APPENDIX I

COPY

550 gal gasoline tank - Contaminated soil remediated. Domestic well not impacted

AGRICULTURE INDUSTRIES INC.

SCHROPP RANCH NUMBER 1

3880 MOUNTAIN HOUSE ROAD, BYRON

ALAMEDA COUNTY, CALIFORNIA

Final Site Assessment Report
Describing the Nature and Extent of
Hydrocarbon Contaminated Soil and
Results of Ground Water Investigation

November 1994

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1.0 EXECUTIVE SUMMARY

WZI Inc. conducted a site assessment of hydrocarbon contaminated soil and ground water of the Schropp Ranch No. 1 located at 3880 Mountain House Road, Byron, California from February, 1992 to September, 1994. The owners of the property, Werner and Irmgard Schropp, have leased the property through their agent, Agriculture Industries Inc., West Sacramento, to the current lessor, Don Holck Farms, Inc. According to all parties involved, the lessor and previous property owners and their tenant farmers had operated a 550 gallon underground storage tank that had been used for agriculture purposes for a period of over forty years. Because the tank was used primarily for agriculture operations, it was exempt from the California Underground Storage Tank Program.

During the fall of 1991, the underground tank was removed by the lessor, Mr. Don Holck, and a significant volume of hydrocarbon stained soil was reported to the property owners by Mr. Holck to be present around the former tank location. In addition, Mr. Holck also reported a strong gasoline smell from domestic water lines supplying the farm house. The domestic water well was located immediately adjacent to the former underground tank location. WZI Inc. was retained by Agriculture Industries to conduct a site assessment and recommend any necessary corrective action regarding the hydrocarbon contaminated soil and ground water.

The initial WZI soil investigation was started with two exploratory trenches placed immediately adjacent to the former underground storage tank location. These trenches allowed investigation of the subsurface to a depth of approximately 25 feet below ground surface in order to determine if significant soil hydrocarbon contamination had occurred. These trenches revealed that the soil immediately underneath and adjacent to the former underground tank location was contaminated with hydrocarbons and that the physical aspects of the soil contamination and analytical laboratory evaluation of soil samples obtained indicated that the hydrocarbon contamination was primarily gasoline in character. A grab sample from the ground water underneath the tank confirmed that the

local ground water was contaminated with benzene and total petroleum hydrocarbon as gasoline at concentrations above established regulatory action levels.

Because the hydrocarbon contamination of soil and ground water on Schropp Ranch was above regulatory action levels, Alameda County Department of Environmental Health was notified and an Unauthorized Release Report of hydrocarbon fuel was made. Alameda County Department of Environmental Health prepared an inspection report that required the property owner to comply with a series of actions. A subsequent workplan to conduct a soil and ground water site assessment for hydrocarbon contamination was submitted to and subsequently approved by Alameda County Department of Environmental Health.

Prior to initiating additional excavation, WZI placed a series of hand auger borings in the main shop yard to determine if any hydrocarbon soil was present on the property in the shallow subsurface to a depth of approximately 15 feet below ground surface. Soil samples obtained from these borings indicated minor hydrocarbon contamination was present in the form of gasoline contaminated soil. Information obtained from these borings assisted in the development of a final excavation plan.

The WZI investigation also included evaluation of the former domestic water well and its subsequent abandonment. WZI conducted a televideo log of the water well and determined that the upper 50 feet of the well had not been perforated. Ground water samples from this well were collected and analyzed for benzene, toluene, ethylbenzene, and xylene in addition to total petroleum hydrocarbon as gasoline. All water analyses were reported to be below detection limits for hydrocarbon constituents. The domestic water well was then abandoned in accordance with the Alameda County Water District Zone 7 requirements.

The WZI soil site assessment was accomplished by removal of all gasoline contaminated soil on the Schropp property by excavation. Approximately 19,000 cubic yards of low-level (50 to 100 parts per million total petroleum hydrocarbon as gasoline) hydrocarbon

contaminated soil was removed from the subsurface to a depth of approximately 30 feet below ground surface. An estimated 700 to 750 gallons of gasoline was contained within this hydrocarbon contaminated soil excavated from the subsurface. A loss rate of approximately 0.06 gallons per day of gasoline over a period of 30 years would have accounted for the volume of gasoline found in the subsurface at Schropp Ranch.

An annual fluctuation in the ground water level from 15 to 25 feet below ground surface allowed downward migrating gasoline contaminated ground water to contaminate soil as deep as 32 feet below ground surface. The vertical and lateral extent of the gasoline contaminated soil has been mapped in the subsurface. The gasoline contaminated soil extends from the former underground tank location to the north and northeast of the property line with the adjoining parcel. No work was conducted on the property adjacent to the Schropp property.

All of the gasoline contaminated soil was removed from the subsurface and stockpiled except for a small volume of hydrocarbon contaminated soil which was left in place for engineering safety below and immediately adjacent to the farm house. Ground water that collected in the excavation was pumped through a carbon filtration system into a series of 20,000 gallon holding tanks. Clean backfill was then placed in the excavation until the former grade was attained. The filtered water from the excavation was sampled for hydrocarbon constituents and if necessary, refiltered until non-detection limits were attained. The filtered water was then discharged into a local alfalfa field on the property in accordance with a waste discharge permit obtained from the California Regional Water Quality Control Board.

A second soil hydrocarbon contamination plume in the soil, which had the appearance of unrefined crude oil, was identified to be present on the extreme north end of the property. Unlike the gasoline contaminated soil which clearly has migrated to the north and northeast, the lateral extent of this contaminated soil appears to have migrated southward from the property located to the north. The volume of currently identified affected soil on the Schropp property was relatively small and is located at a depth of 22

to 25 feet below ground surface and has encroached approximately 20 or 30 feet into the Schropp property. This soil was excavated and remediated with the gasoline contaminated soil. The extent of this hydrocarbon contamination was not defined as this involved the adjoining property and permission was denied to enter the property by the owner. The potential source of this probable crude oil is a Shell Oil Company crude oil pipeline that was formerly located several hundred feet to the north on the adjacent property.

Remediation of the gasoline contaminated soil was accomplished by aeration in accordance with Bay Area Air Quality Management District guidelines at rates prescribed for total petroleum hydrocarbon concentrations at or below 50 parts per million. The soil was also sampled for soluble lead from four samples which were reported as having concentrations below detection limits. Once remediated to non-detection levels and confirmed by analytical laboratory results of soil samples obtained from the remediated soil, the soil was used to help build up existing dirt roads on the Schropp property.

A series of five ground water monitoring wells were drilled and completed to determine if local ground water had been contaminated by gasoline contaminated soil. All five wells were completed to depths between 30 and 40 feet below ground surface and developed. The well casings were surveyed and tied into the U.S. Coast and Geodetic Survey elevation grid by use of a local benchmark. The ground water surface elevation measurements from the monitoring wells indicate a gradient that slopes gently to the northeast. Local ground water pumping on the adjacent property to the north by a domestic water well may be responsible for a small anomaly in the ground water surface that represents a cone of ground water surface depression.

Water samples obtained from the monitoring wells during two successive quarterly monitoring rounds in April and July, 1994 reported hydrocarbon constituents below detection limits. Quarterly ground water monitoring of these wells will be continued until four successive quarters of hydrocarbon constituents below detection limits for all wells are obtained.

The source of the gasoline contamination has been removed from the subsurface and remediated. As a consequence, WZI requests that Alameda County Department of Environmental Health provide an Interim Closure Letter for the gasoline contaminated soil for the Schropp parcel located at 3880 Mountain House Road indicating no further work is required at this time for the soil portion of the investigation. This request for closure of the Schropp property does not address any gasoline contamination that may have migrated northward onto the adjacent property. This request also does not involve the issue of the source of the crude oil contamination that may have migrated southward from the adjacent property to the north onto the Schropp property. These issues will need to be addressed in a separate investigation that will involve the adjacent property owner.

A final soil and ground water closure of this property will be requested when a total of four successive quarterly ground water monitoring rounds have been completed if the monitoring samples continue to show lack of detection of gasoline. At that time, a request to plug and abandon the monitoring wells will be made.

2.0 INTRODUCTION

2.1 Project Background

Schropp Ranch No.1 is located at 3880 Mountain House Road near the town of Byron, California within the extreme eastern portion of Alameda County (Exhibit 1). The property is currently owned by Werner R. and Irmgard S. Schropp as registered with Alameda County Assessors office with a mailing address care of Agriculture Industries, Post Office Box 1076, West Sacramento, California, 95691. Agriculture Industries functions as the property manager of the parcel.

The property is located on the U. S. Geological Survey Clifton Court Forebay 1:24,000 scale topographic map (Exhibit 2), near the base of the foothills of the eastern flank of the Diablo Range on a gentle northeast-sloping surface which has been dissected by small northeast flowing streams. The elevations of the property range from approximately 160 feet above mean sea level in the southwest corner of the property to 80 feet above mean sea level in the northeast corner of the property.

The property consists of approximately 488 acres, almost all of which are involved in alfalfa farming. The property is composed of two parcels, Alameda Assessors Parcel Number (APN) 99B-7200-24 and 99B-7200-2-3 (Appendix I, Exhibit 4). Existing improvements on the property are mainly in the shop area of the property and include one residence with attached garage, two shop buildings, and a barn. In addition, a pole-barn is present on the property (Exhibit 3).

According to the current and previous property owners, the property has had a fueling point for agriculture purposes located in the main shop yard area for over forty years (Exhibit 3). Until 1991, a 550-gallon gasoline underground storage tank was located in the shop yard and provided fuel for farm vehicles. This tank was exempt from the California Underground Storage Tank law enacted in 1987 because it was less than 10,000 gallon capacity and was utilized for agriculture purposes. A previous tank was

located at this same location and was in service from an unknown time in the early 1950's until approximately 1970 when it was replaced, reportedly because it could not maintain fuel levels and was believed to be leaking. This information was provided by Mr. Don Holck. No documentation or records were found regarding the date of origin of service or operational history for this tank. According to Mr. Holck, a replacement tank was put into service and it was operated until the fall of 1991 when it was removed from service.

During January of 1992, the underground storage tank depicted in Exhibit 3 was removed from the subsurface along with associated piping by the lessor, Mr. Don Holck and hydrocarbon stained soil was reported to be present immediately around and below the former tank location. Mr. Holck reportedly removed the tank from the subsurface along with associated piping. The tank, piping, and surface dispenser were all stockpiled within the main yard area after removal. Mr. Holck did not have any comment on the condition of the tank, piping and dispenser after removal from the surface. No fuel is currently stored on the property and all vehicles are fueled from off-property sources. In addition to noticing the hydrocarbon stained soil, the employee of the lessor who occupied the adjacent farm house reported a strong gasoline smell from domestic water lines in the house. Water well 2S/3E-6F1, which supplied the house with water for an unknown period of time, possibly as long as 40 years, was located immediately adjacent to the former underground tank location.

WZI Inc. was retained by Agriculture Industries to conduct a site assessment and recommend any necessary corrective action regarding the hydrocarbon contaminated soil and ground water. A Preliminary Site Assessment investigation was conducted by WZI to assist in determining the necessary background information on the property. The former underground storage tank was found to still be present on the property and was examined in detail. Numerous holes in the bottom and sides of the tank were noted. An identification plate was found on the top of the tank with the number 680 stamped on it. The tank and associated piping and dispenser were placed within ranch property in a secure location for future potential investigations.

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Leakage from the former tank locations and surface spillage of fuel is considered to be the only source of gasoline contamination in the soil on the Schropp property. No other potential sources of gasoline were found.

It is unclear if the first tank had leaked gasoline into the subsurface beneath the site. No information was obtained regarding the location or configuration of the underground storage tanks' piping and surface dispenser. No information was available regarding the condition of any of the piping or either of the two tanks. Surface soil staining from gasoline was present immediately around the former dispenser location during a WZI inspection that occurred in April, 1992. The length of underground piping that connected the dispenser to the underground tank was not determined. According to Mr. Don Holck, only gasoline fuel was stored in the two underground storage tanks. Mr. Holck did not recall who was responsible for maintaining the fuel dispensing system or where fuel was obtained.

Subsequent investigation by WZI indicated that soil and ground water hydrocarbon contamination were confirmed to be present on the Schropp property. A site assessment workplan to evaluate the soil and ground water was submitted to Alameda County Department of Environmental Health for approval. This report outlines the findings of the soil and ground water site assessment work and reports on the remediation of the hydrocarbon contaminated soil on the property.

2.2 Previous Investigations

No environmental-related investigations are known to have been conducted on the Schropp property prior to the WZI Inc. investigations. A Preliminary Site Assessment of the Schropp property was completed by WZI during February, 1992. This investigation indicated the strong potential for hydrocarbon contaminated soil and ground water to be present on the Schropp property from a former underground gasoline storage tank. Reconnaissance exploratory trenching was conducted during April, 1992 to confirm the presence of hydrocarbon contaminated soil and ground water. This follow-up

investigation confirmed that gasoline contaminated soil and ground water at the Schropp Ranch property were related to the former underground storage tank.

Based on the results of the Preliminary Site Assessment and the analytical results of the subsequent soil sampling conducted by hand auguring and reconnaissance trenching a Problem Assessment Report and Preliminary Site Assessment Workplan were submitted to Alameda County Department of Environmental Health (WZI, 1992). The 1992 WZI report is included as Appendix I of this report.

The proposed soil and ground water site assessment workplan was designed to take advantage of the shallow ground water conditions and abundant space available at the Schropp Ranch property. The soil site assessment phase was carried out using excavation. This approach allowed the removal of the source of contamination from the subsurface in addition to establishing the vertical and lateral extent of hydrocarbon soil contamination. The follow-up ground water investigation was designed to evaluate if the ground water beneath the property had been impacted after the contaminant source was removed.

3.0 SOIL SITE ASSESSMENT

3.1 Preliminary Reconnaissance

A preliminary reconnaissance investigation of the former underground storage tank area was conducted using an FMC 3400 excavator during April, 1992. This allowed direct access to investigate the hydrocarbon contaminated soil to a depth of approximately 28 feet below ground surface. Two exploratory trenches were placed near the former underground storage tank in an attempt to identify the vertical and lateral extent of hydrocarbon contaminated soil related to the tank (Appendix I, Exhibit 11). Hydrocarbon contaminated soil was found to be present from approximately six feet below ground surface and immediately below the former tank location to a total of approximately 25 feet below ground surface. The soil encountered in the excavation was comprised of dark brown clayey silt and silty, fine-grained sand that was moderately dense (Appendix I, Exhibit 12). All of the soil from a depth of approximately 12 feet below ground surface was moist and the ground water table was located at approximately 16 feet below ground surface.

Soil samples obtained from the sidewalls of the two trenches were transported under chain of custody to and analyzed by Sherwood Laboratory, Hillmar, California. This laboratory is a California State Certified Analytical Laboratory. These samples were collected using sampling protocol outlined in the WZI report contained in Appendix I. The samples were analyzed using U.S. Environmental Protection Agency (EPA) test methods 418.1, 8015 (modified), and 8020, as appropriate. In addition, water samples were analyzed using EPA test methods 602 and 8015(modified). The soil samples were reported to contain 22.8 ppm of benzene and 1050 ppm of total petroleum hydrocarbon as gasoline from a depth of 19.5 feet below ground surface (Exhibit 4). Copies of the analytical reports of these samples are contained in Appendices II-1 and II-2.

This preliminary investigation indicated that the hydrocarbon contamination was likely gasoline and almost certainly related to the former tank locations. A Problem Assessment

Report and Site Assessment Workplan was prepared and submitted by WZI to Alameda County Department of Environmental Health (Appendix I). The workplan was prepared to adhere to the published guidelines for investigations established by the Tri-Regional California Regional Water Quality Control Board (CRWQCB, 1991) and the Leaking Underground Fuel Tank (LUFT) manual established by the California State Water Resources Control Board (1989).

This workplan identified that excavation of hydrocarbon contaminated soil was the most likely way both to determine the vertical and lateral extent of hydrocarbon contaminated soil and to remediate the contaminated soil. This was based on the observation that the shallow ground water table most likely limited the vertical migration of the hydrocarbon constituents to within 25 feet of the surface and that all other insitu remediation efforts such as vapor extraction would not likely be effective in the impermeable clayey silt and fine grained sand present beneath the property.

After submission of the Problem Assessment Report, WZI conducted a reconnaissance of the shallow subsurface in the equipment yard with hand auger borings (Exhibit 3). These borings were drilled during July, 1992. Exhibit 4 depicts the locations of these auger borings and the analytical results are tabulated in Table 1 and Appendix II-1. The results of this limited drilling indicated the presence of hydrocarbon contaminated soil was restricted to the main portion of the yard area at shallow depths to a maximum of 15 feet below ground surface. Based on the hand auger data, a final excavation plan was developed for the shop yard.

3.2 Excavation of Gasoline Contaminated Soil

Excavation of hydrocarbon contaminated soil started during July, 1992 and was completed during May, 1993. D&S Dragline Services, Los Banos, California was the contractor of record and conducted all phases of the excavation, backfill, contaminated soil remediation, and subsequent ground water monitoring well completion. A health and safety plan was prepared for the site and is presented as part of Appendix I. All

applicable OSHA health and safety procedures for employees conducting hazardous waste investigations were followed. The health and safety environment that OSHA describes as Level D was never exceeded at the site.

Prior to initiating the excavation, the Byron-Bethany Irrigation District concrete irrigation line was removed (Exhibit 3). During the excavation, all work was conducted under the oversight of a California Certified Engineering Geologist. Sample locations and direction of excavation control were controlled by the engineering geologist. All sidewalls and cuts were kept in accordance with OSHA requirements for excavations and confined space entry.

Exhibit 4 is a map which depicts the final excavation limits on the property. A total of 24,863 cubic yards of contaminated and clean soil was excavated in order to remove all accessible hydrocarbon contaminated soil and to stabilize the walls of the excavation. Identification of hydrocarbon contaminated soil was made using a photo ionization device (PID), color, and odor as described in the WZI workplan contained in Appendix I.

Hydrocarbon contaminated soil was excavated and stockpiled on the Schropp property. All excavated hydrocarbon contaminated soil was placed on visqueen and covered with plastic to prevent any uncontrolled aeration. Excavation continued both laterally and vertically at the direction of the engineering geologist until all gasoline contaminated soil was removed. Confirmation sampling was conducted to verify that all gasoline contamination had been removed.

The excavation was inspected by Alameda County Department of Environmental Management on several occasions. The results of all confirmation soil samples obtained from the sidewalls and floor of the excavation are presented in Table 2. All of the soil samples, with the exception of those samples obtained immediately adjacent from the north property boundary line, were reported as below detection limits for all hydrocarbon constituents.

A minor volume of gasoline contaminated soil was left below the farm house and immediately adjacent to it for engineering safety. The westward extent of the hydrocarbon contaminated soil beneath the house was bracketed by a series of exploration trenches where uncontaminated soil was found to be present (Exhibit 4). The volume of hydrocarbon contaminated soil left in place is estimated to be approximately 100 cubic yards and is believed to be immediately below and on the east side of the farm house (Exhibit 4).

3.3 Excavation Backfill

Alameda County Department of Environmental Health granted permission to backfill the excavation using the clean overburden soil removed during the initial excavation and fill soil transported from the west edge of the property. This material was placed in the excavation and compacted using a Caterpillar D-6 bulldozer. The fill was compacted using clean water to bring up the field moisture content of the soil into the range of optimum moisture content and then rolled with heavy equipment. No certification of the field compaction was made by WZI.

3.4 Soil Site Assessment Results

The results of the gasoline plume delineation from the soil assessment are summarized in Exhibits 4, 5, 6, and 7. Exhibit 4 is annotated with the soil sampling and monitoring well locations. The cross-sections are presented in Exhibits 5, 6, and 7.
The results of the soil site assessment are as follow:

- The base of the excavation has been presented in Exhibit 4. The excavation was elongate in the north-south direction and most of the excavation is about 32 feet deep. The south end of the excavation, in the vicinity of the water well, was excavated to 35 feet.

- The cross-sectional views (Exhibit 5, 6, and 7) of the gasoline plume indicate, with the exception of a second type of petroliferous contamination at the northern limit, a simple elongate plume with benzene and gasoline contamination levels decreasing rapidly outward from the former underground tank location. The contaminated soil appears to have been drawn toward the former water well around the casing. This could have been caused by a local cone of ground water surface depression during well pumping operations.

- Approximately 19,000 cubic yards of hydrocarbon contaminated soil was excavated from the subsurface at Schropp Ranch. The average concentration of gasoline for the contaminated soil was estimated to be approximately 75 mg/kg. A weight of approximately 1.5 tons per cubic yard was utilized to determine the total of number of tons of excavated hydrocarbon contaminated soil. An estimate of approximately 700 to 750 gallons of gasoline was contained within the contaminated soil. Assuming that a slow leak occurred over a period of 30 years, a rate of gasoline loss of .065 gallons per day would have accounted for the volume of contaminated soil determined to be present beneath Schropp Ranch. The time of release and rate of release from the fuel point cannot be determined. It is possible that the release could have occurred over a fairly short period of time (1 to 5 years). However, based on the pervasive low level concentrations of total petroleum hydrocarbon as gasoline, low benzene to total petroleum hydrocarbons as gasoline ratio in the soil samples, and general degraded appearance within the hydrocarbon contaminated soil, it is very likely that the leak occurred over a long period (20 years or more).

- Analytical results from soil samples obtained from hydrocarbon contaminated soil suggest that only gasoline is involved immediately adjacent to the former fuel point.

- The volume of gasoline contaminated soil located beyond the north property line is undetermined at this time. Transport of the gasoline in the subsurface appears to have followed the Byron-Bethany Irrigation District concrete irrigation pipe. This pipe could have provided water into the local subsurface during irrigation operations immediately under it from leaks. This water would have provided additional ground water recharge immediately underneath the gasoline contaminated plume and assisted it with migration to the north, along with other ground water.

- The gasoline contaminated soil had a unique color, petroleum odor, and was readily identified by field instruments that can screen for volatile organic compounds. A second type of hydrocarbon contaminated soil was discovered at a depth of 22 to 25 feet below ground surface on the extreme north end of the excavation. This hydrocarbon contaminated soil type had field characteristics that were significantly different from the gasoline contaminated soil. This soil appeared to be a gray/green color, little or no volatile organic vapor emission, and appeared to be "greasy". This soil also had a slight diesel-type petroliferous odor. This soil was sampled for gasoline, diesel, and benzene, toluene, ethylbenzene, and xylene. All analyses for these common constituents for refined petroleum products were reported as below detection limits as depicted on Exhibit 4. The owner of the property located immediately north of the excavation, Mr. Anthony Castello, was advised of the investigation and declined to give WZI permission to enter his property to complete the assessment. This

soil appears to be present only in the northern portion of the excavation at a depth of approximately 22 to 25 feet below ground surface. This soil contamination appears to discontinue southward approximately 20 feet south of the property line (Exhibit 4).

Because all refined hydrocarbon constituents were removed from the subsurface of the Schropp property, the excavation was backfilled and graded to the former grade. The Byron-Bethany Irrigation District pipeline was also reestablished on its former easement.

4.0 GROUND WATER SITE ASSESSMENT

4.1 Abandonment of Previous Domestic Water Well

Water well 2S/3E - 6F1 located on the property was plugged and abandoned because of its location within the contaminated soil. The well casing was composed of 10" diameter steel casing. The upper 50 feet of the wellbore was determined to have been grouted with a cement seal, based on physical inspection of the wellbore during the excavation.

Prior to plugging and abandonment, a downhole televideo survey of the wellbore was made to attempt to determine the total depth, condition of the casing, and completion intervals in the well. The well survey was conducted using a LaVelle Televideo system that allowed the wellbore to be inspected by a 2" diameter wide-screen camera lens system.

The water well was determined to have a total depth of approximately 140 feet. The completion intervals appeared to extend from approximately 50 feet below ground surface to total depth and consisted of a series of 1/2 inch holes cut into the casing on a regular basis. No attempt appears to have been made to seal off any particular aquifer or water producing zones in the wellbore.

The well casing was cut at a depth of 30 feet below ground surface and backfilled with a concrete slurry mix. This mix was pumped down the wellbore to a total depth of 110 feet. All work conducted was accomplished under a permit for water well abandonment issued by Zone 7 Water Agency.

4.2 Ground Water Removal from Excavation

Water samples obtained from the excavation floor and analyzed for hydrocarbon constituents indicated the ground water within and underlying the gasoline contaminated soil contained benzene, toluene, ethylbenzene, and xylene that exceeded action levels set by the California Regional Water Quality Control Board-Central Valley Region (CRWQCB-CVR). Samples from this ground water were analyzed using EPA test methods 601, 602, 8010, and 8015 (modified). Analytical results of this sampling are presented in Appendix II-3.

A waste discharge permit was issued by the California Regional Water Quality Control Board-Central Valley Region (Order Number 91-25005) to filter and discharge water treated below detection limits for hydrocarbons onto the Schropp property. A copy of the application and the approved request is contained in Appendix III.

A series of 20,000 gallon storage tanks were utilized to store hydrocarbon contaminated ground water pumped from the excavation prior to backfilling. Water was then remediated in accordance with a water discharge permit obtained from the CRWQCB-CVR prior to discharge onto the adjacent alfalfa fields.

Granular activated carbon filtration was used to absorb contamination in the ground water. The treatment system was designed to reduce benzene and other gasoline related component levels in ground water to less than 0.1 parts per billion (ppb). This was accomplished in four steps which include pumping water from the excavation, removing suspended sediment, treating the water with a carbon filtration system, and storing the filtered water in a holding tank for testing until contaminant levels are less than 0.1 ppb.

Samples of water obtained from the holding tank were analyzed for benzene and TPH-G using EPA test methods 602 and 8015 (modified). These results are included in Appendix III-3 and tabulated in Table 3. Treated water which was below the discharge concentration limit was discharged onto dirt roads and the adjacent alfalfa field on the Schropp property in accordance with the waste discharge permit.

4.3 Monitoring Well Network

Ground water monitoring wells MW-1 to MW-5 were drilled in locations shown on Exhibit 4 to a total depth of 35 to 45 feet below ground surface during November and December, 1993. The monitoring wells were drilled and completed with an All Terrain AT-400 mobile drill using 10 inch diameter hollow stem augers. Well permits were obtained from Alameda County Water District Zone 7.

Soil samples were collected in monitoring wells MW-1 through MW-4 using a California split spoon sampler. These soil samples were analyzed using EPA test methods 8015 (modified) and 8020 to supplement the site characterization of the soil hydrocarbon contamination. Samples were not obtained in monitoring well MW-5 because all soil penetrated to its total depth would have been clean fill dirt used for backfill at that location. Analytical results of these soil samples are presented in Table 5 and in Appendix II-4.

Appendix IV contains the monitoring well logs which record the lithology penetrated, sample locations, organic vapor readings taken from the wellbore, as well as detailed construction for the monitoring wells.

WZI utilized a theodolite and electronic distance measurement instrument to determine the elevation and location of each monitoring well. Elevations were tied to the United States Coast and Geodetic Survey Benchmark located on Mountain House Road immediately east of the Mountain House School. Elevations and horizontal coordinates

were determined to an accuracy of 0.01 foot. All surveying work was done under the oversight of a California Registered Civil Engineer.

Water samples were collected from each of the five monitoring wells according to guidelines in the water sampling protocol described in Appendix I. In addition to the five monitoring wells on the Schropp property, the Mountain House School water well was monitored at the same time.

4.4 Ground Water Monitoring Results

The analytical results from two successive periods of ground water monitoring in 1994 are presented in Appendix II-5 and in Tables 6 and 7. The water samples were analyzed using EPA test methods 602 (modified) and 8015 (modified). Analytical results indicated all samples were below detection limits for Benzene, Toluene, Ethylbenzene, Xylene, and Total Petroleum Hydrocarbon as Gasoline.

Appendix VII presents the maps of ground water gradient for the Schropp property. A slope to the northeast most likely reflects regional gradient and also the local topographic slope. A small perturbation in the ground water surface is present near the north portion of the Schropp property and is most likely caused by a water well that was drilled during December 1993. No water data is available for this well and the adjacent property owner declined to allow WZI to evaluate his well.

The Mountain House School water well was monitored quarterly starting in November, 1992. The school water well pump was started and allowed to run for approximately 20 minutes prior to obtaining a water sample. The samples from the school well were analyzed for benzene, toluene, ethylbenzene, and xylene. In addition, the school water well samples were analyzed for total petroleum hydrocarbon as gasoline. All analyses were reported to be below detection levels except for one sample, PH21107, which reported a trace amount of toluene at a concentration of 1.4 microliters/liter. This concentration was actually below the analytical minimum detection level (MDL) of 3.0

microliters/liter. All analytical samples obtained on quarterly monitoring after this sample have been reported as below detection limits. Discussion with Sherwood Laboratories personnel have indicated that the source of the toluene concentration is most likely from contamination in sample handling. They also pointed out that the detection limit is at the reported concentration level of toluene in the water sample. Based on the above, it is quite probable this one sample was the result of cross-contamination during the analytical process and its result should be disregarded.

The monitoring of the Mountain House School water well will continue as long as MW-1 to 5 monitoring wells are monitored on a quarterly basis.

Continued sampling of monitoring wells MW-1 to MW-5 will occur on a quarterly basis until four successive quarters of non-detection levels of hydrocarbon constituents have been obtained. At that point, a request to discontinue further monitoring will be submitted to Alameda County Department of Environmental Management.

4.5 Ground Water Site Assessment Results

The results of the ground water phase of the site assessment investigation are as follows:

1. Monitoring wells MW-1 to MW-5 have been sampled and have been reported as below detection levels for Total Petroleum Hydrocarbons as Gasoline, Benzene, Toluene, Ethylbenzene, and Xylene for two successive quarterly monitoring rounds during 1994.

2. The ground water gradient has been established as a northeasterly direction of flow (Appendix VII) which is compatible with the regional gradient (Appendix I, Exhibit 10). The locations of the ground water monitoring wells MW-1 to MW-5 were selected to intercept any hydrocarbon contaminated ground water in the main yard area. The wells were located both within and outside the former excavation perimeter.

The wells were placed to determine shallow slope ground water gradient direction and were found to be located both up and downgradient from the former hydrocarbon contaminated soil plume. These wells would have discovered any significant volume of hydrocarbon contaminated ground water that was present beneath the Schropp Ranch resulting from the gasoline contaminated soil.

3. Removal of the hydrocarbon contaminated soil from the subsurface of Schropp Ranch by excavation and subsequent pumping of the ground water from the floor of the excavation prior to backfill removed both the contaminating source and local hydrocarbon contaminated ground water on the Schropp property. As a result, no hydrocarbon contaminated ground water appears to be present beneath the Schropp property.

4. The Mountain House School water well has not been contaminated by any hydrocarbon constituents in the ground water. It should be noted that the school district has only used this water for irrigation of the school yard. All students have been placed on bottled water due to mineral content of the local ground water for over ten years according to the principal of the school.

5. Quarterly ground water monitoring of wells MW-1 to MW-5 should continue until four successive quarters of analytical results of hydrocarbon constituents below detection limit are attained. At that time a request will be made to discontinue monitoring of the wells and a final site closure for the Schropp property will be requested.

5.0 HYDROCARBON SOIL REMEDIATION PROGRAM

5.1 Characterization of Stockpiled Hydrocarbon Contaminated Soil

During the process of developing the excavation in the main shop yard, clean soil and gasoline contaminated soil were separated using field identification techniques presented in Appendix I. Clean soil was stockpiled immediately adjacent to the excavation. Gasoline contaminated soil was separated and moved by truck and/or scrapers to the remediation pad area. These areas are depicted in Appendix V.

The corral area of the property was used to stockpile hydrocarbon contaminated soil (Exhibit 3 and Appendix V). A 10 mil reinforced polyethylene sheet was spread over the area where the stockpiling of gasoline contaminated soil occurred and six inches of clean, sandy soil was spread over this sheet to act as a base. The gasoline contaminated soil stockpile was prepared and graded to prevent surface drainage from rainfall into the soil pads. A berm was constructed over the entire contaminated stockpile site to prevent uncontrolled rainwater runoff from the treatment area and to prevent unauthorized vehicle traffic from entering the area.

The gasoline contaminated soil was covered with visqueen to prevent uncontrolled venting. Continuous OVM readings were made during the first few days to insure no venting of hydrocarbons to the atmosphere occurred. The hydrocarbon contaminated soil was maintained in this condition until notification was made to the Bay Area Air Quality Management District.

A series of soil samples were collected prior to initiation of the aeration to establish a baseline of average soil hydrocarbon content. These samples were analyzed using EPA test methods 8015 (modified) and 8020. In addition, four soil samples were analyzed for soluble lead. The results of the analyses for soluble lead were reported as being below detection limits.

5.2 Soil Remediation

The total volume of hydrocarbon contaminated soil excavated is estimated to be approximately 19,000 cubic yards. The remaining 5,863 cubic yards were clean overburden. The soil aeration process was conducted in a manner that was in compliance with the Bay Area Air Quality Management District regulations. An estimate of the overall volatile organic content of the gasoline contaminated soil was determined to be approximately 50 ppm. This concentration of organic volatile was below the limit for aeration according to the Bay Area Air Quality Management District regulations and consequently was exempt from air permitting requirements.

The following procedures outline the methodology used in remediation of the gasoline contaminated soil:

1. Excavated gasoline contaminated soil material was field screened using an OVM and separated into clean, low level contaminated soil (<100 ppm) and high level contaminated (>100 ppm) soil. The OVM was calibrated from a spiked soil sample containing approximately 10 ppm gasoline.

2. At the soil aeration site the hydrocarbon contaminated soil was spread on a 10-mil reinforced polyethylene sheet to a maximum depth of two feet. A berm (eight inches in height, minimum) was incorporated around this material using clean soil from the excavation and incorporating the plastic sheeting to prevent runoff from the treatment area.

3. OVM readings were taken from the pile at least three times per week. When OVM readings were nondetect, one sample for every 50 cubic yards was taken from the pile. Samples were composited in groups of three and tested for TPH-G, BTEX. The analytical results are presented in Appendix VI.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The conclusions of this investigation are as follows:

1. A former underground storage tank site was responsible for the gasoline contaminated soil under the Schropp Ranch main yard area. This site was responsible for contamination of approximately 19,000 cubic yards of soil both above and below the local ground water surface with low-level (50 to 100 mg/kg) total petroleum hydrocarbon as gasoline constituents.

2. All gasoline contaminated soil on the Schropp Ranch has been removed from the subsurface by excavation of the shop yard area with an exception of approximately 100 cubic yards of gasoline contaminated soil immediately under the existing farm house. This volume of soil is estimated to be minor based on the soil sample analytical concentrations for total petroleum hydrocarbon and gasoline and the proximity of two exploratory excavations that did not intercept hydrocarbon contaminated soil (Exhibit 4). The gasoline contaminated soil remaining under the farm house is probably composed of low-level gasoline contaminated soil similar to that removed in the main excavation. The vertical extent of the gasoline contaminated soil was limited to approximately 30 feet below ground surface. The lateral extent of the gasoline contaminated soil was contained to the shop yard area with the exception of the northern portion of the yard. In the northern portion of the yard area, the gasoline contaminated soil continued to the property line. This gasoline contaminated soil most likely is present on the adjoining property and the northern extent of this gasoline plume is undetermined at this time.

3. The former domestic water well was abandoned as part of the investigation. Soil contamination patterns found in the excavation floor and sidewalls suggest that the ground water along with gasoline contaminated water was drawn next to the former water well wellbore. The water well pump would have reversed the local ground water gradient. WZI sampled water from the water well and found no hydrocarbon contaminated water to be present in the lines from the well to the farm house. The water well was abandoned as a precaution for the health and safety of the farm house occupants.

4. The ground water gradient slopes to the northeast. All monitoring wells have been sampled on a quarterly basis and analytical samples to date have been reported as below detection limits for hydrocarbon constituents.

5. The gasoline contaminated soil removed from the excavation has been remediated by aeration to non-detection limits. This soil has been placed on farm roads and does not pose a health and safety threat.

6. Crude oil contaminated soil has been identified as being present at a depth of 22 to 25 feet below ground surface near the northern property line. This contamination is probably from a former Shell Oil Company crude oil pipeline that was abandoned at an unknown time in the 1980's. This contamination has been removed from the Schropp property by excavation. The vertical and lateral extent of this contamination is unknown and is not part of this investigation as it involves a source on the adjacent property and is not a result of the underground storage tank release of gasoline on the Schropp property.

6.2 Recommendations

WZI recommends the following:

1. No further investigation of the gasoline contaminated soil on Schropp Ranch is warranted. Alameda County Department of Environmental Services is requested to issue an Interim Closure Letter for the soil phase of the Schropp Ranch.

2. Ground water monitoring wells should continue to be monitored until four successive quarters of monitoring indicate hydrocarbon constituents are below detection limits. The Mountain House School water well should continue to be monitored as long as the Schropp Ranch monitoring wells are being monitored.

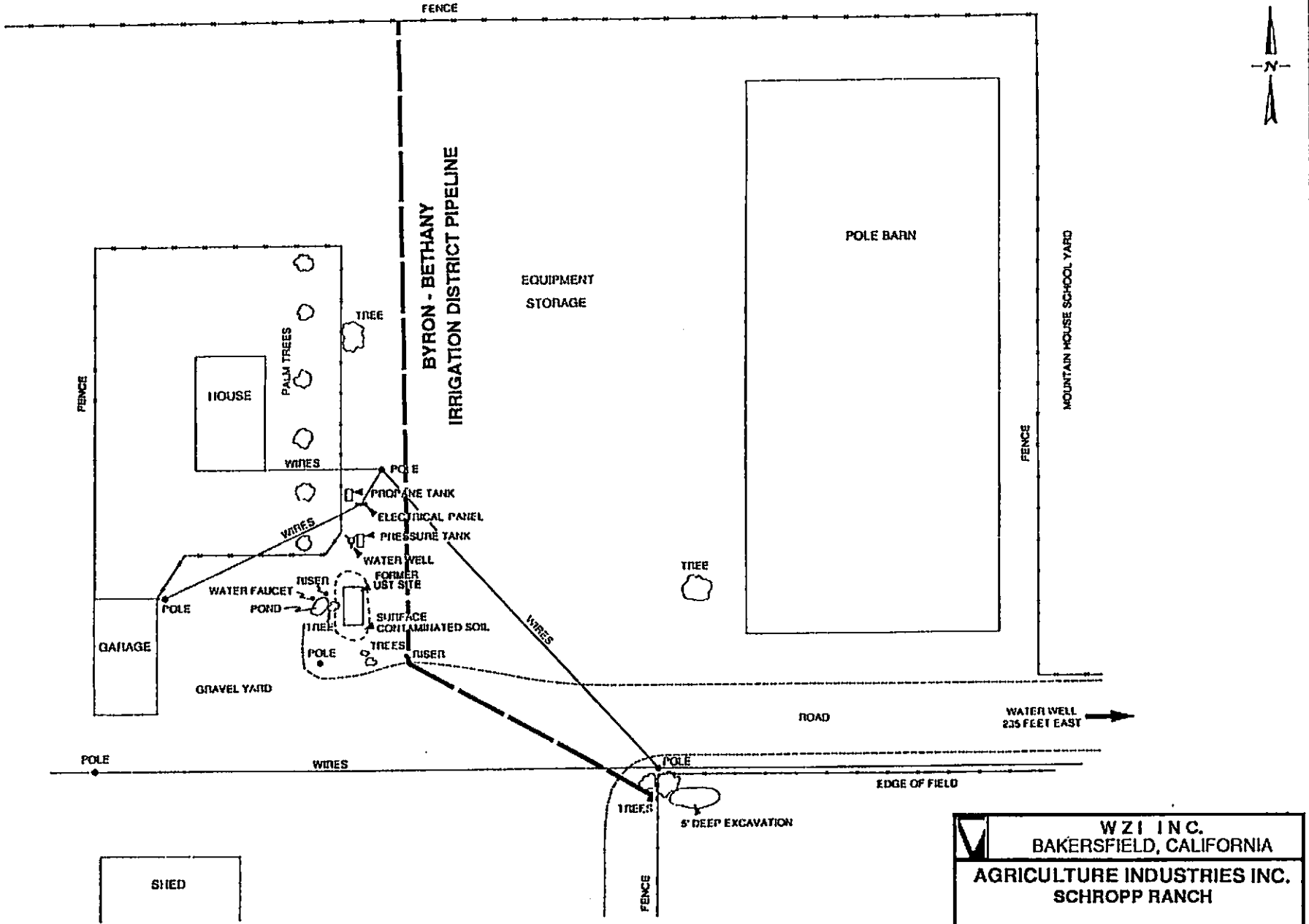
3. Alameda County Department of Environmental Services should take the necessary steps to insure that any potential hydrocarbon contamination of soil and ground water of the neighboring property does not endanger the health and safety of the public.

7.0 REFERENCES

California State Water Resources Control Board, 1989, LUFT Field Manual Revision for Leaking Underground Fuel Tank Field Manual: Guidelines for Site Assessment, Cleanup, and Underground Storage Tank Closure, 77 p.

California Regional Water Quality Control Board, 1991, Tri-Regional Guidelines for Hydrocarbon Site Assessment and Remediation.

WZI Inc., 1992, Problem Assessment Report and Preliminary Site Assessment Workplan to Determine the Nature and Extent of Soil and Ground Water Contamination at 3880 Mountain House Road, Byron, Alameda County, California: unpublished consulting report submitted to Alameda County Department of Environmental Health, 42 p.

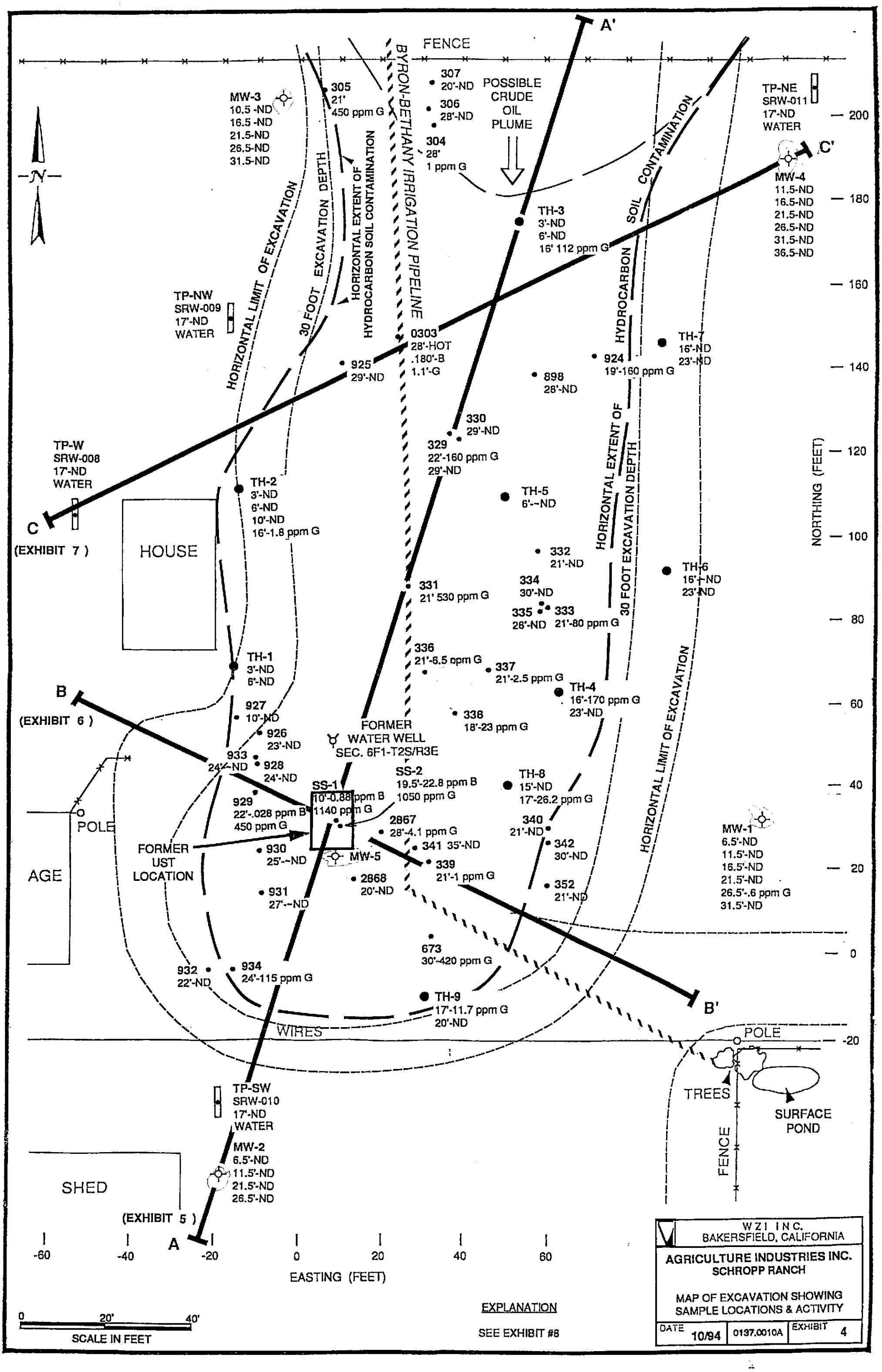


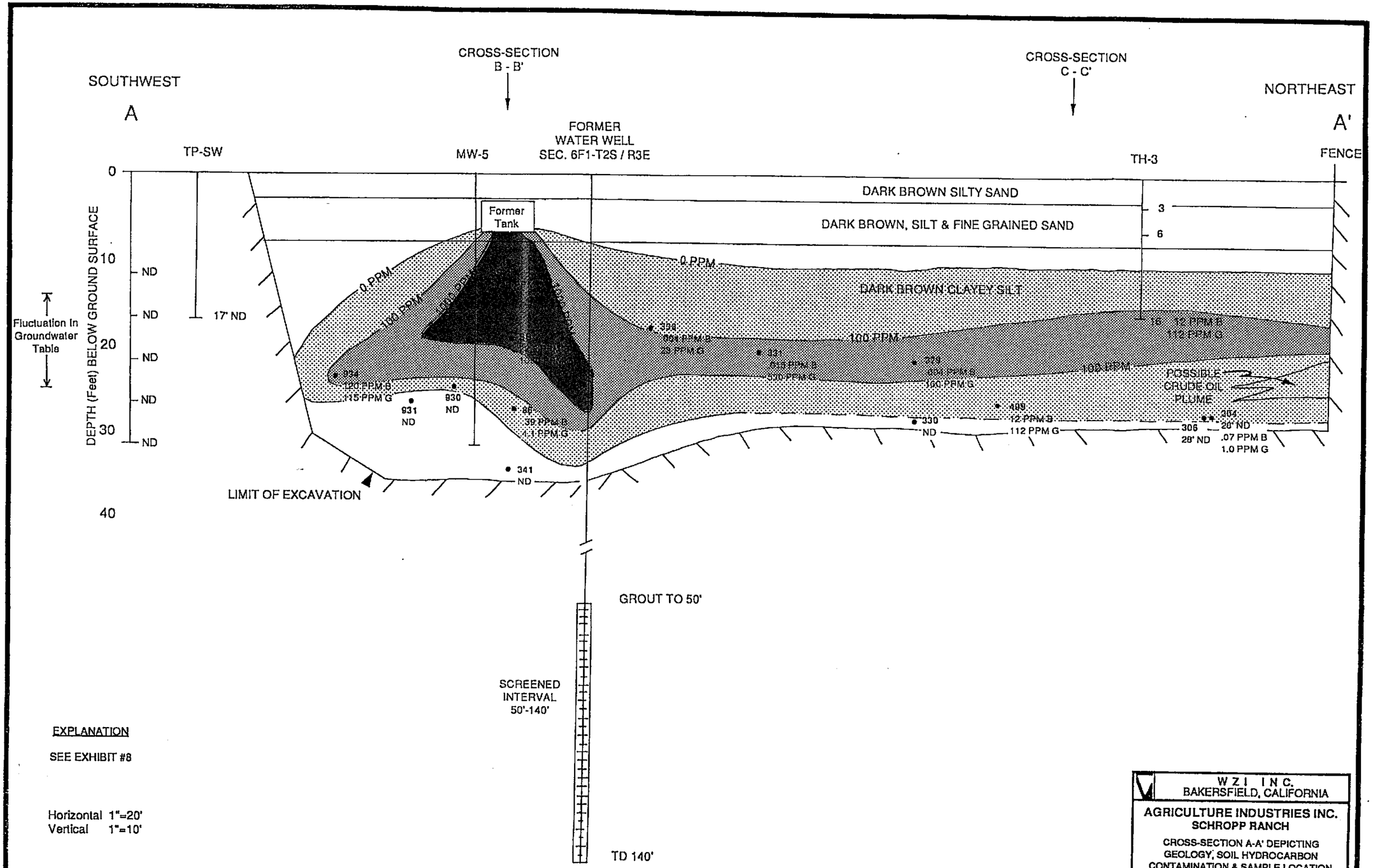
WZI INC.
BAKERSFIELD, CALIFORNIA

AGRICULTURE INDUSTRIES INC.
SCHROPP RANCH

SITE ACTIVITY MAP

DATE	10/94	0137.0010	EXHIBIT	3


A'
FENCE
BYRON-BETHANY IRRIGATION PIPELINE
MW-3
10.5 -ND
16.5 -ND
21.5-ND
26.5-ND
31.5-ND
305
21'
450 ppm G
307
20'-ND
306
28'-ND
304
28'
1 ppm G
POSSIBLE
CRUDE
OIL
PLUME
TP-NE
SRW-011
17'-ND
WATER
C'
MW-4
11.5-ND
16.5-ND
21.5-ND
26.5-ND
31.5-ND
36.5-ND
SOIL CONTAMINATION
HORIZONTAL LIMIT OF EXCAVATION
30 FOOT EXCAVATION DEPTH
HORIZONTAL EXTENT OF HYDROCARBON SOIL CONTAMINATION
TH-3
3'-ND
6'-ND
16' 112 ppm G
TP-NW
SRW-009
17'-ND
WATER
0303
28'-HOT
.180'-B
1.1'-G
925
29'-ND
898
28'-ND
924
19'-160 ppm G
TH-7
16'-ND
23'-ND
HYDROCARBON
HORIZONTAL EXTENT OF
30 FOOT EXCAVATION DEPTH
TP-W
SRW-008
17'-ND
WATER
330
29'-ND
329
22'-160 ppm G
29'-ND
TH-2
3'-ND
6'-ND
10'-ND
16'-1.8 ppm G
TH-5
6'-~ND
C
(EXHIBIT 7)
HOUSE
332
21'-ND
TH-6
16'-ND
23'-ND
334
30'-ND
331
21' 530 ppm G
335
28'-ND
333
21'-80 ppm G
TH-1
3'-ND
6'-ND
336
21'-6.5 ppm G
337
21'-2.5 ppm G
B
(EXHIBIT 6)
927
10'-ND
TH-4
16'-170 ppm G
23'-ND
338
18'-23 ppm G
926
23'-ND
FORMER
WATER WELL
SEC. 6F1-T2S/R3E
933
24'-ND
928
24'-ND
SS-2
19.5'-22.8 ppm B
1050 ppm G
SS-1
10'-0.88 ppm B
1140 ppm G
TH-8
15'-ND
17'-26.2 ppm G
929
22'-.028 ppm B
450 ppm G
2867
28'-4.1 ppm G
340
21'-ND
POLE
341 35'-ND
342
30'-ND
FORMER
UST
LOCATION
930
25'-~ND
MW-5
339
21'-1 ppm G
AGE
2868
20'-ND
352
21'-ND
MW-1
6.5'-ND
11.5'-ND
16.5'-ND
21.5'-ND
26.5'-.6 ppm G
31.5'-ND
931
27'-~ND
673
30'-420 ppm G
932
22'-ND
934
24'-115 ppm G
TH-9
17'-11.7 ppm G
20'-ND
B'
WIRES
POLE
TREES
SURFACE
POND
FENCE
TP-SW
SRW-010
17'-ND
WATER
MW-2
6.5'-ND
11.5'-ND
21.5'-ND
26.5'-ND
SHED
(EXHIBIT 5)
A
-60
-40
-20
0
20
40
60
EASTING (FEET)
200
180
160
140
120
100
80
60
40
20
0
-20
NORTHING (FEET)
0
20'
40'
SCALE IN FEET
EXPLANATION
SEE EXHIBIT #8
WZI INC.
BAKERSFIELD, CALIFORNIA
AGRICULTURE INDUSTRIES INC.
SCHROPP RANCH
MAP OF EXCAVATION SHOWING
SAMPLE LOCATIONS & ACTIVITY
DATE 10/94
0137.0010A
EXHIBIT 4



EXPLANATION

SEE EXHIBIT #8

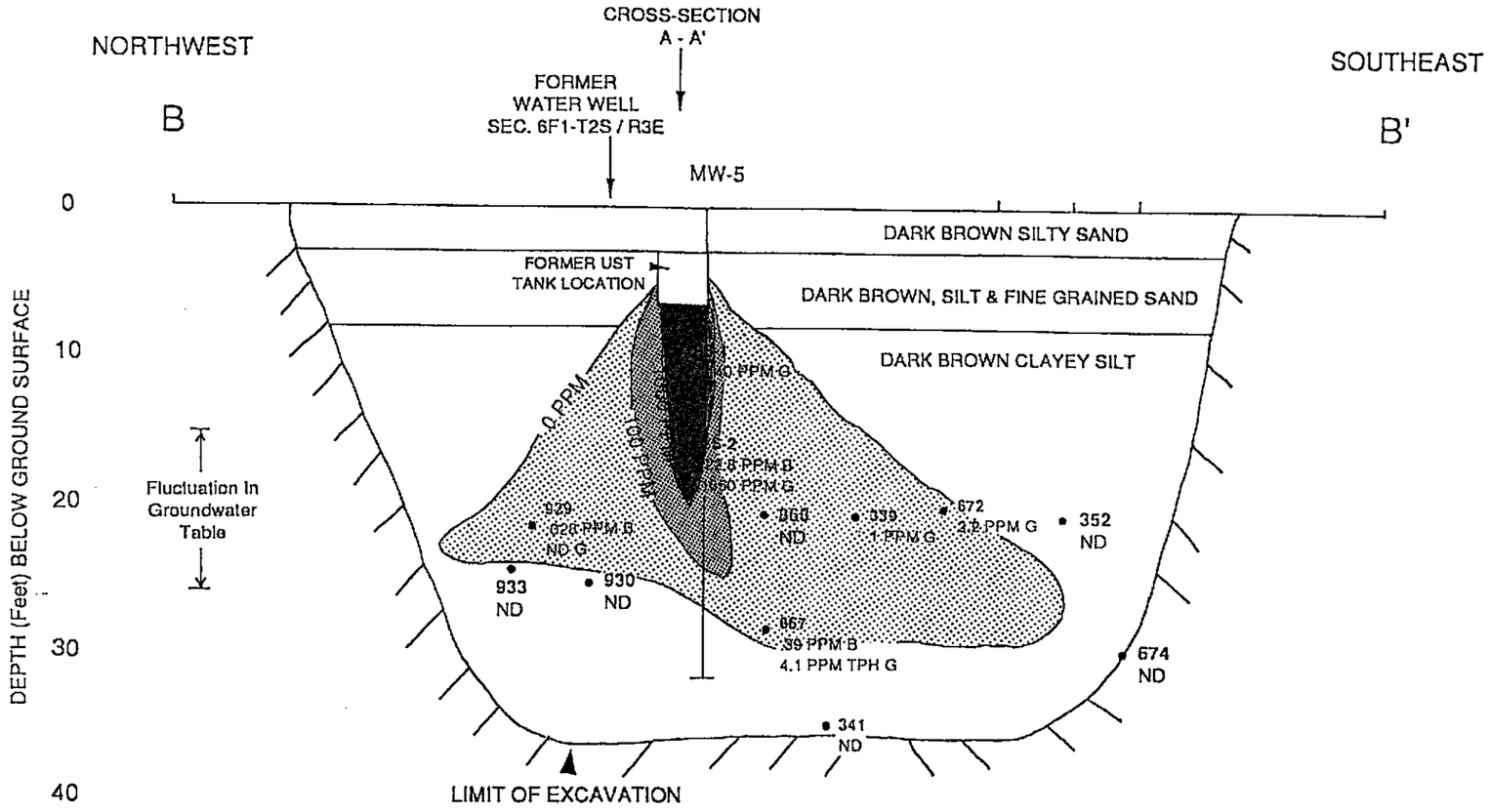
Horizontal 1"=20'
Vertical 1"=10'

W Z I I N C.
BAKERSFIELD, CALIFORNIA

AGRICULTURE INDUSTRIES INC.
SCHROPP RANCH

CROSS-SECTION A-A' DEPICTING GEOLOGY, SOIL HYDROCARBON CONTAMINATION & SAMPLE LOCATION

DATE		EXHIBIT
10/94	0137.0010A	5

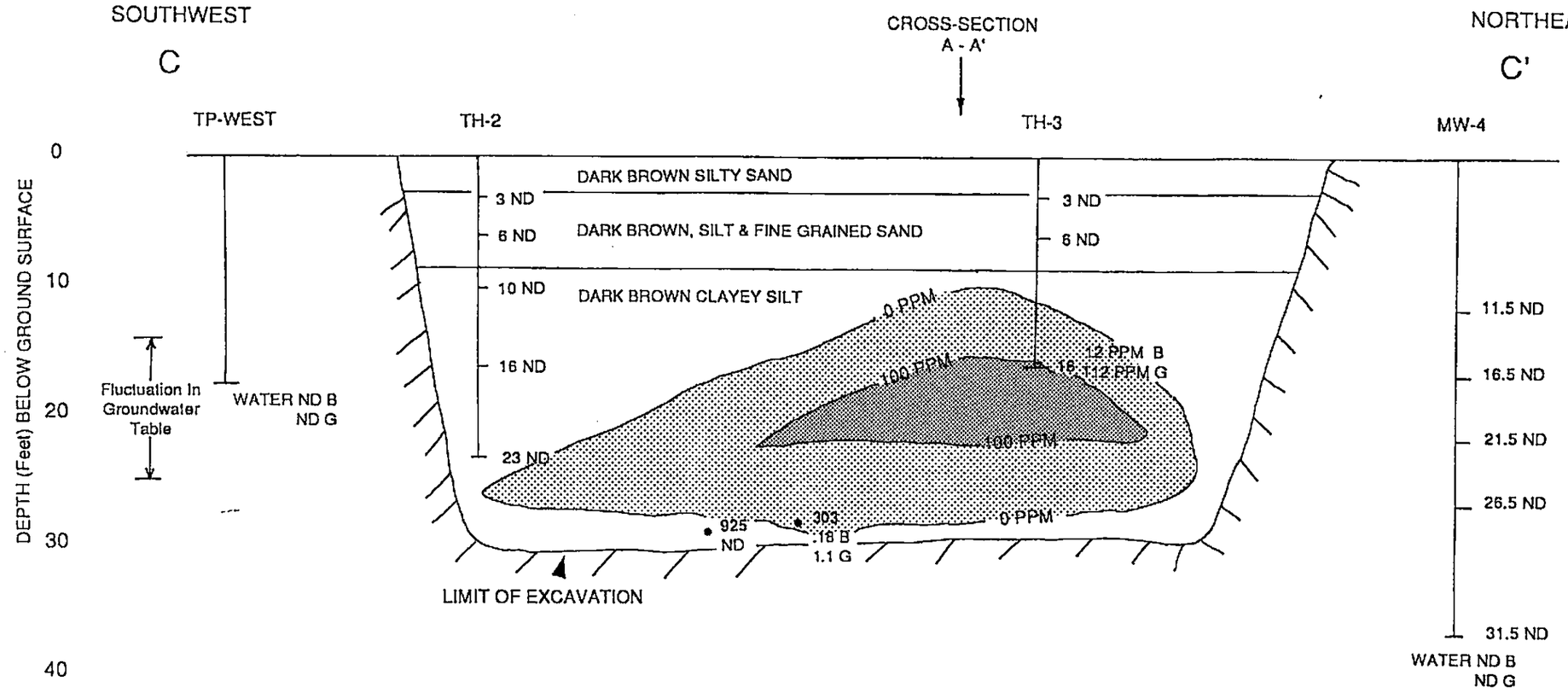


EXPLANATION

SEE EXHIBIT #8

Horizontal 1"=20'
Vertical 1"=10'

W Z I I N C. BAKERSFIELD, CALIFORNIA	
AGRICULTURE INDUSTRIES INC. SCHROPP RANCH	
CROSS-SECTION B-B' DEPICTING GEOLOGY, SOIL HYDROCARBON CONTAMINATION & SAMPLE LOCATION	
DATE 10/94	0137.0010A | EXHIBIT 6



EXPLANATION

SEE EXHIBIT #8

Horizontal 1"=20'
Vertical 1"=10'

W Z I I N C.
BAKERSFIELD, CALIFORNIA

AGRICULTURE INDUSTRIES INC.
SCHROPP RANCH

CROSS-SECTION C-C' DEPICTING GEOLOGY, SOIL HYDROCARBON CONTAMINATION & SAMPLE LOCATION

DATE		EXHIBIT
10/94	0137.0010A	7

EXPLANATION

● 925 ND	SOIL SAMPLE NUMBER, LOCATION, AND ANALYTICAL RESULT
TH-2-3-23 PPM-G	SOIL SAMPLE FROM TEST HOLE (HAND AUGER) NUMBER DEPTH, AND ANALYTICAL RESULT
B	BENZENE CONCENTRATION IN PPM = PARTS PER MILLION
G	TOTAL PETROLEUM HYDROCARBON AS GASOLINE CONCENTRATION IN PARTS PER MILLION (PPM)
ND	BELOW ANALYTICAL DETECTION LIMITS
MW	MONITORING WELL
TP	TEST PIT
TH	TEST HOLE (HAND AUGER)
—— 100 PPM ——	CONTOUR LINE OF TOTAL PETROLEUM HYDROCARBON CONTAMINATION AS GASOLINE; IN PARTS PER MILLION

WZI INC. BAKERSFIELD, CALIFORNIA		
AGRICULTURE INDUSTRIES INC. SCHROPP RANCH EXPLANATION FOR EXHIBITS #4 THRU #7		
DATE 10/94	0137.0010A	EXHIBIT 8

TABLE 1
SUMMARY OF
PRELIMINARY SAMPLE ANALYTICAL RESULTS

Sample #	Location	Depth (ft)	Date sampled	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Xylene mg/kg	TPH-Gasoline mg/kg	Others	Comments
Soil S-1	UST	10.6	04/20/92	.88	10.2	4.8	46.	1140		
Soil S-2	UST	19.6	04/20/92	22.8	44.4	7.1	33.	1050		
Soil T-1	73'N 10'W	6'	07/02/92	ND	ND	ND	ND	ND		
TH-2-16	114'N 08'W	16	07/07/92	ND	ND	.003	.004	1.8		
TH-2-23	114'N 08'W	23	07/07/92	ND	ND	ND	ND	ND		
TH-3-16	176'N 60'E	16	07/07/92	1.2	.23	.79	.475	112		
TH-4-16	64'N 66'E	16	07/07/92	.052	.77	.175	.4	170		
TH-4-23	64'N 66'E	23	07/07/92	ND	ND	ND	ND	ND		
TH-5-16	112'N 55'E	16	07/07/92	ND	.003	ND	ND	1		
TH-6-16	92'N 92'E	16	07/08/92	ND	.006	ND	ND	ND		
TH-6-23	92'N 92'E	23	07/08/92	ND	ND	ND	ND	ND		
TH-7-16	146'N 95'E	16	07/08/92	ND	ND	ND	ND	ND		
TH-7-23	146'N 95'E	23	07/08/92	ND	ND	ND	ND	ND		
TH-8-15	42'N 54'E	15	07/08/92	ND	ND	ND	ND	ND		
TH-8-17	42'N 54'E	17	07/08/92	ND	.079	.011	.065	26.2		
TH-9-17	06'S 34'E	17	07/08/92	.003	.049	.003	.06	11.7		
TH-9-20	06'S 34'E	20	07/08/92	ND	ND	ND	ND	ND		
TH-1-3	73'N 10'W	3	08/12/92	ND	ND	ND	ND	ND		
TH-1-6	73'N 10'W	6	08/12/92	ND	ND	ND	ND	ND		
TH-2-3	114'N 08'W	3	08/12/92	ND	ND	ND	ND	ND		REDRILL AND SAMPLE
TH-2-6	114'N 08'W	6	08/12/92	ND	ND	ND	ND	ND		REDRILL AND SAMPLE
TH-2-10	114'N 08'W	10	08/12/92	ND	ND	ND	ND	ND		REDRILL AND SAMPLE
TH-3-3	176'N 60'E	3	08/12/92	ND	ND	ND	ND	ND		REDRILL AND SAMPLE
TH-3-6	176'N 60'E	6	08/12/92	ND	ND	ND	ND	ND		REDRILL AND SAMPLE

01370010.testhole.tbl

TABLE 2

SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FROM EXCAVATION

Sample #	Location	Depth (ft)	Date sampled	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Xylene mg/kg	TPH-Gasoline mg/kg	Others	Comments
PH3070303	150'N 30'E	28	07/01/93	.180	.003	ND	ND	1.1		
PH3070304	200'N 20'E	28	07/01/93	.078	.003	ND	.009	1		
PH3070305	210'N 5'E	21	07/01/93	.031	.420	.330	1.400	450		
PH3070306	200'N 40'E	28	07/01/93	ND	ND	ND	ND	ND		
PH3070307	210'N 40'E	20	07/01/93	ND	ND	ND	ND	ND		
PH3070904	148'N 70'E	19	07/07/93	.040	1.	.620	1.400	325		
PH3070898	140'N 63'E	28	07/07/93	ND	ND	ND	.004	ND		
PH3071329	126'N 42'E	22	07/08/93	.004	.400	.720	1.250	160		
PH3071330	126'N 42'E	29	07/08/93	ND	ND	ND	ND	ND		
PH3071331	91'N 31'E	21	07/08/93	.015	.710	1.500	2.300	530		
PH3071332	98'N 63'E	21	07/08/93	ND	ND	ND	ND	ND		
PH3071333	84'N 63'E	21	07/08/93	.008	.020	.145	.460	80		
PH3071334	84'N 63'E	30	07/12/93	ND	ND	ND	ND	ND		
PH3071335	81'N 63'E	28	07/12/93	ND	ND	ND	ND	ND		
PH3071336	70'N 35'E	21	07/12/93	.041	.019	.018	.078	6.5		
PH3071337	70'N 49'E	21	07/12/93	.007	.020	.068	.350	2.5		
PH3071338	60'N 42'E	18	07/12/93	.004	.036	.050	.300	23		
PH3071339	25'N 35'E	21	07/14/93	ND	ND	.003	.007	1		
PH3071340	32'N 63'E	21	07/14/93	ND	ND	ND	ND	ND		
PH3071341	28'N 32'E	35	07/14/93	.004	ND	ND	ND	ND		
PH3071342	28'N 63'E	30	07/14/93	.003	ND	ND	ND	ND		
PH3071352	18'N 63'E	21	07/15/93	ND	ND	ND	ND	ND		
PH3071353	7'N 35'E	22	07/15/93	.020	.025	.019	.070	23		
PH3071354	TANK		07/15/93	ND	ND	ND	ND	ND		

TABLE 2

SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FROM EXCAVATION (CONTINUED)

Sample #	Location	Depth (ft)	Date sampled	Benezene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Xylene mg/kg	TPH-Gasoline mg/kg	Others	Comments
PH3071672	7'N 35'E	20	07/16/93	ND	ND	ND	.005	3.2		
PH3071673	0'N 35'E	30	07/16/93	.230	4.	.100	15.000	420		
PH3071674	0'N 63'E	30	07/16/93	ND	ND	ND	ND	ND		
PH3071926	56'N 5'W	23	07/19/93	.005	ND	ND	ND	ND		
PH3071927	63'N 10'W	10	07/19/93	ND	ND	ND	ND	ND		
PH3071928	49'N 5'W	24	07/19/93	ND	ND	ND	ND	ND		
PH3071929	42'N 5'W	22	07/19/93	.028	.003	ND	.007	ND		
PH3071930	28'N 5'W	25	07/19/94	.017	ND	ND	ND	ND		
PH3071931	18'N 5'W	27	07/19/93	.003	.005	ND	.006	ND		
PH3071932	0'N 18'W	22	07/19/93	ND	ND	ND	ND	ND		
PH3071933	49'N 5'W	24	07/19/93	ND	.003	ND	.003	ND		
PH3071934	0'N 12'W	24	07/19/93	.125	1.800	.260	2.500	115		
PH3071924	144'N 77'E	19	07/19/93	.014	.780	1.250	2.650	160		
PH3071925	144'N 17'E	29	07/19/93	ND	ND	ND	ND	ND		

01370010.pitsampl.tbl

TABLE 3

SUMMARY OF WATER SAMPLE ANALYTICAL RESULTS FROM
EXCAVATION, TEST-PITS, AND HOLDING TANKS

Sample #	Location	Depth (ft)	Date sampled	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Xylene mg/kg	TPH-Gasoline mg/kg	Others	Comments
All-001	WATER WELL		02/04/92	ND	ND	ND	ND	ND		SAMPLE FROM WATER WELL
WATER 27'	BELOW UST	27	04/21/92	1.18	1.65	.265	.775	27500		WATER FROM EXCAVATION BELOW UST
WATER SRW-002	POND SAMPLE		11/25/92	.013	.007	0.9	.006	150		WATER IN EXCAVATION
WATER SRW-001	BAKER TANK 2		11/30/92	.67	1.61	.405	1.39	30.9		SAMPLE FROM HOLDING TANK
WATER SRW-002	POND SAMPLE		11/30/92	9.97	13.15	.33	7.3	188.6		WATER IN EXCAVATION
WATER SRW-003	BAKER TANK 2		12/01/92	.97	2.24	.27	1.73	29.1		SAMPLE FROM HOLDING TANK
WATER SRW-005	TANK 4		12/03/92	ND	0.6	0.3	1.3	5.15		SAMPLE FROM HOLDING TANK
WATER SRW-006	TANK 1		12/03/92	ND	.004	0.4	.105	25.2		SAMPLE FROM HOLDING TANK
WATER SRW-007	POND		12/03/92	1.26	2.03	.081	.32	20.8		WATER IN EXCAVATION
WATER SRW-008	TP-WEST		12/05/92	ND	ND	ND	ND	ND		WATER IN TEST-PIT
WATER SRW-009	TP-NW		12/06/92	ND	ND	ND	ND	ND		WATER IN TEST-PIT
WATER SRW-010	TP-SW COR		12/06/92	ND	ND	ND	ND	ND		WATER IN TEST-PIT
WATER SRW-011	TP-NE COR		12/06/92	ND	ND	ND	ND	ND		WATER IN TEST-PIT
WATER SRW-012	TP-FAR WEST		12/06/92	ND	ND	ND	ND	ND		WATER IN TEST-PIT
TANK 2507	TANK		01/27/93	ND	ND	ND	ND	ND		SAMPLE FROM HOLDING TANK
PIT WATER	POND SAMPLE		01/27/93	.012	.013	ND	.015	.65		WATER IN EXCAVATION
TANK 1, 1045	TANK		06/22/93	.009	0.9	ND	ND	ND		SAMPLE FROM HOLDING TANK
TANK 4, 1055	TANK		06/22/93	ND	ND	ND	ND	ND		DISCHARGE SAMPLE 20,000 GALLONS
PH3070302	TANK		07/01/93	ND	ND	ND	ND	ND		DISCHARGE SAMPLE 80,000 GALLONS
PH3071354	TANK		07/15/93	ND	ND	ND	ND	ND		DISHCARGE SAMPLE 80,000 GALLONS
PH3071953	SW COR EXCAVATION		07/22/93	.04	.012	6.5	.2	2.9		WATER IN EXCAVATION

01370010.WATERSPL.TBL

ND = Not Detected

TABLE 4

SUMMARY OF ANALYTICAL RESULTS
FROM SOIL REMEDIATION PILE

Sample #	Location	Depth (ft)	Date sampled	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Xylene mg/kg	TPH-Gasoline mg/kg	Others	Comments
PH2071038	EXHIBIT	2	07/02/92	ND	.005	ND	.004	2.6		
PH2071039	EXHIBIT VI-2	6	07/02/92	ND	ND	ND	ND	ND		
PH2071040	EXHIBIT VI-2	6	07/02/92	ND	ND	ND	ND	ND		
PH2071041	EXHIBIT VI-2	4	07/02/92	ND	ND	ND	ND	ND		
PH2071042	EXHIBIT VI-2	3	07/02/92	ND	.008	ND	.007	6		
PH2071043	EXHIBIT VI-2	4	07/02/92	ND	.045	.015	.115	80		
PH2071044	EXHIBIT VI-2	5	07/02/92	ND	.008	.006	.006	6		
PH2071045	EXHIBIT VI-2	3	07/02/92	ND	.11	.026	.308	104		
PH3071343	EXHIBIT VI-3	1	07/15/93	ND	ND	ND	ND	ND		
PH3071344	EXHIBIT VI-3	1	07/15/93	ND	ND	ND	ND	ND		
PH3071345	EXHIBIT VI-3	1	07/15/93	ND	ND	ND	ND	ND		
PH3071346	EXHIBIT VI-3	1	07/15/93	ND	ND	ND	ND	ND		
PH3071347	EXHIBIT VI-3	1	07/15/93	ND	ND	ND	ND	ND		
PH3071348	EXHIBIT VI-3	1	07/15/93	ND	ND	ND	ND	ND		
PH3071349	EXHIBIT VI-3	1	07/15/93	ND	ND	ND	ND	ND		
PH3071350	EXHIBIT VI-3	1	07/15/93	ND	ND	ND	ND	ND		
PH3071351	EXHIBIT VI-3	1	07/15/93	ND	ND	ND	ND	ND		
PH3080442	EXHIBIT VI-4	.6	08/04/93	ND	ND	ND	ND	ND		
PH3080443	EXHIBIT VI-4	.6	08/04/93	ND	ND	ND	ND	ND		
PH3080444	EXHIBIT VI-4	.6	08/04/93	ND	ND	ND	.005	ND		
PH3080445	EXHIBIT VI-4	.6	08/04/93	ND	ND	ND	ND	ND		
PH3080446	EXHIBIT VI-4	.6	08/04/93	ND	ND	ND	ND	ND		
PH3080447	EXHIBIT VI-4	.6	08/04/93	ND	ND	ND	ND	ND		

TABLE 4

SUMMARY OF ANALYTICAL RESULTS
FROM SOIL REMEDIATION PILE (CONTINUED)

Sample #	Location	Depth (ft)	Date sampled	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Xylene mg/kg	TPH-Gasoline mg/kg	Others	Comments
PH3081286	EXHIBIT VI-4	.6	08/11/93	ND	ND	ND	ND	ND		
PH3081287	EXHIBIT VI-4	.6	08/11/93	ND	ND	ND	ND	ND		
PH3081288	EXHIBIT VI-4	.6	08/11/93	ND	ND	ND	ND	ND		
PH3081289	EXHIBIT VI-4	.6	08/11/93	ND	ND	ND	ND	ND		
PH3081290	EXHIBIT VI-4	.6	08/11/93	ND	ND	ND	ND	ND		
PH3081291	EXHIBIT VI-4	.6	08/11/93	ND	ND	ND	ND	ND		
PH3081292	EXHIBIT VI-4	.6	08/11/93	ND	ND	ND	ND	ND		
PH3081293	EXHIBIT VI-4	.6	08/11/93	ND	ND	ND	ND	ND		
PH3081294	EXHIBIT VI-4	.6	08/11/93	ND	ND	ND	ND	ND		
PH3081295	EXHIBIT VI-4	.6	08/11/93	ND	ND	ND	ND	ND		
PH3081296	EXHIBIT VI-4	.6	08/11/93	ND	ND	ND	ND	ND		
PH3081297	EXHIBIT VI-4	.6	08/11/93	ND	ND	ND	ND	ND		
PH3082374	EXHIBIT VI-5	.6	08/22/93	ND	ND	ND	ND	ND		
PH3082375	EXHIBIT VI-5	.6	08/22/93	ND	ND	ND	ND	ND		
PH3082376	EXHIBIT VI-5	.6	08/22/93	ND	ND	ND	ND	ND		
PH3082377	EXHIBIT VI-5	.6	08/22/93	ND	ND	ND	ND	ND		
PH3082378	EXHIBIT VI-5	.6	08/22/93	ND	ND	ND	ND	ND		
PH3082379	EXHIBIT VI-5	.6	08/22/93	ND	ND	ND	ND	ND		
PH3082380	EXHIBIT VI-5	.6	08/22/93	.003	.067	.09	.45	17		
PH3082381	EXHIBIT VI-5	.6	08/22/93	ND	3.6	ND	.011	3.1		
PH3082382	EXHIBIT VI-5	.6	08/22/93	ND	ND	ND	ND	ND		
PH3082383	EXHIBIT VI-5	.6	08/22/93	ND	ND	ND	ND	ND		

TABLE 4

SUMMARY OF ANALYTICAL RESULTS
FROM SOIL REMEDIATION PILE (CONTINUED)

Sample #	Location	Depth (ft)	Date sampled	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Xylene mg/kg	TPH-Gasoline mg/kg	Others	Comments
PH3082384	EXHIBIT VI-5	.6	08/22/93	ND	.003	ND	.046	1.9		
PH3082385	EXHIBIT VI-5	.6	08/22/93	ND	ND	ND	.003	ND		
PH3090963	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090964	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090965	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090966	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090967	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090968	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090969	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090970	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090971	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090972	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090973	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090974	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090975	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090976	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090977	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090978	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090979	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090980	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090981	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090982	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		

TABLE 4

SUMMARY OF ANALYTICAL RESULTS
FROM SOIL REMEDIATION PILE (CONTINUED)

Sample #	Location	Depth (ft)	Date sampled	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Xylene mg/kg	TPH-Gasoline mg/kg	Others	Comments
PH3090983	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090984	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090985	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090986	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090987	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090988	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090989	EXHIBIT VI-6	1	09/09/93	ND	ND	ND	ND	ND		
PH3090990	EXHIBIT VI-6	1	9/09/93	ND	ND	ND	ND	ND		
PH3090991	EXHIBIT VI-6	1	9/09/93	ND	ND	ND	ND	ND		
PH3090992	EXHIBIT VI-6	1	9/09/93	ND	ND	ND	ND	ND		
PH3090993	EXHIBIT VI-6	1	9/09/93	ND	ND	ND	ND	ND		
PH3090994	EXHIBIT VI-6	1	9/09/93	ND	ND	ND	ND	ND		
PH3090995	EXHIBIT VI-6	1	9/09/93	ND	ND	ND	ND	ND		
PH3090996	EXHIBIT VI-6	1	9/09/93	ND	ND	ND	ND	ND		
PH3090997	EXHIBIT VI-6	1	9/09/93	ND	ND	ND	ND	ND		
PH3092886	EXHIBIT VI-7	.5	9/24/93	ND	ND	ND	ND	ND		
PH3092887	EXHIBIT VI-7	.5	9/24/93	ND	ND	ND	ND	ND		
PH3092888	EXHIBIT VI-7	.5	9/24/93	ND	ND	ND	ND	ND		
PH3092889	EXHIBIT VI-7	.5	9/24/93	ND	ND	ND	.007	1.6		
PH3092890	EXHIBIT VI-7	.5	9/24/93	ND	ND	ND	.004	ND		
PH3092891	EXHIBIT VI-7	.5	9/26/93	ND	ND	ND	ND	ND		
PH3092892	EXHIBIT VI-7	.5	9/26/93	ND	ND	ND	ND	ND		

TABLE 4

SUMMARY OF ANALYTICAL RESULTS
FROM SOIL REMEDIATION PILE (CONTINUED)

Sample #	Location	Depth (ft)	Date sampled	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Xylene mg/kg	TPH-Gasoline mg/kg	Others	Comments
PH3092893	EXHIBIT VI-7	.5	9/26/93	ND	ND	ND	ND	ND		
PH3092894	EXHIBIT VI-7	.5	9/26/93	ND	ND	ND	ND	ND		
PH3092895	EXHIBIT VI-7	.5	9/26/93	ND	ND	ND	ND	ND		
PH3100434	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100435	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100436	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100437	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100438	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100439	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100440	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100441	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100442	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100443	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100444	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100445	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3133446	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100447	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100448	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100449	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100450	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100451	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100452	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		

TABLE 4

SUMMARY OF ANALYTICAL RESULTS
FROM SOIL REMEDIATION PILE (CONTINUED)

Sample #	Location	Depth (ft)	Date sampled	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Xylene mg/kg	TPH-Gasoline mg/kg	Others	Comments
PH3100453	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3100454	EXHIBIT VI-8	1	10/01/93	ND	ND	ND	ND	ND		
PH3110129	EXHIBIT VI-9	1	10/28/93	ND	ND	ND	ND	ND		
PH3110130	EXHIBIT VI-9	1	10/28/93	ND	ND	ND	.008	ND		
PH3110131	EXHIBIT VI-9	1	10/28/93	ND	ND	ND	.005	ND		
PH3110132	EXHIBIT VI-9	1	10/28/93	ND	ND	ND	ND	ND		
PH3110133	EXHIBIT VI-9	1	10/28/93	ND	ND	ND	ND	ND		
PH3110134	EXHIBIT VI-9	1	10/28/93	ND	ND	ND	ND	ND		
PH3110135	EXHIBIT VI-9	1	10/28/93	ND	ND	ND	ND	ND		
PH3110136	EXHIBIT VI-9	1	10/28/93	ND	ND	ND	ND	ND		
PH3110137	EXHIBIT VI-9	1	10/28/93	ND	ND	ND	ND	ND		
PH3110138	EXHIBIT VI-9	1	10/28/93	ND	ND	ND	ND	ND		
PH3110139	EXHIBIT VI-9	1	10/28/93	ND	ND	ND	ND	ND		
PH3110140	EXHIBIT VI-9	1	10/28/93	ND	ND	ND	ND	ND		

TABLE 5

SUMMARY OF SOIL SAMPLE ANALYTICAL
RESULTS FROM MONITORING WELLS

Sample #	Location	Depth (ft)	Date sampled	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Xylene mg/kg	TPH-Gasoline mg/kg	Others	Comments
MW-1-11.5	33'N 112'E	11.5	09/24/93	ND	ND	ND	ND	ND		
MW-1-16.5	33'N 112'E	16.5	09/24/93	ND	ND	ND	ND	ND		
MW-1-21.5	33'N 112'E	21.5	09/24/93	ND	ND	ND	ND	ND		
MW-1-26.5	33'N 112'E	26.5	09/24/93	ND	ND	ND	.007	1.6		
MW-1-31.5	33'N 112'E	31.5	09/24/93	ND	ND	ND	.004	ND		
MW-2-11.5	52'S 19'W	11.5	09/26/93	ND	ND	ND	ND	ND		
MW-2-16.5	52'S 19'W	16.5	09/26/93	ND	ND	ND	ND	ND		
MW-2-21.5	52'S 19'W	21.5	09/26/93	ND	ND	ND	ND	ND		
MW-2-26.5	52'S 19'W	26.5	09/26/93	ND	ND	ND	ND	ND		
MW-2-31.5	52'S 19'W	31.5	09/26/93	ND	ND	ND	ND	ND		
MW-3-11.5	205'N 15'W	11.5	10/02/93	ND	ND	ND	ND	ND		
MW-3-16.5	205'N 15'W	16.5	10/02/93	ND	ND	ND	ND	ND		
MW-3-21.5	205'N 15'W	21.5	10/02/93	ND	ND	ND	ND	ND		
MW-3-26.5	205'N 15'W	26.5	10/02/93	ND	ND	ND	ND	ND		
MW-3-31.5	205'N 15'W	31.5	10/02/93	ND	ND	ND	ND	ND		
MW-4-11.5	190'N 110'E	11.5	10/11/93	ND	ND	ND	ND	ND		
MW-4-16.5	190'N 110'E	16.5	10/11/93	ND	ND	ND	ND	ND		
MW-4-21.5	190'N 110'E	21.5	10/11/93	ND	ND	ND	ND	ND		
MW-4-26.5	190'N 110'E	26.5	10/11/93	ND	ND	ND	ND	ND		
MW-4-31.5	190'N 110'E	31.5	10/11/93	ND	ND	ND	ND	ND		
MW-4-36.5	190'N 110'E	36.5	10/11/93	ND	ND	ND	.015	1.3		
MW-5										None obtained all soil is new fill dirt

01370010.MWSOILB.tbl

ND = Not Detected

TABLE 6

GROUND WATER SUMMARY OF MONITORING WELL
SAMPLE ANALYTICAL RESULTS

Well	Sample	Date	Time	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylene (ppb)	TPH-Gas (ppb)
MW-1	MW-1-100	3-29-94	09:30	ND	ND	ND	ND	ND
MW-2	MW-2-110	3-29-94	09:35	ND	ND	ND	ND	ND
MW-3	MW-3-120	3-29-94	09:40	ND	ND	ND	ND	ND
MW-4	MW-4-130	3-29-94	09:45	ND	ND	ND	ND	ND
MW-5	MW-5-130	3-29-94	09:50	ND	ND	ND	ND	ND
SCHOOL	SCHOOL	3-29-94	10:00	ND	ND	ND	ND	ND
MW-1	1	7-11-94	09:26	ND	ND	ND	ND	ND
MW-2	2	7-11-94	09:31	ND	ND	ND	ND	ND
MW-3	3	7-11-94	09:45	ND	ND	ND	ND	ND
MW-4	4	7-11-94	10:00	ND	ND	ND	ND	ND
MW-5	5	7-11-94	10:10	ND	ND	ND	ND	ND
SCHOOL	6	7-11-94	10:20	ND	ND	ND	ND	ND

ppb = Parts per billion

ND = Below analytical detection limits

TABLE 7

SUMMARY OF GROUND WATER MONITORING WELL DATA
FROM QUARTERLY MONITORING

WELL	DATE	ELEVATION WELLHEAD (FEET)	MEASURED DEPTH (FEET)	GROUND WATER SURFACE ELEVATION (FEET)
MW-1	3-29-94	89.853	15.020	74.833
MW-2	3-29-94	91.848	15.090	76.758
MW-3	3-29-94	89.240	16.550	72.690
MW-4	3-29-94	88.180	17.820	70.360
MW-5	3-29-94	90.166	17.420	72.746
MW-1	7-11-94	89.853	11.600	78.253
MW-2	7-11-94	91.848	11.630	80.218
MW-3	7-11-94	89.240	13.630	75.610
MW-4	7-11-94	88.180	13.660	74.520
MW-5	7-11-94	90.166	13.120	77.046