINGS?

EPA RESPONSE TO COMMENT #10

ALL PLANS AND SPECIFICATIONS FOR EXTENSION OF CITY WATER WOULD BE ESTABLISHED IN ACCORDANCE WITH THE CITY OF ODESSA STANDARDS AND REQUIREMENTS FOR STREET, ALLEY, WATER, SEWER AND DRAINAGE IMPROVEMENTS. THESE REGULATIONS BASICALLY SET FORTH POLICY AND MINIMUM STANDARDS FOR ACCEPTABLE MATERIALS AND A MINIMUM STANDARD OF WORKMANSHIP FOR THE CONSTRUCTION OF WATER MAINS THAT ARE TO BE CONNECTED TO THE CITY OF ODESSA SYSTEM. FURTHER, TO INSURE THE INTEGRITY OF THE CITY OF ODESSA SYSTEM, STRICT COMPLIANCE WITH THE CITY'S PLUMBING CODE MUST BE MAINTAINED IN ALL CONNECTION AND ADHERENCE TO THE REGULATION REGARDING CROSS CONNECTIONS WILL BE REQUIRED. THE CITY WILL ASSUME ALL OPERATION AND MAINTENANCE COST ASSOCIATED WITH THE SYSTEM; THEREFORE, THE SPECIFICATIONS FOR THE ALTERNATIVE MUST FOLLOW EITHER CURRENTLY ACCEPTED CITY STANDARDS OR DEVELOPED THROUGH SUCCESSFUL NEGOTIATIONS WITH THE CITY COUNCIL.

COMMENT #11
NUMEROUS PEOPLE, WHILE IN FAVOR OF THE EXTENSION ON THE MUNICIPAL WATER SUPPLY, WERE CONCERNED ABOUT THE POSSIBILITY OF ANNEXATION.

EPA RESPONSE TO COMMENT #11

THE CITY OF ODESSA MAINTAINS A POLICY OF NON SERVICE OF WATER OUTSIDE THE CORPORATE CITY LIMITS. AS A PART OF THIS STUDY, THE CITY COUNCIL OF THE CITY OF ODESSA WAS REQUESTED TO ADOPT A RESOLUTION INDICATING WILLINGNESS TO CONSIDER THE SPECIAL EXTENSION OF CITY WATER INTO THE ODESSA CHROMIUM I AND II SITES TO IMPROVE THE HEALTH, WELFARE, AND SAFETY OF CITIZENS IN THE AREAS CONTAMINATED WITH CHROMIUM. THE CITY PASSED SUCH A RESOLUTION ON MARCH 25, 1986.

IN RECENT YEARS, ANNEXATION BY THE CITY OF ODESSA HAS BEEN ON A VOLUNTARY BASIS ONLY. THE CONSTRUCTION OF THE DISTRIBUTION SYSTEM MAKES THE IMPACTED AREA NO MORE OR LESS SUBJECT TO ANNEXATION.

COMMENT #12
WHAT IS THE BASIS FOR THE PROPOSED CHROMIUM ACTION LEVEL?

EPA RESPONSE TO COMMENT #12
THE FEDERALLY REGULATED PRIMARY DRINKING WATER STANDARD FOR CHROMIUM WAS SET AT .05 PPM IN 1977 BASED ON HEALTH EFFECT STUDIES. THAT REQUIREMENT IS USED AS THE BASIS FOR THE TARGET CONCENTRATION.

IV. REMAINING PUBLIC CONCERNS

THE RESIDENTS STRONGLY OBJECT TO ANNEXATION BY THE CITY OF ODESSA AND THE SUBSEQUENT ENCUMBRANCE OF CITY TAXES AND FEES.

TABLE 2-3

TOTAL CHROMIUM VALUES GT 0.05 MG/L (MCL)
REPORTED FOR EXISTING WATER SUPPLY WELLS
SAMPLED DURING RI
FOCUSED FEASIBILITY STUDY
ODESSA CHROMIUM I SITE
ODESSA, TEXAS

WELL NO	USE	TOTAL CHROMIUM VALUE (MG/L) (1)	NOTE(S)
E1046 (2)	COMMERCIAL	0.07,0.07,0.06	-
E1115	COMMERCIAL	0.07,0.04 (3)	OUTSIDE OF STUDY AREA
E1085 (2)	COMMERCIAL	5.1,4.7	-
E1086 (2)	COMMERCIAL	14.0,13.6	-
E1086A (2)	COMMERCIAL	1.4,2.9	-
E1090 (2)	COMMERCIAL	0.6,1.1	-
E1092 (2)	COMMERCIAL	3.4,2.9	-
E1093 (2)	COMMERCIAL	0.39	ABANDONED
E1094 (2)	COMMERCIAL	1.9	-
E1117	COMMERCIAL	0.21,0.16	OUTSIDE OF STUDY AREA
E1154	COMMERCIAL	0.55,0.55	-
EX100 (2)	COMMERCIAL	1.1	ABANDONED

SUMMARY STATISTICS:
GT 0.05 MG/L N=21, X=2.61 MG/L, SD=3.92 MG/L, RANGE = 0.05-14.0 MG/L
GT 0.12 MG/L N=16, X=3.21 MG/L, SD=4.14 MG/L, RANGE = 0.12-14.0 MG/L

(1) MILLIGRAMS PER LITER
(2) SHOWN ON FIGURE 2-7
(3) BELOW MCL.

TABLE 6-1
COST COMPARISON OF ALTERNATIVES
FOCUSED FEASIBILITY STUDY
ODESSA CHROMIUM I SITE
ODESSA, TEXAS

	ALTERNATIVE	CAPITAL COSTS	O&M (1)	O&M PRESENT VALUE (2)	NET PV (3)
II	SURFACE WATER	$ 404,500	$ 82,400	$ 626,750	$1,031,250
IIA	COMBINED SURFACE WATER	372,400	67,150	510,750	883,150
V	ION EXCHANGE	852,900	302,750	2,302,750	3,155,650
VI	NEW WELL FIELD	1,819,350	115,250	876,600	2,695,950
VIA	COMBINED NEW WELL FIELD	1,759,250	59,000	448,750	2,208,000
VII	MUNICIPAL WATER	247,920	14,350 (4)	109,150	357,070

NOTES: (1) O&M = OPERATIONS AND MAINTENANCE
(2) PRESENT VALUE, BASED ON 15 YEARS, 10% DISCOUNT RATE AND 0% INFLATION, FOR O&M
(3) NET PV IS TOTAL OF CAPITAL COSTS AND PRESENT VALUE OF O&M
(4) O&M COSTS ASSUMED EQUAL TO THE ANNUAL TOTAL OF MONTHLY WATER BILLS PAID BY PROPERTY OWNERS IN THE IMPACTED AREA.

TABLE 6-2
COST PER THOUSAND GALLON
COMPARISON OF ALTERNATIVES
FOCUSED FEASIBILITY STUDY
ODESSA CHROMIUM I SITE
ODESSA, TEXAS

	ALTERNATIVE	COST ($)/THOUSAND GALLONS (1)	AVERAGE RESIDENTIAL MONTHLY WATER BILL (2)
II	SURFACE WATER	14.62	219.27
IIA	COMBINED SURFACE WATER	6.54 (3)	98.13
V	ION EXCHANGE	31.56	473.39
VI	NEW WELL FIELD	20.45	306.68
VIA	COMBINED NEW WELL FIELD	6.44 (3)	96.67
VII	MUNICIPAL WATER	7.70/1.35 (4)	37.88

NOTE: (1) COSTS ARE ANNUAL O&M COSTS AND ANNUAL WATER CONSUMPTION IN THOUSANDS OF GALLONS
(2) BASED ON FIFTEEN THOUSAND GALLONS
(3) BASED ON COMBINING WATER CONSUMPTION FOR BOTH ODESSA I AND ODESSA II AND O&M COSTS FOR ODESSA I AND ODESSA II SINCE RESIDENTS WOULD BE PART OF THE SAME WATER ASSOCIATION
(4) FOR FIRST TWO THOUSAND GALLONS, $7.70 AND $1.35 PER THOUSAND GALLONS OF REMAINING PORTION, PLUS A 50% SURCHARGE.