



A U G E A S

Recd 6/9/95 for

Subsurface Investigation Report

for

Young's Cleaners
Foothill Square Shopping Center
10700 MacArthur Boulevard, #9
Oakland, California

June, 1995

Augeas Corporation
P.O. Box 940
780 Purissima Street
Half Moon Bay, CA 94019
Telephone: (415) 726-7700
Facsimile: (415) 726-1217



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This report was prepared under the supervision of a registered geologist. All statements, conclusions and recommendations are based solely upon field observations and informational reviews related to work performed by Augeas Corporation.

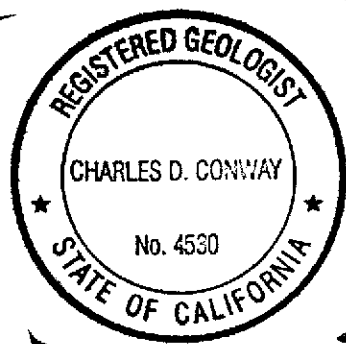
Site conditions are subject to change with time; therefore, our conclusions result only from the interpretation of present conditions and available site information. This report was prepared in accordance with accepted professional standards and technical procedures as certified below.

Reviewed by:

Charles D. Conway

Charles D. Conway, R.G. 4530

Chief Project Geologist



June 9, 1995

Date



1.0 INTRODUCTION

The subject property (site) is located at 10700 MacArthur Boulevard, Unit #9, Oakland, California. The site location is shown on Figure 1, "Site Location Map". Figure 2, "Site and Boring Location Plan", shows the footprints of existing buildings and the locations of on-site wells related to this investigation. This report describes the activities and results of the field investigation performed at the site from December 1994 until May, 1995. All of the work to date has been performed in accordance with a County-approved Phase II work plan prepared in August, 1994 by Augeas Corporation, and with subsequent directives of the Alameda County Health Care Services Agency.

1.1 Purpose and Scope of Work

The purpose of this investigation was to continue to assess the lateral and vertical extent of soil and ground water contamination caused by the release of chlorinated volatile organic compounds suspected to have originated from the operation of a dry cleaner located on the shopping center property in accordance with Alameda County Health Care Services Agency (ACHSA) directives.

2.0 SITE BACKGROUND

2.1 Regional Geology and Hydrogeology

The site is located within the East Bay plain, situated in the San Francisco Bay depression. The entire region is part of an irregular downdropped block bordered by northwest-trending faults (Alameda County Flood Control and Water Conservation District [ACFCWCD], 1988). The site is located about 1/2 mile west of the Hayward fault zone, the principal fault in the area. According to recent geologic mapping (USGS, 1991), the subsurface soils in the vicinity consist of permeable Pleistocene alluvium derived from the erosion of bedrock underlying the foothills of the Diablo Range (Oakland Hills) and deposited as coalescing alluvial fans (ACFCWCD, 1988). This alluvium consist of clayey silts with layers of sandy gravels that were deposited in ancient stream channels.



The topography in the area slopes generally westward toward San Francisco Bay, and the direction of ground water flow in the area is generally believed to be westward, although local anomalous northward and eastward ground water flow directions have been documented (RESNA, 1993). These are believed to be related to the presence of recharge areas or ground water flow barriers along the nearby Hayward fault (EMCON, 1994).

2.2 History

Aerial photographs and site use records indicate that the site has been in continuous commercial use since the early 1900's. The site was used for a truck manufacturing plant from about 1916 until 1960, when development of the property as a shopping center began.

A dry cleaning plant has operated at the current location of Young's Cleaners since 1962. Young's Cleaners itself has operated at this site since 1984. In December, 1980, the cleaners was placed on the CALSITES list for further evaluation. On October 1, 1993, Augeas Corporation contacted Mr. Don Cox, Unit Chief, Site Mitigation Branch, Site Evaluation Unit, Department of Toxic Substances Control, Berkeley, California concerning the status of the investigation. Mr. Cox indicated that the original site inspection "checklist" that had been filed showed that the site had been placed on the CALSITES list because of its classification as a generator of hazardous wastes, and not because of any identified contamination problems.

2.3 Previous Work

In January 1989, Western Geologic Resources (WGR) was contracted by a prospective purchaser of the shopping center to install five monitoring wells in order to characterize subsurface conditions. ~~Three~~^{Two} of these wells (WGR MW-2 and WGR MW-3) are identified on Figure 2. Ground water samples have been collected regularly from WGR MW-3, located near the ARCO station (Figure 2), since 1991. This well has been monitored in conjunction with an on-going soil and ground water investigation at the ARCO station (Figure 2). Ground water samples have also been collected from WGR MW-2, located about 100 feet west of the dry cleaners.



Ground water samples collected from WGR MW3 have contained detectable concentrations of benzene and chlorinated solvents during each monitoring event of record (RESNA, 1993; Augeas Corporation, 1994). None of the ground water samples collected from well WGR MW-2 have contained detectable contaminant concentrations (Augeas Corporation, 1994). *(limited monitoring)*

RESNA, Inc. (RESNA) has been investigating the ARCO station since 1991 to define the extent of gasoline contamination resulting from leakage of petroleum fuels. ARCO reported that they installed a soil vapor extraction system at the station in 1992, and that this site has been under active remediation since then (RESNA, 1992, 1994).

Chlorinated solvents have been detected in several soil borings and wells on both sides of the property line separating ARCO from the Foothill Square property (RESNA, 1992). On March 23, 1993, Alameda County Health Care Services Agency (ACHSA) requested a site investigation to define the extent of perchloroethylene (PCE) contamination discovered on the shopping center site by ARCO while investigating its own contaminant release from their underground tanks. The correspondence from ACHSA implied that the PCE detected in ARCO's wells on the Foothill Square property came from the shopping center. *(wells but not borings, I believe)*

2.4 Previous Site Investigations by Augeas Corporation

To verify the source and extent of PCE in the soil and ground water originating from the dry cleaner, Augeas Corporation submitted a Work Plan to ACHSA in August, 1994, to conduct an investigation at the subject site. This investigation, with some additional follow-on investigations, were conducted between September and December of 1994. Based on the report of this investigation (Augeas Corporation, 1994), ACHSA requested an assessment of the full lateral and vertical extent of PCE contamination by installing additional monitoring wells and borings. Full details of the previous site investigation are contained in the December, 1994 report.



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3.0 FIELD ACTIVITIES

Augeas Corporation's field work at the subject site during the current phase of investigation consisted of the following:

- Install two additional monitoring wells, AMW-4 and AMW-5, to 25 feet and 30 feet, respectively, below grade, and collect soil and grab ground water samples for analysis. Grab ground water samples are defined as those collected directly from ground water that seeps into a borehole or an excavation without first installing a properly screened and developed monitoring well for sample collection. Grab ground water analytical results can be affected by the presence of sediments from the formation and from near surface runoff. They are not generally considered to be as reliable as analytical data from ground water samples collected from properly constructed and developed wells. However, grab ground water analyses are sometimes used as preliminary indicators of the approximate extent of ground water contamination at a site.
- Install a shallow soil boring, B-8, in the pedestrian walkway shown in Figure 2, and collect one soil and one grab ground water sample from it for analysis for the presence of PCE. This boring was originally requested as a monitoring well by the Alameda County Health Services Agency (personal communication, 1995) to assist in assessing the lateral and vertical extent of perchloroethene contamination from the dry cleaners. However, on March 23, 1995, the day we were to install the well, relatively heavy rains and a plugged storm drain caused considerable backup of drainage water at the proposed location of the well. A significant volume of storm water began to enter the hole at about five feet below grade. Augeas Corporation personnel decided at this point not to complete the boring as a well, because of the potential for contaminating the ground water with surface runoff as we deepened the hole. However, we did collect one sample of soil at the depth of the boring, and we collected a grab ground water sample for analysis for the presence of dry cleaning solvents. Augeas Corporation plans to return to the site to complete this boring as a well as soon as we can arrange it with our client.



- Develop wells AMW-4 and AMW-5, and collect ground water samples for analysis.

The locations of the additional wells and the soil boring are presented in Figure 2, "Site and Boring Location Plan". The field locations of the wells and the shallow soil boring with respect to the footprint of the buildings and the property line were established by a licensed land surveyor. The MSL elevations of the well casings were also established by a licensed land surveyor, and they were referenced to a local benchmark.

3.1 Rationale for Placement of the Wells and the Soil Boring

Wells AMW-4 and AMW-5 were located to further identify the lateral extent of soil and ground water contamination from the past operations of Young's Dry Cleaners. They were placed as shown, in the downstream flow direction of the sewer main plotted on Figure 2. These locations were selected, because we know from past experience at this and at other dry cleaner sites that operators sometimes dispose of their waste solutions into the sanitary sewer. The sewer then becomes a conduit to channel waste water flow from the cleaners away from the discharge site. However, since many sewer lines leak, the contaminant can sometimes be transported through the sewer line and into the subsurface for significant distances away from the cleaner site.

From available analytical data, ground water from wells AMW-2, AMW-3, and AMW-4, located at the front of the dry cleaners, contain detectable concentrations of PCE above its maximum contaminant level. However, soil and ground water samples collected from well AMW-1, and ground water samples collected from well WGR-MW-2 (Augeas Corporation, 1994, and this report), both located at the rear of the dry cleaners (Figure 2), contain no detectable PCE. Relatively little contaminant data are available between the wells at the front and the back. Boring B-8 was located to provide analytical data to cover the approximately 150-ft gap between the wells at the front and at the rear of the dry cleaners (Figure 2). As we discussed in the preceding section, we plan to install a monitoring well where B-8 is now located in order to provide more complete soil and ground water analytical data.



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3.2 Drilling Permits and Utility Clearance

In accordance with the Alameda County Zone 7 Water Agency regulations, Augeas Corporation obtained soil boring installation permits for wells AMW-4 through AMW-5. Copies of the permits are enclosed in Appendix A.

About one week prior to drilling, Augeas Corporation personnel visited the site and marked the boring locations on the ground. Underground Service Alert (USA) was then notified to help identify and locate public utilities in the areas to be investigated. We also obtained the services of a private utility locator to further identify utilities that USA could have overlooked and to clearly locate the center line of the sewer main down the mall.

3.3 Soil Boring and Well Installation

Ground water monitoring wells AMW-4 and AMW-5 were installed on March 22, 1995. Boring logs and construction details for the monitoring wells are presented in Appendix A. The wells were installed by Gregg Drilling, Inc., of Martinez, California. An Augeas Corporation geologist was present during drilling to assist in obtaining relatively undisturbed samples of the subsurface materials, to maintain a log of borings, to field screen samples with a device capable of detecting volatile organic hydrocarbons as a trace gas, and to make observations of the site conditions.

What instrument was used? PID

*Check PCE
e.v.
7/22/11.2*

3.4 Soil Sampling

Drilling soil borings and wells were performed utilizing a limited access track-mounted drill rig equipped with continuous flight hollow-stem augers. The augers were steam-cleaned prior to drilling each borehole to reduce the possibility of introducing down-hole or cross-hole contamination. The cuttings generated from the drilling and water generated from the steam cleaning operation were placed in DOT approved 55-gallon drums and left at the site pending permanent disposal.

Soils were sampled at approximately 5-foot vertical intervals commencing at an approximate depth of five feet below the existing grade. Samples were obtained by



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means of a California Modified sampler which was lined with stainless steel sleeves. The samples were advanced by blows from a pneumatic hammer designed for the limited access drill rig.

The samples were promptly sealed in their stainless steel sleeves with Teflon^(TM) sheeting and covered with plastic end caps. The end caps were secured to the sleeves with adhesive tape. The samples were labeled and placed in a cooled ice chest for transport to a California-certified analytical laboratory for chemical testing. A chain of custody record, initiated in the field, accompanied each shipment of samples to the laboratory. Copies of the completed chain of custody records for the samples are presented in Appendix B.

Soils encountered during drilling were logged and classified according to the Unified Soil Classification System. Samples were inspected for visual or olfactory evidence of contamination, including product discoloration and/or noticeable product odor.

A hand-held photo ionization detector (PID) calibrated for sensitivity to the presence of chlorinated volatile organics was used to measure the organic vapor concentrations in soil samples from each interval as a pre-screening device. The PID readings and olfactory evidence at each depth are summarized in the right-hand columns of the boring logs.

The procedure used to measure the organic vapor concentrations in air involved removing at least 50 grams of soil from the center of the sample sleeve located adjacent to the sleeve selected for laboratory analysis, placing the soil in a plastic zip lock bag, sealing the bag, and allowing the sample to sit in the sunlight for at least 15 minutes. The bag was then punctured with the probe tip of the PID detector to assess potential relative concentrations of volatile constituents. This procedure is commonly known as "head space analysis".

All of the ground water and soil samples collected were submitted to Hull Development Labs, Inc., a State-certified analytical laboratory in San Jose, to be analyzed for the presence of chlorinated volatile organic compounds by EPA Method 8010. This analysis is sensitive to the presence of perchloroethene (PCE), which is the dry cleaning solvent known to have been in use at the subject site, and the only



contaminant we detected in significant concentrations during our past investigations (Augeas Corporation, 1994).

3.5 Ground Water Sampling

The newly installed wells were developed and sampled on May 15, 1995. They were initially developed by surging them with a 1.5-inch-diameter stainless steel bailer to loosen sediment that had accumulated during installation in order to improve ground water production. They were then purged until the water quality parameters of temperature, electrical conductance, and pH had stabilized. This procedure helps ensure that the samples represent water freshly derived from the formation. All purge water was secured on site in DOE-approved, labeled storage drums pending proper disposal.

Well AMW-4 was surged and then purged of about 8 well volumes of water (60 liters) before it was sampled. Well AMW-5 was surged with the stainless steel bailer, and then it was also purged of about 8 well volumes (80 liters) of water before sampling it. The water quality parameters in both wells had stabilized before they were sampled. Ground water sampling field logs for these wells are presented in Appendix B.

4.0 GEOLOGIC AND HYDROGEOLOGIC CONDITIONS

The logs of the wells and soil borings (Appendix A) indicate that wells AMW-4 and AMW-5 are installed in a fine grained substrate consisting primarily of silty clay.

The depths to ground water and the surveyed elevations of the well heads indicate that wells AMW-4 and AMW-5 are installed in the same aquifer as wells AMW-2 and AMW-3. The depths to ground water and the surveyed elevations of wells AMW-1 and WGR-MW-2 (Augeas Corporation, 1994, and current data) suggest that these wells are installed in a separate, deeper aquifer from wells AMW-2 through AMW-5. We will be better able to comment in detail on the possible implications of this finding after we have installed the well originally proposed for the location of existing boring B-8 (Figure 2). We will present a detailed discussion



of the ground water elevations and their implications for the hydrogeologic regime at the subject site under separate cover.

5.0 LABORATORY SAMPLE ANALYSES

Soil and ground water analytical results obtained are presented in Tables 1 and 2, "Summary of Soil Analytical Results", and "Summary of Ground Water Analytical Results" respectively. Certified analytical reports and chain of custody documentation for soil and ground water samples are presented in Appendix B.

In the following discussion, we will refer to "high" concentrations of volatile organic compounds in soil as those at or above 1.0 part per million (ppm) by weight, and "low" concentrations as those below 1.0 ppm. The basis for this distinction is the informal guideline developed by the State Regional Water Quality Control Board (RWQCB), San Francisco Bay Region, in Oakland. Currently, the RWQCB will generally allow soil affected with less than 1 ppm of volatile organic compounds to remain in place.

5.1 Discussion of Analytical Results

5.1.1 Soil

By the definition of high soil contamination discussed above, none of the soil samples analyzed from wells AMW-4 or AMW-5 are considered to contain high concentrations of contaminants (Table 1). The distribution of the VOCs in the soil shows that the most significant contamination at the subject site is centered in the vicinity of the sanitary sewer line at five feet below grade (AMW-4), but that at a greater distance from the sewer line (AMW-5), detectable PCE concentrations still occur.

5.1.2 Ground Water

Shown in Table 2, analytical data from the wells show that the ground water is most affected in the vicinity of the sanitary sewer line (AMW-4). Downstream and away



from the main sewer line (AMW-5), the aqueous PCE concentrations are significantly lower. The ground water sample collected from AMW-4 contains PCE at a concentration approximately 480 times the maximum contaminant level of 5 µg/L for PCE defined by the State.

6.0 CONCLUSIONS

Our conclusions, based upon this site investigation, are summarized as follows:

- The ground water in well AMW-4 has been impacted with PCE at a concentration above the State maximum contaminant level.
- The vertical and horizontal distribution of PCE in soil and ground water at the subject site suggests that much of the contamination originated from disposal of PCE into the sanitary sewer system.

These conclusions are supported by correlation of laboratory data and field data obtained from soil and ground water samples collected during this and other site investigations at the shopping center.

7.0 RECOMMENDATIONS

Augeas Corporation's recommendations are summarized below as follows:

- Remove the shallow contaminated soil near the dry cleaners by excavation. This will remove the primary contaminant source, and we believe that it will result in significant improvement of ground water quality over time;
- Conduct confirmatory soil sampling while the excavation work is in progress to verify that the lateral and vertical extents of contamination have been defined;
- Install additional monitoring well in the location of existing boring B-8, as previously proposed, to assess soil and ground water conditions in this part of the site. The installation of an additional well at this location will also enhance



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our understanding of the relatively complex hydrogeologic conditions at the subject site;

- Continue quarterly monitoring of site-associated wells. Ground water samples collected from these wells will document improvements in ground water conditions after the contaminated soil has been removed.

Table 1, Summary of Soil Analytical ResultsEPA Method 8010
(all results expressed in micrograms per kilogram)Young's Cleaners
Foothill Square Shopping Center
10700 MacArthur Boulevard
Oakland, CA

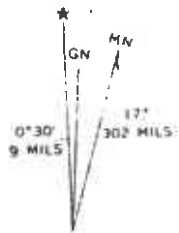
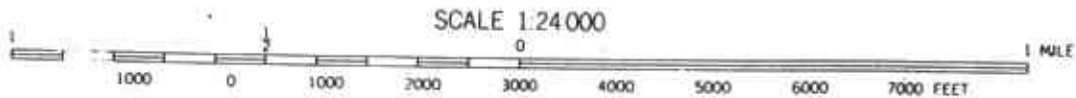
Sample Identification	Sample Date	Analysis Date	Tetra-chloroethene (PCE)	Tri-chloroethene	Chloroform	Other* Purgeable Halocarbons
B-8 5.5'-6'	3-23-95	3-23-95	<0.5	<0.5	<0.5	ND
AMW-4 5.5'-6'	3-22-95	3-23-95	870	<0.5	24	ND
AMW-4 10.5'-11'	3-22-95	3-23-95	13	<0.5	<0.5	ND
AMW-4 15.5'-16'	3-22-95	3-23-95	7.5	<0.5	<0.5	ND
AMW-4 20.5'-21'	3-22-95	3-23-95	5.3	<0.5	<0.5	ND
AMW-4 25.5'-26'	3-22-95	3-23-95	<0.5	21	<0.5	ND
AMW-5 5.5'-6'	3-22-95	3-23-95	1.1	<0.5	1.2	ND
AMW-5 10.5'-11'	3-22-95	3-23-95	<0.5	<0.5	1.2	ND
AMW-5 15.5'-16'	3-22-95	3-23-95	<0.5	<0.5	1.6	ND
AMW-5 20.5'-21'	3-22-95	3-23-95	<0.5	<0.5	1.4	ND
AMW-5 25.5'-26'	3-22-95	3-23-95	<0.5	<0.5	1.5	ND
AMW-5 30.5'-31'	3-22-95	3-23-95	<0.5	<0.5	1.2	ND

Table 2, Summary of Ground Water Analytical ResultsEPA Method 8010
(all results expressed in micrograms per liter)Young's Cleaners
Foothill Square Shopping Center
10700 MacArthur Boulevard
Oakland, CA

Sample Identification	Sample Date	Analysis Date	Tetra-chloroethene (PCE)	Tri-chloroethene	Chloroform	Other* Purgeable Halocarbons
AMW-4 (Grab Sample)	3/22/95	3/23/95	33	<0.5	<0.5	ND
AMW-4 (Developed Well)	5/15/95	5/18/95	2,400	<0.5	<0.5	ND
AMW-5 (Grab Sample)	3/22/95	3/23/95	1.2	<0.5	<0.5	ND
AMW-5 (Developed Well)	5/15/95	5/18/95	1.2	<0.5	<0.5	ND
B-8 (Grab Sample)	3/23/95	3/24/95	1.1	<0.5	<0.5	ND

ND : Non-Detect

*Note: Please see analytical reports for specific compounds and detection limits.



SAN LEANDRO, CALIF.

NW/4 HAYWARD 15' QUADRANGLE
N3737.5—W12207.5/7.5

1959
PHOTOREVISED 1980
DMA 1559 II NW—SERIES V895



**AUGEAS
CORPORATION**

Figure 1 - Site Location Map

Site Address - 10700 MacArthur Boulevard, Oakland, California

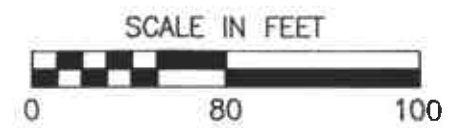
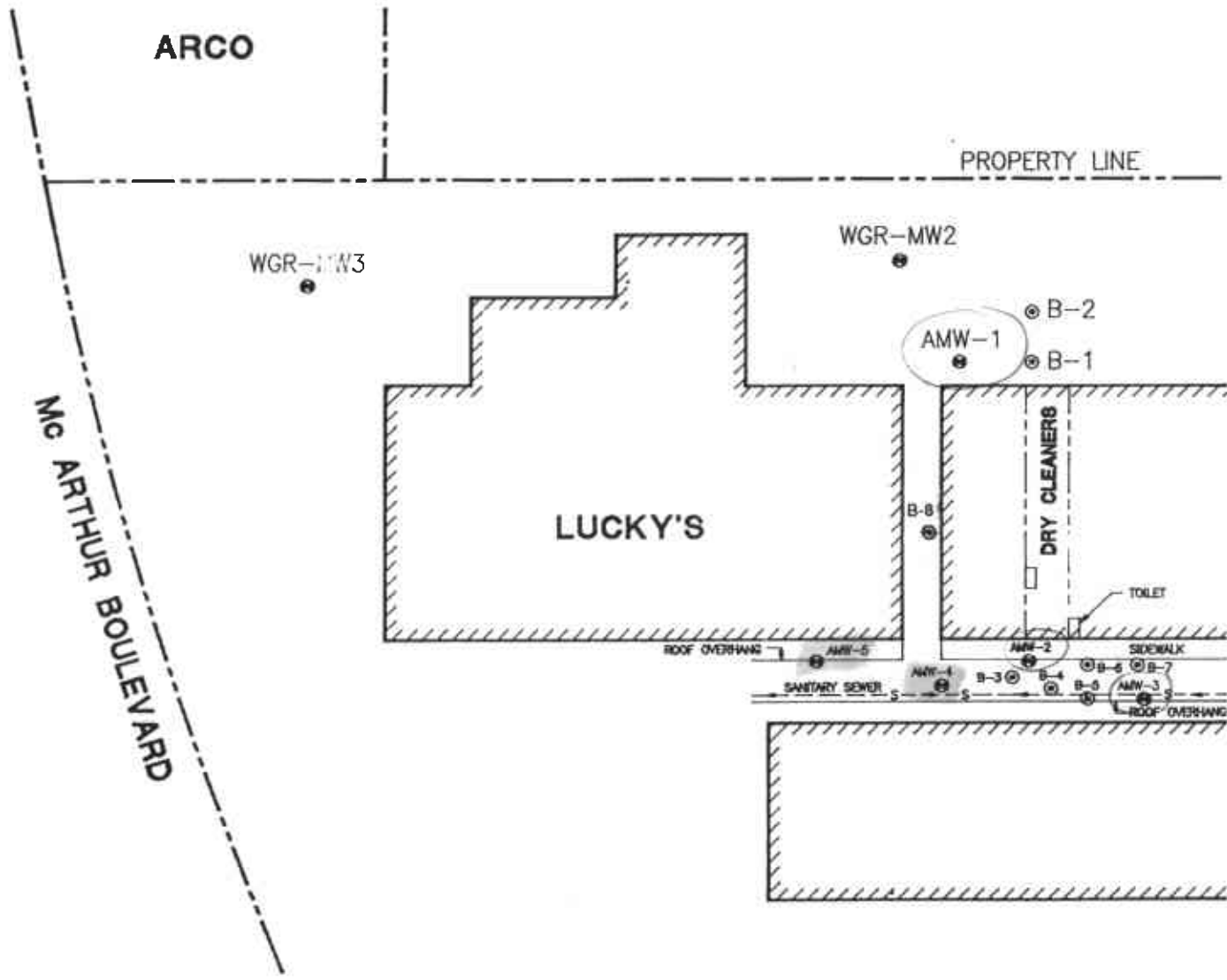
BENCHMARK


CUT SQUARE IN CURB RETURN AT THE SOUTHEAST CORNER OF 107th AVE AND McARTHUR BLVD.

ELEV = 55.172' MSL (USGS 1929)
TO OBTAIN ELEVATION PER CITY DATUM,
SUBTRACT 300 FEET FROM USGS ELEVATION.

LEGEND

- ⊙ AUGEAS SOIL BORING
- ⊕ AMW-2 AUGEAS MONITORING WELL
- ⊕ WGR-MW2 WESTERN GEOLOGIC RESOURCES MONITORING WELL
- ⊕ MW-3 APPLIED GEOSYSTEMS MONITORING WELL



 AUGEAS CORPORATION HALF MOON BAY	SITE AND BORING LOCATION PLAN	
	FOOTHILL SQUARE SHOPPING CENTER OAKLAND ALAMEDA, CA	
	May 22, 1995	Figure 2



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APPENDIX A

Well Permits
Boring Logs
Well Construction Details



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE

PLEASANTON, CALIFORNIA 94588-5127

PHONE (510) 484-2600 FAX (510) 462-3914

20 March 1995

Augeas Corporation
780 Purissima Street
Half Moon Bay, CA 94019

Gentlemen:

Enclosed is drilling permit 95149 for a monitoring well construction project at 10700 MacArthur Boulevard in Oakland for Richard Gilcrease.

Please note that permit condition A-2 requires that a well construction report be submitted after completion of the work. The report should include drilling and completion logs, location sketch and permit number.

If you have any questions, please contact Wyman Hong at extension 235 or me at extension 233.

Very truly yours,

Craig A. Mayfield
Water Resources Engineer III

WH:mm
Enc.



ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588

VOICE (610) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 10700 MacArthur Blvd.
Del Norte, California

PERMIT NUMBER 95149
LOCATION NUMBER _____

AGENT Richard Gillreath
ADDRESS 5201 Sacramento Ave. Voice (510) 524-1177
Richmond, CA Zip 94804

PERMIT CONDITIONS

Ordinanced Permit Requirements Apply

APPLICANT Charles Conway for Augas Corporation
ADDRESS 740 Purissima St. Voice 415-926-7900
Half Moon Bay Zip 94019

GENERAL

1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

TYPE OF PROJECT

Well Construction _____
 Cathodic Protection _____
 Water Supply _____
 Monitoring _____

Geotechnical Investigation
 General _____
 Contamination _____
 Well Destruction _____

B. WATER WELLS, INCLUDING PIEZOMETERS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

PROPOSED WATER SUPPLY WELL USE

Domestic _____ Industrial _____ Other environmental
 Municipal _____ Irrigation _____ study

DRILLING METHOD:

Air Rotary _____ Auger
 Cable _____ Other _____

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

DRILLER'S LICENSE NO. 485165

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

WELL PROJECTS

Drill Hole Diameter	<u>8</u> in.	Maximum	
Casing Diameter	<u>2</u> in.	Depth	<u>20</u> ft.
Surface Seal Depth	<u>15</u> ft.	Number	<u>3</u>

E. WELL DESTRUCTION. See attached.

GEOTECHNICAL PROJECTS

Number of Borings	_____	Maximum	
Hole Diameter	_____ in.	Depth	_____ ft.

ESTIMATED STARTING DATE 3-22-95
 ESTIMATED COMPLETION DATE 3-23-95

Approved

Wyman Hong
Wyman Hong

Date 17 Mar 95

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

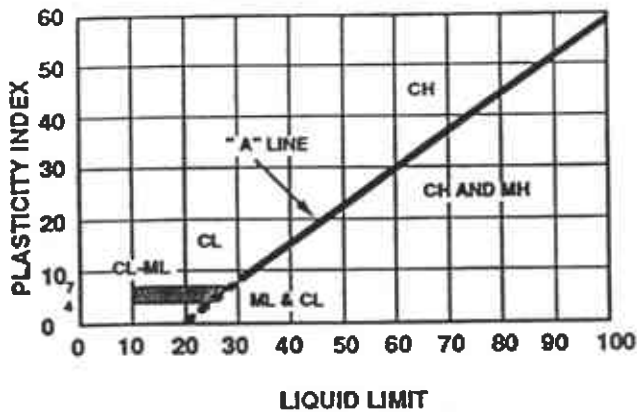
APPLICANT'S SIGNATURE

Charles D. Conway Date MARCH 17, 1995

SAMPLE CLASSIFICATION CHART

UNIFIED SOIL CLASSIFICATION SCHEME			
MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOIL (More than 1/2 of soil > no. 200 sieve size)	GRAVELS (More than 1/2 of coarse fraction > no. 4 sieve size)	GW	Well-graded gravels and gravel and mixtures, little or no fines
		GP	Poorly-graded gravel or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	SAND (More than 1/2 of coarse fraction < no. 4 sieve size)	SW	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOIL (More than 1/2 of soil < no. 200 sieve size)	SILTS & CLAYS Liquid Limit < 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey, fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS Liquid Limit > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		PI	Peat and other highly organic soils

PLASTICITY CHART



GRAIN SIZE CLASSIFICATION

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL coarse (c) fine (f)	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.76 76.2 to 19.1 19.1 to 4.76
SAND coarse (c) medium (m) fine (f)	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.76 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

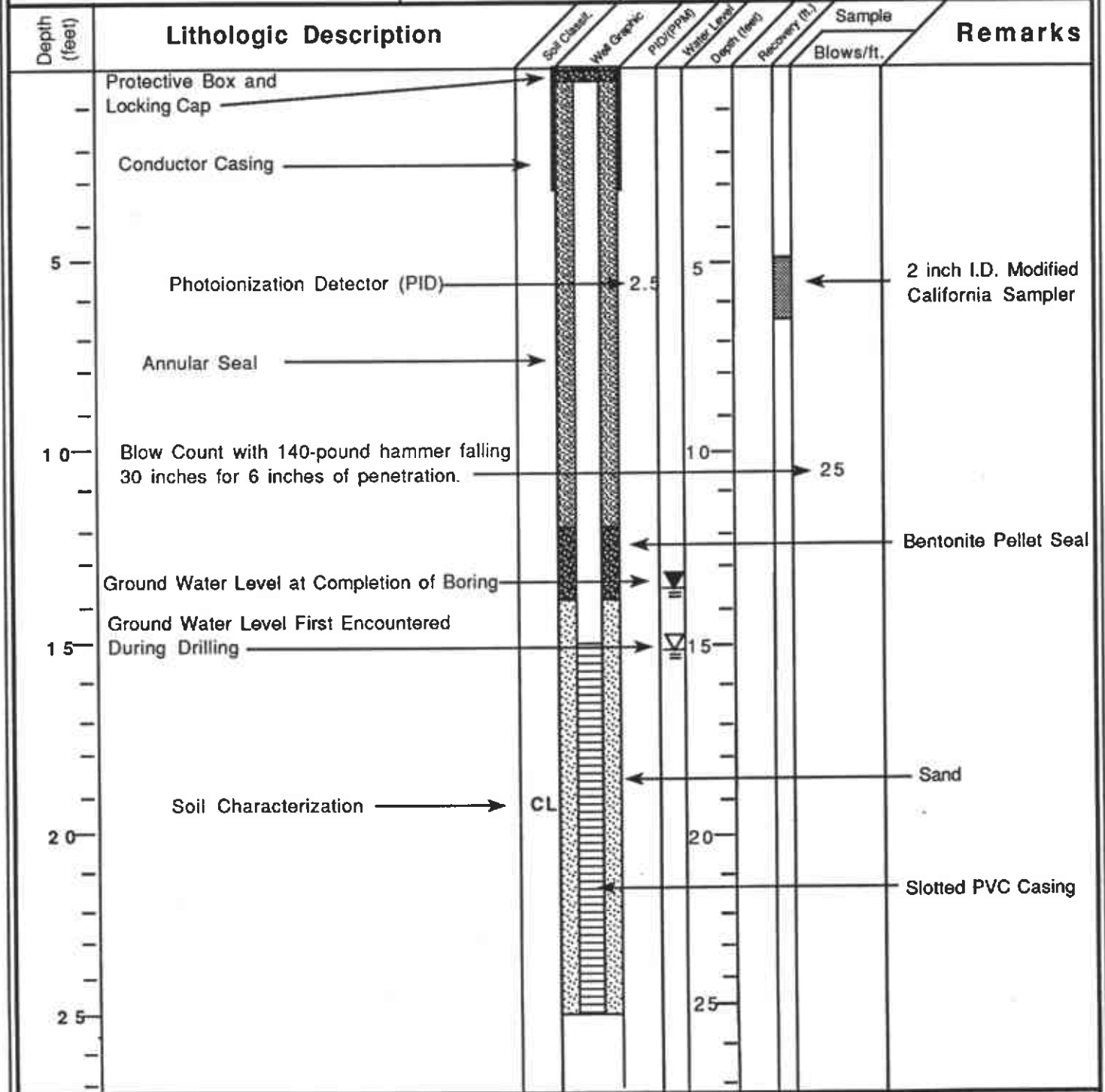
SOIL CONSISTENCY/RELATIVE DENSITY

SILT, SAND AND GRAVEL	BLOWS/F T	SILT OR CLAY	UNCONFINED COMPRESSIVE STRENGTH (psf)	THUMB PENETRATION
Very loose	<4	Very Soft	< 500	Very easily - inches
Loose	5-10	Soft	500 - 1000	Easily - inches
Medium Dense	11-30	Medium (firm)	1000 - 2000	Moderate effort - inches
Dense	31-50	Stiff	2000 - 4000	Indented easily
Very Dense	>50	Very Stiff Hard	4000 - 8000 > 8000	Indented by nail Difficult by nail

CLASSIFICATION MODIFIERS

TRACE	0 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
AND	35 - 50%
± MODIFIERS	

Project: WELL CONSTRUCTION DETAIL		Well I.D.:	Page: of
Drilling Agency:	Driller:	Date Started:	Date Finished:
Drilling Equipment:	Logged By:	Completion Depth:	Hammer:
Drilling Method:	Drill Bit (Dia.):	No. of Samples:	Sampler:
Size/Type of Casing:	Water Depth: First encountered:		at Completion:
Type of Perforation:	From: to	Annular seal: from: to	
Size/Type of Pack:	From: to	Bentonite seal: from: to	



Project: Young's Cleaners		Well I.D.: AMW-4		Page: 1 of 1	
Drilling Agency: Gregg Drilling Co.		Driller: Ted		Date Started: 3-22-95	
Drilling Equipment: Limited Access		Logged By: C. Conway		Date Finished: 3-22-95	
Drilling Method: HSA		Completion Depth: 25'		Hammer: pneumatic	
Drill Bit (Dia.): 7" .		No. of Samples: 5		Sampler: Cal Mod .	
Size/Type of Casing: 2" PVC		Water Depth: First encountered: 15 feet at Completion: 13.6 feet			
Type of Perforation: 0.020"		From: 15' to 25'		Annular seal: from: 0' to 12'	
Size/Type of Pack: 2/12 Sand		From: 14' to 25'		Bentonite seal: from: 12' to 14'	

Depth (feet)	Lithologic Description	Soil Classif.	Well Graphic	PIV (PPM)	Water Level	Depth (feet)	Recovery (ft.)	Sample	Remarks
								Blows/ft.	
0 - 3	3" to 4" concrete slab								
5 - 11	Light brown silty clay (CL), moist, sticky to six feet; below six feet; dark gray silty clay; moist; sticky; organic odor.	CL		2.5		5	1.5		Driller reported first water at approximately 15 feet.
11 - 15	Light brown silty clay (CL), moist, sticky to 11'; below 11', medium brown silty clay, trace sand.	CL		0	10	1.5			
15 - 20	Light brown clay (CL-CH); moist; soft; sticky; medium to high plasticity; trace sand.	CL-CH		0	15	1.5			
20 - 23.5	Light brown clayey silt (ML); moist; low plasticity; stiff.	ML		0	20	1.5			
23.5 - 25	Light brown silty clay; very moist; low plasticity to 23.5 feet; Below 23.5 feet; silty sand.	CL		0		1.5			
25	----- Base of Boring at 25 ft. -----	SP			25				Base of boring at 25' 3/22/95

AUGEAS CORPORATION

Site Address: 10700 MacArthur Blvd., Oakland, CA

Project: Young's Cleaners		Well I.D.: AMW-5		Page: 1 of 1	
Drilling Agency: Gregg Drilling Co.		Driller: Ted		Date Started: 3-22-95	
Drilling Equipment: Limited Access		Logged By: C. Conway		Completion Depth: 30'	
Drilling Method: HSA		Drill Bit (Dia.): 7"		Hammer: pneumatic	
Size/Type of Casing: 2" PVC		Water Depth: First encountered: 20 feet at Completion: 20 feet			
Type of Perforation: 0.020"		From: 20' to 30'		Annular seal: from: 0' to 17.5'	
Size/Type of Pack: 2/12 Sand		From: 19' to 30'		Bentonite seal: from: 17.5' to 19'	

Depth (feet)	Lithologic Description	Soil Classif.	Well Graphic	PRO(ppm)	Water Level	Depth (feet)	Recovery (%)	Sample	Blows/ft.	Remarks
0	3"-4" Concrete Slab									
5	Medium brown silty clay (CL); moist; trace sand; sticky to 6.2 feet; below 6.2 feet dark brown silty clay (CL); moist; trace coarse to medium sand.	CL		0		5	1.5			
10	Dark brown silty clay (CL); moist; trace roots to 11 feet; below 11 feet light brown silty clay; moist; medium plasticity.	CL		2.5		10	1.5			
15	Light to medium brown silty clay (CL); moist; medium plasticity.	CL		0		15	1.5			
20	Yellowish brown silty clay (CL); wet; sticky; trace burrows.	CL		2.5	20		1.5			Driller reports water at 20 feet because of softer drilling.
25	Yellowish brown silty clay (CL); moist to wet; homogeneous; sticky.	CL		0		25	1.5			
30	Base of Boring at 30 ft.			0			1.5			Base of boring at 30' 3/22/95



A U G E A S

APPENDIX B

Ground Water Sampling Field Logs
Chain of Custody
Certified Analytical Reports



Augeas Corporation Groundwater Sampling Field Log

Project Name/No: Young's Cleanwell
 Client: JAYPHARES / GILCREASE
 Project Manager: C COO W AY
 Sampler: WS
 Casing Diameter: 2 inch 3 inch _____ 4 inch _____ 6 inch _____ Other: _____
 Sample Depth (feet): 13.21
 Depth of Well (feet): 25.00
 Depth to Water (feet): 12.60

Lab I.D.: Amw-4
 Date: 5-15-95
 Sample Location I.D.: Amw-4
 Start Time: 10:15

Calculated Purge Vol. (gal.) 60 L
 Actual Purge Vol. (gal.) 60 L

Field Measurements

floaters ϕ 12:10
 sinkers ϕ no odor/screen

Time	Cum	Volume (gal.)	pH (units)	E.C. (umhos/cm)	Temperature (Degrees C)	Color (visual)	Other
11:27	10	10	7.62	18.89	53.2	Clear	no odor/screen ↓
11:39	20	10	7.74	18.12	48.3	Silty	
11:46	30	10	7.84	17.99	48.5	Brown	
11:53	40	10	7.91	18.02	49.4	H Brown	
12:00	50	10	7.91	18.08	50.1	Clearer	
12:06	60	10	7.96	17.89	50.9	Clearer	

Purge Method

2" Bladder Pump Bailer (Teflon) Well Wizard Dedicated
 Submersible Pump Centrifugal Pump Dipper Other
 Pneumatic Displacement Pump

Sample Method

2" Bladder Pump Bailer (Teflon) Well Wizard Dedicated
 Surface Sampler Dipper Fultz Pump Other

Well Integrity: Good

Remarks: Purged 8 well volumes, sampled at 80% recovery

Signature: [Signature]

Conversion Factors

Volumes Per Unit Length Selected Well Casing Diameters					Conversion Factors		
Volume Per Unit Length					To Convert	Into	Multiply
Well Casing I.D. (inches)	Gal/ft	Ft/ft	L/M	L/Ft			
1.5	0.0918	0.0123	1.140	0.3475	Ft. of Water	Lbs/sq.in.	0.4335
2.0	0.1632	0.0218	2.027	0.6178	Lbs/Sq. inch	Ft. of Water	2.3070
3.0	0.3672	0.0491	4.560	1.3900	Cubic feet	Gallons	7.4800
4.0	0.6528	0.0873	8.107	2.4710	Gallons	Liters	3.7850
6.0	1.4690	0.1963	18.240	5.5600	Feet	Meters	0.3048
					Inches	Centimeters	2.5400



Augeas Corporation Groundwater Sampling Field Log

Project Name/No: Young's Cleaners
 Client: _____
 Project Manager: C Conway
 Sampler: WS
 Casing Diameter: 2 inch 3 inch _____ 4 inch _____ 6 inch _____ Other: _____
 Sample Depth (feet): 15.21
 Depth of Well (feet): 30.32
 Depth to Water (feet): 13.71

Lab I.D.: Amw-5
 Date: 5-15-95
 Sample Location I.D.: Amw-5
 Start Time: 12:30

Calculated Purge Vol. (gal.) 80 L
 Actual Purge Vol. (gal.) _____

10.61×6.178
 10.26
Field Measurements

floaters = \emptyset no odor/sk
 sinkers = \emptyset

Time	Cum	Volume (gal.)	pH (units)	E.C. x 1000 (umhos/cm)	Temperature Degrees C	Color (visual)	Other
12:40	15	15	7.87	2.38	47.9	clear	NO odor
12:52	30	15	8.05	2.50	51.9	Silly Br	or well
1:20	33	3	8.04	2.34	51.0	↓	skew dewatered
1:30	48	15	8.14	2.52	52.9	↓	↓
1:48	63	15	7.96	2.57	51.2	↓	↓
1:50	83	20	8.15	2.43	49.8	↓	↓ well dewatered

2:00 sample

Purge Method

2" Bladder Pump Bailer (Teflon) Well Wizard Dedicated
 Submersible Pump Centrifugal Pump Dipper Other
 Pneumatic Displacement Pump

Sample Method

2" Bladder Pump Bailer (Teflon) Well Wizard Dedicated
 Surface Sampler Dipper Fultz Pump Other

Well Integrity: Good
 Remarks: Purged 8 well volumes sampled at 80% recovery

Signature: [Signature]

Conversion Factors

Well Casing I.D. (inches)	Volume Per Unit Length Selected Well Casing Diameter			
	Volume Per Unit Length		L/M	L/Ft
	Gal/ft	Cubic Ft/ft		
1.5	0.0918	0.0123	1.140	0.3475
2.0	0.1632	0.0218	2.027	0.6178
3.0	0.3672	0.0491	4.560	1.3900
4.0	0.6528	0.0873	8.107	2.4710
6.0	1.4690	0.1963	18.240	5.5600

To Convert	Into	Multiply
Ft. of Water	Lbs/sq in.	0.4335
Lbs/Sq. inch	Ft. of Water	2.3070
Cubic feet	Gallons	7.4800
Gallons	Liters	3.7850
Feet	Meters	0.30048
Inches	Centimeters	2.5400

Hull Development Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Attn: Charles Conway
Augeas Corporation
780 Purissima
Half Moon Bay, CA 94019

Date:	03/24/95
Date Received:	03/22/95
Date Analyzed:	03/23/95
Lab #:	See Table
Project Name:	Young's Cleaners
Sampled By:	Charles Conway

Certified Analytical Report

Soil Sample Analysis:

Sample ID	Sample Date	Sample Time	Lab #	Purgeable Halocarbons
AMW-4, 5.5'-6'	03/22/95	0937	B3485	894
AMW-4, 10.5'-11'	03/22/95	0948	B3486	13
AMW-4, 15.5'-16'	03/22/95	1003	B3487	7.5
AMW-4, 20.5'-21'	03/22/95	1015	B3488	5.3
AMW-4, 25.5'-26'	03/22/95	1040	B3489	21

1. Above values in $\mu\text{g}/\text{kg}$ (ppb)
2. See Organic Analysis Work Sheets for individual compounds, detection limits and analysis dates.
3. Analysis performed by Hull Development Labs, Inc. (CAELAP # 1369).

Test Methods:

Test	EPA Method #	Units	Method Detection Limit
Purgeable Halocarbons	8010	$\mu\text{g}/\text{kg}$	See Work Sheets



Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL

Hull Development Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Attn: Charles Conway
Augeas Corporation
780 Purissima
Half Moon Bay, CA 94019

Date:	03/24/95
Date Received:	03/22/95
Date Analyzed:	03/23/95
Lab #:	See Table
Project Name:	Young's Cleaners
Sampled By:	Charles Conway

Certified Analytical Report

Water Sample Analysis:

Sample ID	Sample Date	Sample Time	Lab #	Purgeable Halocarbons
AMW-4	03/22/95	1125	B3490	33

1. Above values in $\mu\text{g/liter}$ (ppb)
2. See Organic Analysis Work Sheets for individual compounds, detection limits and analysis dates.
3. Analysis performed by Hull Development Labs, Inc. (CAELAP # 1369).

Test Methods:

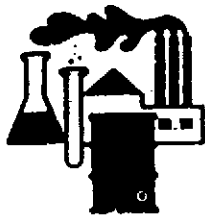
Test	EPA Method #	Units	Method Detection Limit
Purgeable Halocarbons	8010	$\mu\text{g/liter}$	See Work Sheets



Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL



Hull Development Labs, Inc.

Organic Analysis Worksheet: EPA Method #8010

Sample ID:	Augeas
Sample Matrix:	Soil
Lab #:	B3485
Client ID:	AMW-4, 5.5'-6'

Date:	03/24/95
Date Received:	03/22/95
Date Analyzed:	03/23/95
Dilution Factor:	10

Compound	Concentration Found	MDL	Compound	Concentration Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	870	0.5 ppb
Chloroform	24	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	ND	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

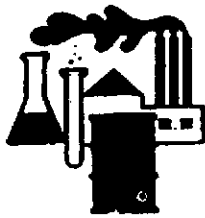
Surrogate	Recovery (%)
4-Bromofluorobenzene	110

1. PQL = Detection Limit x Dilution Factor
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #B3485 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.


 Michael N. Golden, Lab Director

DF=Dilution Factor
 MDL=Method Detection Limit

PQL=Practical Quantitation Limit
 ND=None Detected at or above PQL



Hull Development Labs, Inc.

Organic Analysis Worksheet: EPA Method #8010

Sample ID:	Augeas
Sample Matrix:	Soil
Lab #:	B3486
Client ID:	AMW-4, 10.5'-11'

Date:	03/24/95
Date Received:	03/22/95
Date Analyzed:	03/23/95
Dilution Factor:	1

Compound	Concentration Found	MDL	Compound	Concentration Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	13	0.5 ppb
Chloroform	ND	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	ND	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

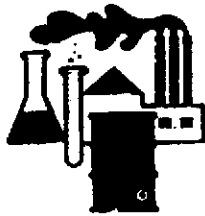
Surrogate	Recovery (%)
4-Bromofluorobenzene	83

1. PQL = Detection Limit x Dilution Factor
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #B3486 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL



Hull Development Labs, Inc.

Organic Analysis Worksheet: EPA Method #8010

Sample ID:	Augeas
Sample Matrix:	Soil
Lab #:	B3487
Client ID:	AMW-4, 15.5'-16'

Date:	03/24/95
Date Received:	03/22/95
Date Analyzed:	03/23/95
Dilution Factor:	1

Compound	Concentration Found	MDL	Compound	Concentration Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	7.5	0.5 ppb
Chloroform	ND	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	ND	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

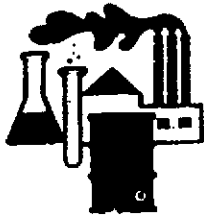
Surrogate	Recovery (%)
4-Bromofluorobenzene	100

1. PQL= Detection Limit x Dilution Factor
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #B3487 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.


 Michael N. Golden, Lab Director

DF=Dilution Factor
 MDL=Method Detection Limit

PQL=Practical Quantitation Limit
 ND=None Detected at or above PQL



Hull Development Labs, Inc.

Organic Analysis Worksheet: EPA Method #8010

Sample ID:	Augeas
Sample Matrix:	Soil
Lab #:	B3488
Client ID:	AMW-4, 20.5'-21'

Date:	03/24/95
Date Received:	03/22/95
Date Analyzed:	03/23/95
Dilution Factor:	1

Compound	Concentration		Compound	Concentration	
	Found	MDL		Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	5.3	0.5 ppb
Chloroform	ND	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	ND	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

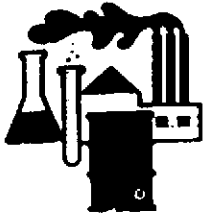
Surrogate	Recovery (%)
4-Bromofluorobenzene	100

1. PQL = Detection Limit x Dilution Factor
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #B3488 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.


 Michael N. Golden, Lab Director

DF=Dilution Factor
 MDL=Method Detection Limit

PQL=Practical Quantitation Limit
 ND=None Detected at or above PQL



Hull Development Labs, Inc.

Organic Analysis Worksheet: EPA Method #8010

Sample ID:	Augeas
Sample Matrix:	Soil
Lab #:	B3489
Client ID:	AMW-4, 25.5'-26'

Date:	03/24/95
Date Received:	03/22/95
Date Analyzed:	03/23/95
Dilution Factor:	1

Compound	Concentration Found	MDL	Compound	Concentration Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	ND	0.5 ppb
Chloroform	ND	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	21	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

Surrogate	Recovery (%)
4-Bromofluorobenzene	83

1. PQL = Detection Limit x Dilution Factor
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #B3489 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL

QUALITY CONTROL RESULTS SUMMARY
VOLATILE ORGANICS ANALYSIS

QC sample No.: BLANK SPIKE & DUP Date analyzed: 03-22-94

Matrix: WATER

Units: ug/L

Dilution factor: 1

COMPOUND	SA	SR	MS	MS	MSD	MSD	RPD	QC LIMITS	
	ug/L	ug/L	ug/L	PR	ug/L	PR		(ADVISORY) RPD	PR
BENZENE	20	0	20	100	20	100	0	25	50-150
CHLOROBENZENE	20	0	20	100	19	95	5	25	50-150
1,1-DCA	20	0	20	100	20	100	0	25	50-150
TOLUENE	20	0	20	100	20	100	0	25	50-150
TCB	20	0	20	100	18	90	11	25	50-150

MS = Spike sample
MSD = Spike sample duplicate
SR = Sample result
SA = Spike added

NC = Not calculated

** = Out of limits

$$RPD = 100 \times (MS - MSD) / ((MS + MSD) / 2)$$

$$PR = 100 \times ((MS \text{ or } MSD) - SR) / SA$$



AUGEAS CORPORATION
 780 PURISSIMA
 HALF MOON BAY, CALIFORNIA 94019
 (415) 726-7700
 (415) 726-1217 (FAX)

Chain of Custody

Page 1 of 1

• PLEASE PRINT IN PEN

Client	Richard Gilcrease		Contact	Charles Conway	Phone #	726-7700	FAX #	(415) 726-1217
Address	City		State	Zip				
Project Name/Number	Young's Cleaners				Project MGR	Charles Conway		
Bill (if different than above)	Address		780 Purissima St					
Sampler (Print and sign)	Charles Conway		Due Date	3/24	Circle for RUSH*	Copies To:		Auth. Init.

Sample Description	Date/Time Coll'd	*Matrix	# of Containers	Pres.	Filt. y/n	* Subject to Availability Analysis	Remarks	Lab ID #
AMW-4, 5.5'-6'	3-22-95 9:37	S	1	no	no	EPA 8010	B3485	
AMW-4, 10.5'-11'	3-22-95 9:48	S	1	no	no	EPA 8010	B3486	
AMW-4, 15.5'-16'	3-22-95 10:03	S	1	no	no	EPA 8010	B3487	
AMW-4, 20.5'-21'	3-22-95 10:15	S	1	no	no	EPA 8010	B3488	
AMW-4, 25.5'-26'	3-22-95 10:40	S	1	no	no	EPA 8010	B3489	
AMW-4	3-22-95 11:25	W	2	Y	N	EPA 8010	B3490	

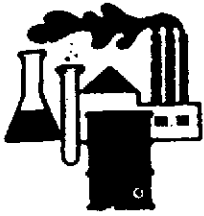
Relinquished By	Date/Time	Received By	Relinquished By	Date/Time	Received By
Charles Conway	3-22-95 10:15	Vic #614	Vic #614		

FOR LAB USE ONLY

Shipping Method	Shipping #	Received By	Date/Time	Condition (See Remarks)		
aero		Shellie Weeks	3/22/95 1738	Cold	Sealed	Intact

REMARKS

- * Matrix:
- DW - Drinking Water
 - WW - Wastewater
 - GW - Groundwater
 - SW - Surface Water
 - IM - Impinger
 - FI - Filter
 - FP - Free Product
 - AG - Air/Gas
 - SL - Sludge/Soil/Solid
 - OT - Other



Hull Development Labs, Inc.

Attn: Charles Conway
Augeas Corporation
780 Purissima
Half Moon Bay, CA 94019

Date:	03/27/95
Date Received:	03/23/95
Date Analyzed:	03/23/95
Lab #:	See Table
Project Name:	Youngs Cleaners
Sampled By:	Charles Conway

Certified Analytical Report

Soil Sample Analysis:

Sample ID	Sample Date	Sample Time	Lab #	Purgeable Halocarbons
AMW-5, 5.5'-6'	03/22/95	1444	B3514	2.3
AMW-5, 10.5'-11'	03/22/95	1455	B3515	1.2
AMW-5, 15.5'-16'	03/22/95	1504	B3516	1.6
AMW-5, 20.5'-21'	03/22/95	1522	B3517	1.4
AMW-5, 25.5'-26'	03/22/95	1531	B3518	1.5
AMW-5, 30.5'-31'	03/22/95	1558	B3519	1.2
B-8, 5.5'-6'	03/23/95	1120	B3520	ND

1. Above values in $\mu\text{g}/\text{kg}$ (ppb)
2. See Organic Analysis Work Sheets for individual compounds, detection limits and analysis dates.
3. Analysis performed by Hull Development Labs, Inc. (CAELAP # 1369).

Test Methods:

Test	EPA Method #	Units	Method Detection Limit
Purgeable Halocarbons	8010	$\mu\text{g}/\text{kg}$	See Work Sheets

Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL



Hull Development Labs, Inc.

Attn: Charles Conway
Augeas Corporation
780 Purissima
Half Moon Bay, CA 94019

Date:	03/27/95
Date Received:	03/23/95
Date Analyzed:	03/24/95
Lab #:	See Table
Project Name:	Youngs Cleaners
Sampled By:	Charles Conway

Certified Analytical Report

Water Sample Analysis:

Sample ID	Sample Date	Sample Time	Lab #	Purgeable Halocarbons
B-8	03/23/95	1110	B3521	1.1
AMW-5	03/22/95	1630	B3522	1.2

1. Above values in $\mu\text{g/liter}$ (ppb)
2. See Organic Analysis Work Sheets for individual compounds, detection limits and analysis dates.
3. Analysis performed by Hull Development Labs, Inc. (CAELAP # 1369).

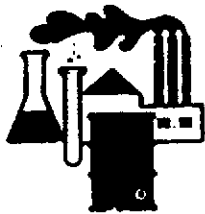
Test Methods:

Test	EPA Method #	Units	Method Detection Limit
Purgeable Halocarbons	8010	$\mu\text{g/liter}$	See Work Sheets

Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL



Hull Development Labs, Inc.

Organic Analysis Worksheet: EPA Method #8010

Client:	Augeas
Sample Matrix:	Soil
Lab #:	B3514
Sample ID:	AMW-5, 5.5'-6'

Date:	03/27/95
Date Received:	03/23/95
Date Analyzed:	03/23/95
Dilution Factor:	1

Compound	Concentration Found	MDL	Compound	Concentration Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	1.1	0.5 ppb
Chloroform	1.2	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	ND	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

Surrogate	Recovery (%)
4-Bromofluorobenzene	100

1. PQL = Detection Limit x Dilution Factor
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #B3514 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL



Hull Development Labs, Inc.

Organic Analysis Worksheet: EPA Method #8010

Client:	Augeas
Sample Matrix:	Soil
Lab #:	B3515
Sample ID:	AMW-5, 10.5'-11'

Date:	03/27/95
Date Received:	03/23/95
Date Analyzed:	03/23/95
Dilution Factor:	1

Compound	Concentration Found	MDL	Compound	Concentration Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	ND	0.5 ppb
Chloroform	1.2	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	ND	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

Surrogate	Recovery (%)
4-Bromofluorobenzene	92

1. PQL = Detection Limit x Dilution Factor
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #B3515 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.

Michel N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL



Hull Development Labs, Inc.

Organic Analysis Worksheet: EPA Method #8010

Client:	Augeas
Sample Matrix:	Soil
Lab #:	B3516
Sample ID:	AMW-5, 15.5'-16'

Date:	03/27/95
Date Received:	03/23/95
Date Analyzed:	03/23/95
Dilution Factor:	1

Compound	Concentration Found	MDL	Compound	Concentration Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	ND	0.5 ppb
Chloroform	1.6	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	ND	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

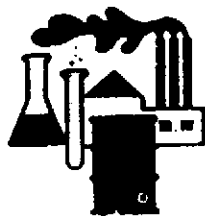
Surrogate	Recovery (%)
4-Bromofluorobenzene	92

1. PQL = Detection Limit x Dilution Factor
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #B3516 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL



Hull Development Labs, Inc.

Organic Analysis Worksheet: EPA Method #8010

Client:	Augeas
Sample Matrix:	Soil
Lab #:	B3517
Sample ID:	AMW-5, 20.5'-21'

Date:	03/27/95
Date Received:	03/23/95
Date Analyzed:	03/23/95
Dilution Factor:	1

Compound	Concentration Found		Compound	Concentration Found	
	Found	MDL		Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	ND	0.5 ppb
Chloroform	1.4	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	ND	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

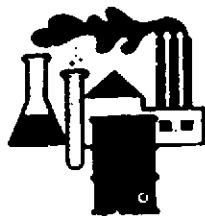
Surrogate	Recovery (%)
4-Bromofluorobenzene	83

1. PQL = Detection Limit x Dilution Factor
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #B3517 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL



Hull Development Labs, Inc.

Organic Analysis Worksheet: EPA Method #8010

Client:	Augeas
Sample Matrix:	Soil
Lab #:	B3518
Sample ID:	AMW-5, 25.5'-26'

Date:	03/27/95
Date Received:	03/23/95
Date Analyzed:	03/23/95
Dilution Factor:	1

Compound	Concentration Found	MDL	Compound	Concentration Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	ND	0.5 ppb
Chloroform	1.5	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	ND	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

Surrogate	Recovery (%)
4-Bromofluorobenzene	92

1. PQL = Detection Limit x Dilution Factor
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #B3518 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL



Hull Development Labs, Inc.

Organic Analysis Worksheet: EPA Method #8010

Client:	Augeas
Sample Matrix:	Soil
Lab #:	B3519
Sample ID:	AMW-5, 30.5'-31'

Date:	03/27/95
Date Received:	03/23/95
Date Analyzed:	03/23/95
Dilution Factor:	1

Compound	Concentration Found	MDL	Compound	Concentration Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	ND	0.5 ppb
Chloroform	1.2	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	ND	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

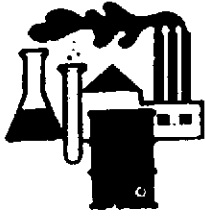
Surrogate	Recovery (%)
4-Bromofluorobenzene	77

1. PQL = Detection Limit x Dilution Factor
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #B3519 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL



Hull Development Labs, Inc.

Organic Analysis Worksheet: EPA Method #8010

Client:	Augeas
Sample Matrix:	Soil
Lab #:	B3520
Sample ID:	B-8, 5.5'-6'

Date:	03/27/95
Date Received:	03/23/95
Date Analyzed:	03/23/95
Dilution Factor:	1

Compound	Concentration		Compound	Concentration	
	Found	MDL		Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	ND	0.5 ppb
Chloroform	ND	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	ND	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

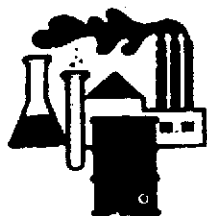
Surrogate	Recovery (%)
4-Bromofluorobenzene	50

1. PQL = Detection Limit x Dilution Factor
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #B3520 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL



Hull Development Labs, Inc.

Organic Analysis Worksheet: EPA Method #8010

Client:	Augeas
Sample Matrix:	Water
Lab #:	B3521
Sample ID:	B-8

Date:	03/27/95
Date Received:	03/23/95
Date Analyzed:	03/23/95
Dilution Factor:	1

Compound	Concentration Found	MDL	Compound	Concentration Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	1.1	0.5 ppb
Chloroform	ND	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	ND	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

Surrogate	Recovery (%)
4-Bromofluorobenzene	83

1. PQL = Detection Limit x Dilution Factor
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #03/23/95 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL

Hull Development Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Organic Analysis Worksheet: EPA Method #8010

Client:	Augeas
Sample Matrix:	Water
Lab #:	B3522
Sample ID:	AMW-5

Date:	03/27/95
Date Received:	03/23/95
Date Analyzed:	03/24/95
Dilution Factor:	1

Compound	Concentration Found	MDL	Compound	Concentration Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	1.2	0.5 ppb
Chloroform	ND	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	ND	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

Surrogate	Recovery (%)
4-Bromofluorobenzene	110

1. PQL=Dilution Factor x MDL
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #B3522 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.



Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL

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 780 PURISSIMA
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 (415) 726-7700
 (415) 726-1217 (FAX)

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Client <u>Richard Gilcrease</u>	Contact <u>Charles Conway</u>	Phone # <u>(415) 726-7700</u>	FAX # <u>(415) 726-1217</u>
Address <u>14</u> City _____ State _____ Zip _____		Project MGR _____	
Project Name/Number <u>Young's (Corporate)</u>		Address _____	
Bill (If different than above) <u>Augeas</u>		Due Date _____	
Sampler (Print and sign) <u>Charles Conway</u>		Circle for RUSH* <u>(S)</u>	Copies To: _____
		Auth. Init. _____	

Sample Description	Date/Time Coll'd	*Matrix	# of Containers	Pres.	Filt. y/n	* Subject to Availability Analysis	Remarks	Lab ID #
AMW-5, 5.5'-6'	3-22-95 14:44	S	1	n		LDA 8010		B3514
AMW-5, 10.5'-11'	3-22-95 14:55	S	1	n		LDA 8010		B3515
AMW-5, 15.5'-16'	3-22-95 15:09	S	1	n		LDA 8010		B3516
AMW-5, 20.5'-21'	3-22-95 15:22	S	1	no		LDA 8010		B3517
AMW-5, 25.5'-26'	3-22-95 15:31	S	1	no		LDA 8010		B3518
AMW-5, 30.5'-31'	3-22-95 15:58	S	1	no		LDA 8010		B3519
AMW-5	3-22-95 16:30	W	1	y	n	LDA 8010	NOT: Analyze H1, NOT H2 (C)	B3522

Relinquished By	Date/Time	Received By	Relinquished By	Date/Time
<u>Charles Conway</u>	3-23-95 12:37	<u>[Signature]</u>	<u>[Signature]</u>	3-23-95 2:13

FOR LAB USE ONLY

Shipping Method	Shipping #	Received By	Date/Time	Condition (See Remarks)			
<u>air</u>		<u>Shella Weeks</u>	3/23/95 1413	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">Cold <input checked="" type="checkbox"/></td> <td style="width:33%;">Sealed <input checked="" type="checkbox"/></td> <td style="width:33%;">Intact <input checked="" type="checkbox"/></td> </tr> </table>	Cold <input checked="" type="checkbox"/>	Sealed <input checked="" type="checkbox"/>	Intact <input checked="" type="checkbox"/>
Cold <input checked="" type="checkbox"/>	Sealed <input checked="" type="checkbox"/>	Intact <input checked="" type="checkbox"/>					
REMARKS _____							

- * Matrix:
- DW - Drinking Water
 - WW - Wastewater
 - GW - Groundwater
 - SW - Surface Water
 - IM - Impinger
 - FI - Filter
 - FP - Free Product
 - A/G - Air/Gas
 - SL - Sludge/Soil/Solid
 - OT - Other _____



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 (415) 726-1217 (FAX)

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Client	Youngs Cleanoff / Richard Gilcrease		Contact	C. Conway		Phone #	(415) 726-7600		FAX #	(415) 726-7617		
Address	City		State			Zip						
Project Name/Number							Project MGR	C. Conway				
Bill (If different than above)	Augeas		Address									
Sampler (Print and sign)	Charles Conway		Charles Conway		Due Date	Circle for RUSH*		Copies To:	Auth. Init.			

Sample Description	Date/Time Coll'd	*Matrix	# of Containers	Pres.	Filt. y/n	* Subject to Availability Analysis	Remarks	Lab ID #
B-8	3/20-23-95	S	1	n	n	EPA 801D		B3520
AB-6 5.5'-6'	11:20	S	1	n	n	EPA 801D		B3520
AB-6 B-8	3/24-23-95	W	1	y	n	EPA 801D		B3521
	11:10							

Relinquished By	Date/Time	Received By	Relinquished By	Date/Time	Received By
Charles Conway	3-23-95 12:37	[Signature]	[Signature]	3-23-95 2:14	

FOR LAB USE ONLY

Shipping Method	Shipping #	Received By	Date/Time	Condition (See Remarks)		
aero		Alvin Wick	3/23/95 1414	Cold	Sealed	Intact
REMARKS						

- * Matrix:
- DW - Drinking Water
 - WW - Wastewater
 - GW - Groundwater
 - SW - Surface Water
 - IM - Impinger
 - FI - Filter
 - FP - Free Product
 - A/G - Air/Gas
 - SL - Sludge/Soil/Solid
 - OT - Other

Hull Development Labs, Inc.

CA ELAP# 1369

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Attn: Charles Conway
Augeas Corporation
780 Purissima
Half Moon Bay, CA 94019

Date:	5/23/95
Date Received:	5/16/95
Date Analyzed:	5/18/95
Project:	Young's Cleaner
Sampled By:	Wendy Schrader

Certified Analytical Report

Water Sample Analysis:

Sample ID	Sample Date	Sample Time	Lab #	Purgeable Halocarbons
Trip Blank	5/15/95	9:30	B5175	ND
AMW-4	5/15/95	12:10	B5173	2,400
AMW-5	5/15/95	2:00	B5174	1.2

1. $PQL = DF \times MDL$
2. See Organic Analysis Worksheet for individual compounds, detection limits, and analysis date
3. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)

Test Methods:

Test	EPA Method #	Units	MDL
Purgeable Halocarbons	8010	µg/liter	See Worksheets


Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL

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Organic Analysis Worksheet: EPA Method #8010

Client:	Augeas
Sample Matrix:	Water
Lab #:	B5173
Sample ID:	AMW-4

Date:	5/23/95
Date Received:	5/16/95
Date Analyzed:	5/18/95
Dilution Factor:	100

Compound	Concentration Found	MDL	Compound	Concentration Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	2,400	0.5 ppb
Chloroform	ND	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	ND	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

Surrogate	Recovery (%)
4-Bromofluorobenzene	100

1. PQL= Detection Limit x Dilution Factor
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #B5173 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.

Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL

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Organic Analysis Worksheet: EPA Method #8010

Client:	Augeas
Sample Matrix:	Water
Lab #:	B5174
Sample ID:	AMW-5

Date:	5/23/95
Date Received:	5/16/95
Date Analyzed:	5/18/95
Dilution Factor:	1

Compound	Concentration Found	MDL	Compound	Concentration Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	1.2	0.5 ppb
Chloroform	ND	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	ND	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

Surrogate	Recovery (%)
4-Bromofluorobenzene	120

1. PQL= Detection Limit x Dilution Factor
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #B5174 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.



Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL

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Organic Analysis Worksheet: EPA Method #8010

Client:	Augeas
Sample Matrix:	Water
Lab #:	B5175
Sample ID:	Trip Blank

Date:	5/23/95
Date Received:	5/16/95
Date Analyzed:	5/18/95
Dilution Factor:	1

Compound	Concentration Found	MDL	Compound	Concentration Found	MDL
Bromodichloromethane	ND	0.5 ppb	trans-1,2-Dichloroethene	ND	0.5 ppb
Bromoform	ND	1.0 ppb	1,2-Dichloropropane	ND	0.5 ppb
Bromomethane	ND	1.0 ppb	cis-1,3-Dichloropropene	ND	0.5 ppb
Carbon Tetrachloride	ND	0.5 ppb	trans-1,3-Dichloropropene	ND	0.5 ppb
Chlorobenzene	ND	0.5 ppb	Methylene Chloride	ND	0.5 ppb
Chloroethane	ND	1.0 ppb	1,1,2,2-Tetrachloroethane	ND	0.5 ppb
2-Chloroethyl Vinyl Ether	ND	0.5 ppb	Tetrachloroethene	ND	0.5 ppb
Chloroform	ND	0.5 ppb	1,1,1-Trichloroethane	ND	0.5 ppb
Chloromethane	ND	1.0 ppb	1,1,2-Trichloroethane	ND	0.5 ppb
Dibromochloromethane	ND	0.5 ppb	Trichloroethene	ND	0.5 ppb
Dichlorodifluoromethane	ND	0.5 ppb	Trichlorofluoromethane	ND	0.5 ppb
1:2 Dichlorobenzene	ND	0.5 ppb	Vinyl Chloride	ND	1.0 ppb
1:3 Dichlorobenzene	ND	0.5 ppb			
1:4 Dichlorobenzene	ND	0.5 ppb			
1,1-Dichloroethane	ND	0.5 ppb			
1,2-Dichloroethane	ND	0.5 ppb			
1,1-Dichloroethene (cis)	ND	0.5 ppb			

Surrogate	Recovery (%)
4-Bromofluorobenzene	99

1. PQL= Detection Limit x Dilution Factor
2. Analysis performed by Hull Development Labs, Inc. (CAELAP #1369)
3. This worksheet is an integral part of the Certified Analytical Report for Lab #B5175 and should not be reproduced except in full without the written consent of Hull Development Labs, Inc.



Michael N. Golden, Lab Director

DF=Dilution Factor
MDL=Method Detection Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above PQL



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 (415) 726-7700
 (415) 726-1217 (FAX)

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Client	YOUNG'S CLEANERS		Contact			Phone #	() ()		FAX #	() ()	
Address	10700 MacArthur Blvd			City	Oakland		State	CA		Zip	
Project Name/Number							Project MGR	C. CONWAY			
Bill (If different than above)	Address						5-DAY TURNAROUND				
Sampler (Print and sign)	Wendy Schrader <i>W Schrader</i>			Due Date			Circle for RUSH*	Copies To:		Auth. Init.	

Sample Description	Date/Time Coll'd	*Matrix	# of Containers	Pres.	Filt. y/n	* Subject to Availability Analysis	Remarks	Lab ID #
TRIP BLANK	5.15.95 9:30	W	2	HCC	/	EPA 8010	BS175	
Amw-4	5.15.95 12:10	W	2	HCC	/	↓	BS173	
Amw-5	5.15.95 2:00	W	2	HCC			BS174	

Relinquished By	Date/Time	Received By	Relinquished By	Date/Time	Received By
<i>W Schrader</i>	5-16-95 11:14	<i>Charles Conway</i>	<i>Charles Conway</i>	5-16-95 3:22 PM	<i>Shellic Weeks</i>

FOR LAB USE ONLY

Shipping Method	Shipping #	Received By	Date/Time	Condition (See Remarks)		
				Cold	Sealed	Intact
REMARKS _____						

- * Matrix:
- DW - Drinking Water
- WW - Wastewater
- GW - Groundwater
- SW - Surface Water
- IM - Impinger
- FI - Filter
- FP - Free Product
- A/G - Air/Gas
- SL - Sludge/Soil/Solid
- OT - Other