1252 Quarry Lane P.O. Box 9019 Pleasanton, CA 94566 (510) 426-2600 Fax (510) 426-0106



July 17, 1992

Clayton Project No. 40739.01

Dr. Ravi Arulanantham Hazardous Materials Specialist ALAMEDA COUNTY HEALTH CARE SERVICES 80 Swan Way, Suite 200 Oakland, California 94303

Subject:

Workplan Addendum for Busick Air Conditioning located at 6341 Scarlett Court, Dublin, California

Dear Dr. Arulanantham:

This letter responds to your telephone conversation with Mr. Alan D. Gibbs requesting additional information about the proposed work recommended for the subject site (Figure 1).

On April 10, 1992, Clayton installed three additional monitoring wells (MW-3, MW-4, and MW-5) at the subject site (Figure 2). Laboratory results are summarized in Table 1, and well construction details are summarized in Tables 2 and 3. Table 4 summarizes laboratory data from previously installed monitoring wells (MW-1, MW-2 and MW-3). Additional information is supplied in Appendix A through F for your review. A more detailed report will be prepared upon completion of the subsurface investigation.

The groundwater flow direction at the site is calculated to have a south to southwest flow direction, based on the well survey shown in Appendix A.

Samples from the newly installed downgradient monitoring wells were found to contain chlorinated solvents (trichloroethene and CIS-1,2 dichloroethene) which exceed the regulatory guidelines for drinking water standards.

Clayton proposes to install an additional three monitoring wells downgradient to further define the downgradient extent of solvent migration in the site's groundwater. These proposed wells are approximately located in Figure 2.

SCOPE OF WORK

Task 1: Drum Disposal

Clayton will coordinate the disposal of the existing 31 drums currently onsite.

40739-01.17



Dr. Ravi Arulanantham Alameda County Health Care Services July 17, 1992 Page 2 Clayton Project No. 40739.01

Eighteen of these drums contain soil and thirteen contain well purge water. Upon completion of the drum disposal, Clayton will provide you with a letter to confirm that the drums were disposed of properly.

Clayton understands that the Alameda County Health Care Services (ACHCS) will allow the evaporation of 13 well purge water drums as a means of disposal.

Task 2: Installation and Sampling of Three Additional Monitoring Wells

Clayton will install an additional three monitoring wells utilizing the protocol outlined as approved in our original work plan submitted to the ACHCS on October 31, 1990.

Groundwater from the new wells and the existing wells will be sampled and analyzed by EPA Method 601/602 for combined purgeables. A licensed land surveyor will survey the locations of the three new monitoring wells.

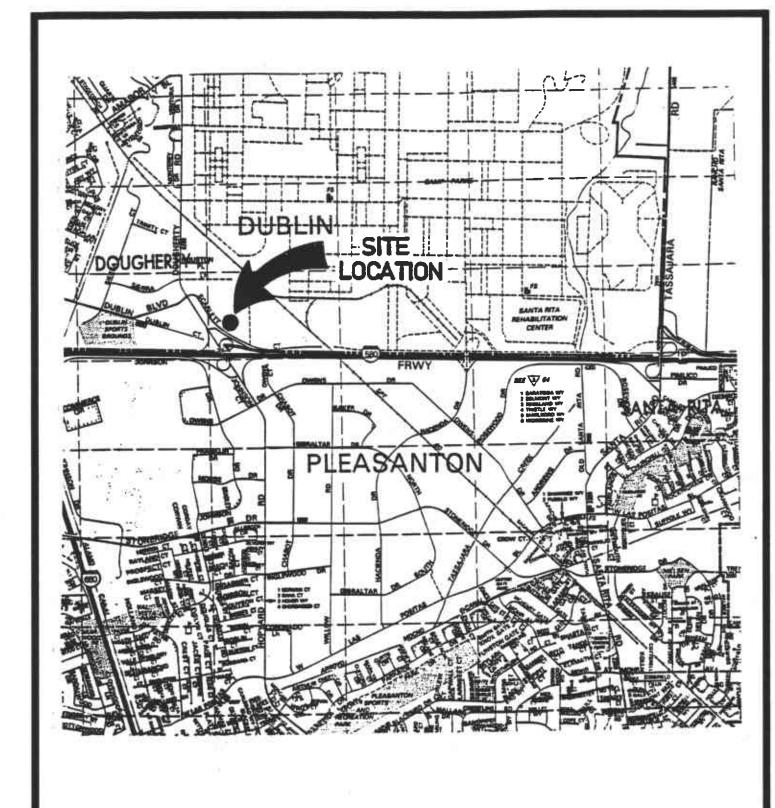
We would appreciate your earliest review and recommendations regarding our work plan for the subject site. If you have any questions, please call the at (510) 426-2676, or Richard Silva at (510) 426-2670.

Sincerely,

Alan D. Gibbs, R.G. Supervisor, Geology Western Operations

ADG/kls Enclosures

cc: Doreen Green



(8)

Site Location Map BUSICK AIR 6341 Scarlett Court Dublin, California

Clayton Project No. 40739.00

Figure

1

Clayton ENVIRONMENTAL CONSULTANTS

40739-00-16

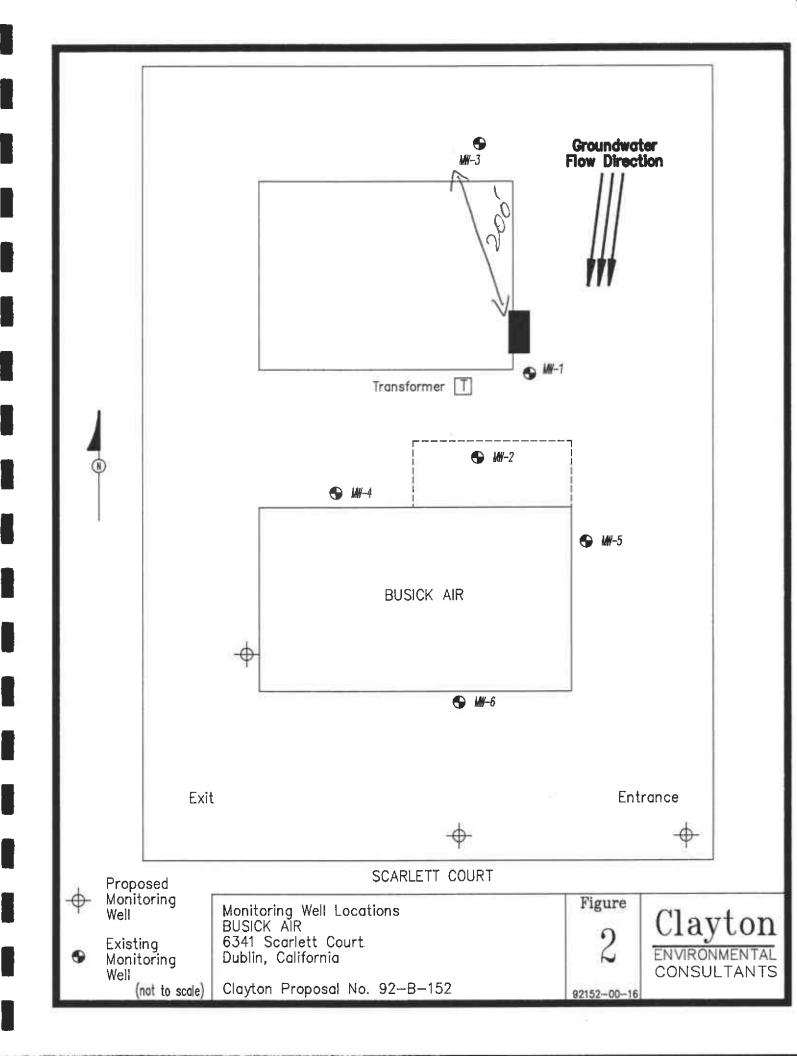


Table 1

Summary of Groundwater Analytical Results for Samples Collected April 20, 1992

at
Busick Air Conditioning
6341 Scarlett Court
Dublin, California

Compound	MW-4 (ppb)	MW-5 (ppb)	MW-6 (ppb)	Regulatory Guidelines
Trichloroethene	18	7.5	41	51
Cis-1,2-dichloroethene	0.5	<0.4	<0.4	6²

Table Notes

ppb = Parts per billion

< 0.4 = Not detected at or above limit of detection

¹ = MCL for drinking water standards (DHS)

² = California DHS action levels

Regulatory guidelines are taken from Jon B. Marshack's "A Compilation of Water Quality Goals, October 1990."

Table 2

Well Construction Details
for
Monitoring Wells Located at
Busick Air Conditioning
6341 Scarlett Court
Dublin, California
April 20, 1992

Well Number	Total Depth (feet bgs)	Top of Screened Interval (feet bgs)	Diameter (inches)
MW-4	14.94	4.0	4
MW-5	14.40	4.0	4
MW-6	14.21	4.0	4

bgs = below ground surface



Table 3

Depth to Groundwater and Groundwater Elevations on September 4, 1991

Busick Air Conditioning 6341 Scarlett Court Dublin, California

Monitoring Well	Surface Elevation of Well Casing (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)
MW-4	325.09	4.40	320.69
MW-5	325.12	4.40	320.72
MW-6	324.55	4.12	320.43

Well elevations are surveyed on the north sides of the PVC casing

Surveyed to mean sea level by licensed land surveyor, Bruce T. Tronoff

Table 4

Summary of Groundwater Analytical Results for Busick Air Conditioning 6341 Scarlett Court Dublin, California

November 1990 to February 1992

	Monitoring Well MW-1 (ppb)		Monitoring Well MW-2 (ppb)		Monitoring Well MW-3 (ppb)		Regulatory
Chemical Constituent	11/90	2/92	7/91	2/92	7/91	2/92	Guidelines (ppb)
1,1-dichloroethene	<100	<20	<100	<200	9.4	11	6 ⁽¹⁾
1,1-dichloroethane	<200	<40	<200	<400	1.0	0.7	5 ⁽²⁾
Trans-1,2-dichloroethene	<200	250	<200	<400	< 0.4	<0.4	10(2)
Cis-1,2-dichloroethene	4,400	4,300	1,400	2,200	<0.4	<0.4	6(2)
1,2-dichloroethane	<200	<30	<200	<300	<0.3	<0.3	0.5(3)
Trichloroethene	10,000	7,300	27,000	56,000	<0.3	<0.3	5 ⁽³⁾
Tetrachloroethene	<300	<50	500	600	<0.5	<0.5	5(1)

Table Notes

<0.2 = detection limits

ppb = parts per billion which is approximately equal to micrograms per liter (µg/L)

(1) Maximum Contaminant Level (MCL) for Drinking Water Standards (EPA & DHS)

(2) California State Action Levels (DHS)

(3) MCL for Drinking Water Standards (DHS)

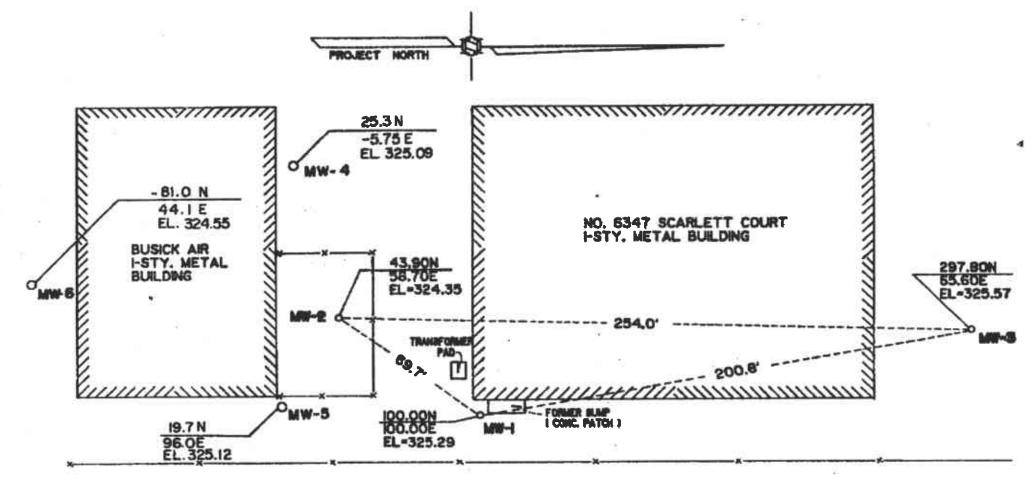
Regulatory Guidelines are taken from Jon B. Marshack's, A Compilation of Water Quality Goals, October 1990.





APPENDIX A

SURVEYED SITE MAP



LEW DOTY CADILLAC

NOTES :

- I. VERTICAL DATUM MEAN SEA LEVEL.
- 2, ELEVATIONS ARE ON NORTH SIDE PVC CASING.

REVISIONS:

- L 05/19/92 ADDED MW'S 4,5 & 6.
- 2.06/02/92-MW-6.

MONITORING WELL LOCATION
BUSICK AIR
634I SCARLETT COURT
DUBLIN, CALIFORNIA

FOR

CLAYTON ENVIRONMENTAL CONSULTANTS

84

BRUCE T. TRONOFF - LAND SURVEYOR

516 HUBBLE STREET 1916) 758-4589

DAVIS, CA. 95616

SCALE 1'-40

AUGUST 28, 1991



APPENDIX B

MONITORING WELL CONSTRUCTION PERMIT AND SCHEMATIC FOR MW-4, MW-5, AND MW-6



GNATURE

Thomas Meichtry

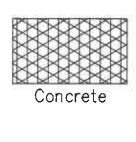
Manager

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE

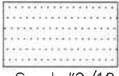
DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE	FOR OFFICE USE
LOCATION OF PROJECT 6341 Scarlett Court Dublin, California	PERMIT NUMBER 92159 LOCATION NUMBER
CLIENT Name Busick Air Conditioning Address 6341 Scarlett Ct.Phone (510) 828-1780	PERMIT CONDITIONS
City Dublin, CA Zip 94568	Circled Permit Requirements Apply
APPLICANT Name Clayton Environmental Consultants Address P.O. Box 9019 Phone (510) 426-2676 City Pleasanton, CA Zip 94566 TYPE OF PROJECT Well Construction Geotechnical investigation Cathodic Protection General Water Supply Contamination X	 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.
PROPOSED WATER SUPPLY WELL USE Domestic Industrial Other Municipal Irrigation PRILLING METHOD: Mud Rotary Air Rotary Auger XX Cable Other	3. Permit is void if project not begun within 90 days of approval date. B. WATER WELLS, INCLUDING PIEZOMETERS I. 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
WELL PROJECTS Drill Hole Diameter 10 in. Maximum Casing Diameter 4 in. Depth 15 ft. Surface Seal Depth 4 ft. Number 3	or 20 feet. 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. D. CATHODIC. Fill hole above anode zone with concrete
Number of Borings Maximum Hole Diameter in. Depth ft. ESTIMATED STARTING DATE ESTIMATED COMPLETION DATE ESTIMATED COMPLETION DATE April 10, 1992	placed by tremie. E. WELL DESTRUCTION. See attached.
hereby agree to comply with all requirements of this	Approved Wyman Hong Date 6 Apr 92





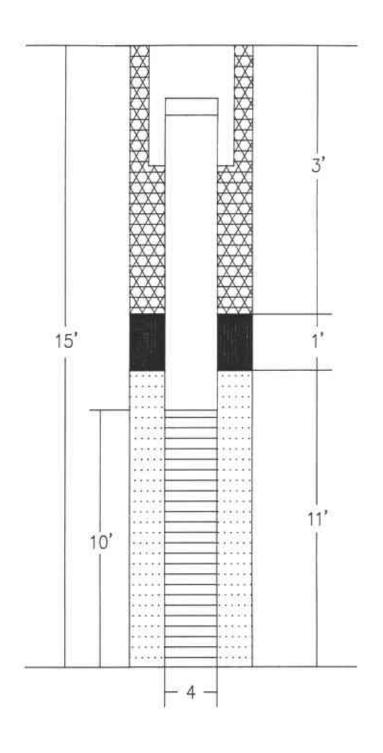
Bentonite



Sand #2/12



0.01" Slotted Screen



Monitoring Well Diagram (MW-4, MW-5, MW-6) BUSICK AIR 6341 Scarlett Court Dublin, California

Clayton Project No. 40739.00

Figure

4

Clayton ENVIRONMENTAL CONSULTANTS

40739-00-19

APPENDIX C

CLAYTON'S DRILLING, WELL CONSTRUCTION, AND SAMPLING PROTOCOLS

DRILLING, WELL CONSTRUCTION, AND SAMPLING PROTOCOLS FOR BOREHOLE/MONITORING WELL INSTALLATION

BOREHOLE INSTALLATION

Clayton Environmental Consultants, Inc. acquires the proper governmental agency permits to bore, drill, or destroy all proposed boreholes and monitoring wells that intersect with groundwater aquifers and writes a health and safety plan.

Clayton subcontracts only with drillers who possess a current C-57 water well contractor's license issued by the State of California and whose personnel have attended the OSHA 40-hour Hazardous Materials Safety Training. Prior to starting work, a "tailgate" safety meeting including discussion of the safety hazards and precautions relevant to the particular job will be held with all personnel working on the job. Well drillers are identified on permit applications.

Borings are drilled dry by hollow- or solid-stem, continuous flight augers. Augers, drill rods, and other working components of the drilling rig are steam-cleaned before arriving onsite to prevent the introduction of contaminants. These components are also steam-cleaned between borings away from boring locations. Cleaned augers, rods, and other components are stored, and/or covered when not in use.

Our bore logs include a detailed description of subsurface stratigraphy. Clayton examines the soil brought to the surface by drilling operations, and samples undisturbed soil every 5 feet or as otherwise specified. Soil cuttings are screened for hydrocarbon contamination using a photoionization detector. Boring logs are filled out in the field by a professional geologist, civil engineer, engineering geologist who is registered by the State of California, or a technician who is trained and working under the supervision of one of the previously mentioned persons, using the Unified Soil Classification System.

SOIL SAMPLING

Soil samples are taken every 5 feet, at areas of obvious contamination, or as otherwise specified, with a California modified split-spoon sampler that is lined with three six-inch brass tubes. The sampler and rod are inserted into the borehole to the current depth and a hammer of known weight and height above the sampler are allowed to free-fall onto the rod, advancing the assembly 18 inches into undisturbed soil. Clayton uses the number of blows necessary to drive the sampler into the ground to help evaluate the consistency of materials encountered. The sampler is then pulled from the borehole and disassembled, and the three brass tubes are separated for inspection and labeling.

Clayton uses new brass liners or liners cleaned with a trisodium phosphate (TSP) solution, double rinsed with clean tap water, and air dried prior to each sampling. The sampler is also

protocol.rep 1

cleaned with TSP and rinsed with tap water between sampling events.

Soil samples selected for laboratory analysis are left in the brass liners, sealed with aluminum foil and plastic caps, taped for air tightness, labeled, and immediately placed into a pre-cooled ice chest chilled to less than 4°C. Labels contain the following information: site name, date and time sampled, borehole number and depth, and the sampler's initials. The samples are transported under chain-of-custody to a state-certified laboratory. The laboratory analyzes soil samples within the prescribed holding time, storing them at temperatures below 4°C at all times.

Pending results of laboratory analysis, excess drilling and sampling cuttings are placed into Department of Transportation (DOT)-approved drums, labeled with the name of the site, address, and well number, and left at the site. Uncontaminated soil may be disposed of by the client. Soil found to contain levels of contaminants above local or state action levels will require that the client dispose of it in accordance with hazardous waste regulations. At the client's request, we will assist with the disposal of contaminated soil.

WELL CONSTRUCTION

Boreholes are converted to monitoring wells by placing 2-inch or 4-inch diameter well casing with flush-threaded joints and slotted screen into the borehole. Construction materials include polyvinyl chloride (PVC), stainless steel, or low carbon steel. The most suitable material for a particular installation will depend on the parameters to be monitored. All screens and casings used are in a contaminant-free condition when placed in the ground. No thread lubrication is used, other than teflon tape, for connecting the casing segments.

Wells extend at least 10 feet into the upper saturated zone, but do not extend through any clay layers greater than 5 feet that are below the shallow water table. The standard practice for wells installed at hydrocarbon contamination sites is to construct a well with a 20-foot long perforated interval extending 15 feet below and 5 feet above the water table in an unconfined aquifer. The top of the well is solid casing. The annular space of the borehole is backfilled with washed, kiln-dried sand to a point at least 1 foot above the slotted screen. A seal above the filter pack is formed by placing a 1- to 2-foot layer of bentonite pellets on top of the sand. The bentonite pellets are moistened by pouring clean tap water down the hole so that they can expand and seal the annulus. A neat cement grout is placed above the bentonite seal and brought to the ground surface.

Well casings are protected from surface contamination, accidental damage, and unauthorized entry or tampering with water-tight locking caps on the well casings. The caps are usually surrounded by a concrete vault. Wells are clearly identified with a metal tag or other device where the following information is recorded: well number, depth to water, depth of well, casing data including location of screened interval.

WELL DEVELOPMENT

The well seal in newly developed wells must set up for 48 to 72 hours prior to development. Since development of the well can volatilize contaminants present, the well must also settle for at least 48 to 72 hours between development and the first purging/sampling incident.

protocol.rep 2

All monitoring wells are initially developed to clean the well and stabilize sand, gravel, and disturbed aquifer materials around the screened internal perforations. Wells are developed by pumping (or bailing) and surging until water turbidity and specific conductance stabilize. In some cases, where wells are installed in low permeability formations and the wells purge dry, the well is allowed to recover and is purged dry three times. Clean tap water is introduced into the well if it does not recover rapidly enough.

Pending results by laboratory analysis, purge water from well development and sampling is placed into DOT-approved drums, labeled with the name of the site, address, well number, and left at the site. Uncontaminated water may be disposed of by the client. Water found to contain levels of contaminants above local or state action levels requires that the client dispose of it in accordance with hazardous waste requirements. At the client's request, we can assist with the disposal of contaminated purge water.

GROUNDWATER SAMPLING

To collect a representative sample of the groundwater, stagnant water within the well casing and filter material must be purged and fresh aquifer water allowed to replace it. The water is purged from the well by pumping or bailing at least three well volumes. Well volumes are calculated by measuring depth to groundwater to the nearest 0.01 foot upon arrival at the well before any purging has begun. Groundwater samples are collected only after purging has been of sufficient duration for pH, temperature, and electrical conductivity to stabilize. When purging low-yield wells, the wells are purged to dryness. When the well recovers to 80% of the depth measured upon arrival, samples are collected.

Field sampling logs maintained for each well include:

- Monitoring well identification
- Static water level, before and after pumping
- Well depth
- Condition of water prior to purging (e.g., amount of free product)
- Purge rate and volume
- pH, temperature, and conductivity during purging
- Time purged
- Time of sample collection
- Sampling method
- Name of sampler
- Climatic conditions

Water samples are collected using clean teflon bailers. All equipment that contacts samples is thoroughly cleaned before arrival at the site and between sampling events.

Water is collected in clean laboratory-supplied containers, labeled, placed immediately into an ice chest pre-cooled to 4°C, and transported to Clayton's laboratory for analysis. One trip blank will be furnished in accordance with our quality assurance/quality control (QA/QC) program.

All samples are collected in such a manner so as to minimize the volatilization of a sample due to agitation and/or transfer from bailer to sample container. Samples are collected so

3

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that contaminants most sensitive to volatilization are sampled first.

Preservatives are not added to any sample, unless instructed. If requested, they are supplied by Clayton's laboratory.

All sample containers are labeled in the field. Labels contain the following information: project name, sample identification number, project number, date and time of collection, and sampler's initials.

Under no circumstances are sealed sample containers opened by anyone other than the laboratory personnel who perform the requested analyses. If it is necessary for samples or sample chests to leave the immediate control of the sampler prior to delivery to the laboratory, for example during shipment by Federal Express, a custody seal is placed on each sample container and/or sample chest to ensure that the samples have not been tampered with during transportation. The custody seal is signed by the sampler, and the date and time that the seal was placed is recorded. The elapsed time between sample collection and delivery to the laboratory never exceeds 48 hours. Water samples are not held for more than 14 days prior to analysis and are kept at 4°C at all times.

To document and trace samples from time of collection, a signed chain-of-custody record is filled out by the sampler and accompanies the samples through the laboratory analyses. The completed chain-of-custody is included with the analytical report from the laboratory.

REFERENCES

Groundwater Monitoring Guidelines, Revised February 1990. Alameda County District Groundwater Protection Program.

Leaking Underground Fuel Tank (LUFT) Field Manual: Guidelines for Site Assessment, Cleanup, and Underground Tank Closure, May 1988. State of California LUFT Task Force.

Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks, Revised November 1989. North Coast, San Francisco Bay, and Central Valley regions of the California State Water Quality Control Board.

Standards for the Construction and Destruction of Wells and Other Deep Excavations in Santa Clara County, Revised June 1989. Santa Clara Valley Water District.

4

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APPENDIX D

BOREHOLE LITHOLOGIC LOGS



40739.00 Date: April 10, 1992 BORING NO. Project No.: LOG OF Client: Busick Air MW-4 6341 Scarlett Court, Dublin, California Location: EXPLORATORY BORING Logged By: Driller: West Hazmat R. Silva Sheet 1 of 1 Drilling Method: Continuous-flight, hollow-stem auger Field Location of Boring: Southwest of former UST (see figures). Hole Diameter: 10.5" Casing Installation Data: Screen 15'-5'; solid 5'-0; sand 15'-4'; bentonite 4'-3'; grout 3'-surface Ground Elevation: Datum: Water Level 3.65 4.58 S 1321 Time 1520 A M E PID 4/14/92 4/20/92 Soll Date P Group Liihographic Symbol Symbol OVA T Blow L E DESCRIPTION (uscs) Count (ppm) B Gravel fill, brownish, moist, poorly graded GM1 2 CL Silty clay, very dark gray (7.5 YR 3.0), moist, low plasticity, no odor 3 CLSilty clay, very dark grayish brown (10 YR 3/2), very moist, low plasticity, no odor, 5 ⊽ 6 7 8 CLSilty clay, gravish brown (10 YR 5/2), saturated, low plasticity, no odor 9 10 11 12 13 Silty clay, light brownish gray (10 YR 6/2), saturated, low plasticity, no odor 14 15 Terminate horing at 15', set well at 15'. 16 17 18



BORING NO. Date: April 10, 1992 Project No.: 40739.00 LOG OF MW-5 Busick Air Client: 6341 Scarlett Court, Dublin, California
R. Silva Driller: West Hazmat EXPLORATORY BORING Location: Logged By: R. Silva Sheet 1 of 1 Field Location of Boring: Drilling Method: Continuous-flight, hollow-stem auger Hole Diameter: 10.5" East of main office building and downgradient of former Casing Installation Data: Screen 15'-5'; solid 5'-0; sand 15'-4'; bentonite 4'-3'; grout UST (see figures). Ground Elevation: Water Level 3.82 5.47 1440 1228 Time 胚 PID M 4/20/92 Sell 4/14/92 Date ₽ Group Symbol Lithegraphic Symbol T DESCRIPTION OVA Blow Count H (uscs) (ppm) Gravel fill, brownish, moist, poorly graded GM 1 2 CLSilty clay, very dark gray (7.5 YR 3/0), moist, low plasticity, no odor. 3 4 ⊽ 5 6 Silty clay, very dark grayish brown (10 YR 3/2), very moist, low plasticity, no odor-7 CL8 9 10 11 12 13 Silty clay grayish brown (10 YR 5/2), saturated, low plasticity, no odor 14 CL15 Terminate boring at 15'; set well at 15'. 16 17 18



40739.00 Date: April 10, 1992 BORING NO. Project No.: LOG OF Client: **Busick Air** MW-6 6341 Scarlett Court, Dublin, California Location: EXPLORATORY BORING Driller: West Hazmat Logged By: R. Silva Sheet 1 of 1 Drilling Method: Continuous-flight, hollow-stem auger Field Location of Boring: South of main office building near Scarlett Court (see Hole Diameter: 10.5" Casing Installation Data: Screen 15'-5'; solid 5'-0; sand 15'-4'; bentonite 4'-3'; grout figures). Ground Elevation: 3'-surface 3.74 3.52 Water Level S 1340 1056 Time A M ĸ PID 4/14/92 4/20/92 Soft Date P T Group Line Symbol graphic Symbol DESCRIPTION OVA L Blow Count H E (ppm) (uscs) GM Gravel fill, brownish, moist, poorly graded 1 2 CL Silty clay, very dark gray (7.5 YR 3/0), moist, low plasticity, no odor 3 CLSilty clay very dark grayish brown (10 YR 30), very moist, low plasticity, no odor 5 ∇ 6 7 8 CL Silty clay, grayish brown (10 YR 5/2), saturated, low plasticity, no odor 9 10 11 12 13 14 15 Terminate boring at 15" set well at 15' 16 17 18



APPENDIX E

WATER SAMPLING FIELD SURVEY FORMS

CLAYTON ENVIRONMENTAL CONSULTANTS, INC. WATER SAMPLING FIELD SURVEY FORM

<u>Job No</u>: **40739.00**

Site: Busick Air

Date: April 20, 1992

Well No: MW-4

Sampling Team: R. Silva

Sampling Method: Electric submersible pump for purging; disposable bailer for sampling

Field Conditions: Clear skies, warm, slight breeze, ~65°F

Describe Equipment Decontamination Before Sampling This Well:

Washed with concentrated cleaning solution, steam cleaned, and rinsed with deionized water

Total Depth

of Well: 14.94 ft. Time:

1321

Depth to Water

Before Purging:

4.58 ft.

Volume Height of

<u>2-inch</u>

<u>4-inch</u>

<u>Volume</u>

Purge <u>Factor</u>

<u>To Purge</u>

Water

Column: 10.36 ft.

.16

.65

6.73 gals

4

26.94 gals.

Depth Purging From: 14 ft.

Time Purging Begins: 1332

Notes on Initial Discharge: Brownish, silty, no odor

Time	Volume Parged	pH	Conductivity	T	Comments
1333	10	7.03	415	17.2°C	Brownish, silty, no odor
1335	20	7.06	433	17.2°C	Brownish, silty, no odor
1338	30	7.02	439	17.8°C	Murky, no odor
1340	35	7.00	443	17.8°C	Murky, no odor

CLAYTON ENVIRONMENTAL CONSULTANTS, INC. WATER SAMPLING FIELD SURVEY FORM (CONTINUED)

Time Field Parameter Measurement Begins: 1406

	Rep #1	Rep#2	Rep #3	Rep #4
pН	7.15	7.12	7.06	7.04
Conductivity	434	438	434	430
T°C	17.8	17.8	17.8	17.8

Pre-Sample Collection Gallons Purged:

35

Time Sample Collection Begins:

1400

Time Sample Collection Ends:

1403

Total Gallons Purged:

36

Comments:

CLAYTON ENVIRONMENTAL CONSULTANTS, INC. WATER SAMPLING FIELD SURVEY FORM

<u>Job No</u>: **40739.00**

Site: Busick Air

Date: April 20, 1992

<u>Well No</u>: MW-5

Sampling Team: R. Silva

Sampling Method: Electric submersible pump for purging; disposable bailer for sampling

Field Conditions: Clear skies, warm, slight breeze, ~65°F

Describe Equipment Decontamination Before Sampling This Well:

Washed with concentrated cleaning solution, steam cleaned, and rinsed with deionized water

Total Depth

of Well:

14.40 ft.

Time:

1228

Depth to Water

Before Purging:

5.47 ft.

Volume

Height of Water

Column: 8.93 ft.

<u>2-inch</u>

.16

<u>4-inch</u> .65

5.80 gals

<u>Volume</u>

<u>Factor</u>

To Purge

4

Purge

23.22 gals.

Depth Purging From: 13 ft.

Time Purging Begins: 1243

Notes on Initial Discharge: Brownish, silty, no odor

Time	Volume Purged	pН	Conductivity	T	Comments
1244	5	6.90	557	17.8°C	Brownish, no odor
1245	10	6.91	569	17.8°C	Brownish, no odor
1246	15	6.91	572	17.8°C	Brownish, no odor
1247	20	6.94	561	17.8°C	Brownish, no odor
1248	25	6.87	588	17.8°C	Brownish, no odor

CLAYTON ENVIRONMENTAL CONSULTANTS, INC. WATER SAMPLING FIELD SURVEY FORM (CONTINUED)

Time Field Parameter Measurement Begins: 1307

	Rep #1	Rep #2	Rep #3	Rep #4
рН	6.93	6.94	6.94	6.95
Conductivity	553	554	545	559
T℃	17.8	17.8	17.8	17.8

<u>Pre-Sample Collection Gallons Purged</u>: 25

Time Sample Collection Begins: 1302

Time Sample Collection Ends: 1305

Total Gallons Purged: 26

Comments:

CLAYTON ENVIRONMENTAL CONSULTANTS, INC. WATER SAMPLING FIELD SURVEY FORM

Job No: **40739.00**

Site: Busick Air

Date: April 20, 1992

<u>Well No</u>: **MW-6**

Sampling Team: R. Silva

Sampling Method: Electric submersible pump for purging; disposable bailer for sampling

Field Conditions: Clear skies, warm, windy, ~60°F

Describe Equipment Decontamination Before Sampling This Well:

Washed with concentrated cleaning solution, steam cleaned, and rinsed with deionized water

Total Depth

of Well:

14.21 ft.

Time:

1056

Depth to Water

Before Purging:

3.52 ft.

Volume

Height of

<u> 2-inch</u>

4-inch

Volume

Purge Factor

4

To Purge

Water

Column: 10.69 ft.

.16

.65

6.95 gals

27.79 gals.

Depth Purging From: 13 ft.

Time Purging Begins: 1109

Notes on Initial Discharge: Brownish, silty, no odor

Time	Volume Purged	pВ	Conductivity	T	Comments
1112	10	7.35	844	18.9°C	Brownish, no odor
1116	20	6.87	888	18.9°C	Purged dry
1126	30	6.83	898	18.9°C	Brownish, no odor
1131	35	6.81	896	18.9°C	Purged dry

CLAYTON ENVIRONMENTAL CONSULTANTS, INC. WATER SAMPLING FIELD SURVEY FORM (CONTINUED)

Time Field Parameter Measurement Begins: 1205

	Rep #1	Rep #2	Rep #3	Rep #4
pH	6.71	6.69	6.69	6.69
Conductivity	917	926	937	930
T℃	18.9	18.9	18.9	18.9

Pre-Sample Collection Gallons Purged:

35

Time Sample Collection Begins:

1200

Time Sample Collection Ends:

1202

Total Gallons Purged:

36

Comments:



APPENDIX F

LABORATORY ANALYTICAL REPORT FOR GROUNDWATER SAMPLES COLLECTED APRIL 20, 1992

1252 Quarry Lane P.O. Box 9019 Pleasanton, CA 94566 (510) 426-2600 Fax (510) 426-0106



April 24, 1992

Mr. Richard Silva CLAYTON ENVIRONMENTAL CONSULTANTS, INC. 1252 Quarry Lane Pleasanton, CA 94566

> Client Ref. 40739.00 Clayton Project No. 92042.32

Dear Mr. Silva:

Attached is our analytical laboratory report for the samples received on April 20, 1992. A copy of the Chain-of-Custody form acknowledging receipt of these samples is attached.

Please note that any unused portion of the samples will be disposed of 30 days after the date of this report, unless you have requested otherwise.

We appreciate the opportunity to be of assistance to you. If you have any questions, please contact Maryann Gambino, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Ronald H. Peters, CIH

Michael Lynch for

Director, Laboratory Services

Western Operations

RHP/caa Attachments

Results of Analysis for Busick Air

Client Reference: 40739.00 Clayton Project No. 92042.32

Sample Identification: MW-4

Date Sampled: 04/20/92

Lab Number:

9204232-01A

Date Received: 04/20/92

Sample Matrix/Media:

WATER

04/21/92 Date Analyzed:

	_	•		
Ana	alytical	Method:	EPA	601

Analyte	CAS #	Concentration (ug/L)	Limit of Detectior (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35 - 4	ИD	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	0.5	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23 - 5	ND	0.6
Bromodichloromethane	75-27-4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	18	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

Not detected at or above limit of detection ND Information not available or not applicable

Results of Analysis for Busick Air

Client Reference: 40739.00 Clayton Project No. 92042.32

Sample Identification: MW-4

Date Sampled: 04/20/92

Lab Number:

9204232-01A

Date Received: 04/20/92 Date Analyzed: 04/21/92

Sample Matrix/Media: Analytical Method:

WATER EPA 601

Limit of Concentration Detection (ug/L) Analyte CAS # (ug/L)

Purgeable Halocarbons (continued)

			
2-Chloroethylvinylether	110-75-8	ND	1
Bromoform	75-25-2	ND	0.7
Tetrachloroethene	127-18-4	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.7
1,3-Dichlorobenzene	541-73-7	ND	2
1,2-Dichlorobenzene	95-50-1	ND	4
1,4-Dichlorobenzene	106-46-7	ND	4
Dichlorodifluoromethane	75-71-8	ND	1
Trichlorofluoromethane	75-69-4	ND	0.4
Freon 113	76-13-1	ND	0.6

ND Not detected at or above limit of detection Information not available or not applicable



Results of Analysis for Busick Air

Client Reference: 40739.00 Clayton Project No. 92042.32

Sample Identification: MW-4

04/20/92 Date Sampled:

Lab Number:

9204232-01A

Date Received: 04/20/92

Sample Matrix/Media:

WATER

Date Analyzed: 04/21/92

Analytical	Method:	EPA	602

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Aromatics			
Benzene	71-43-2	ND	0.4
Chlorobenzene	108-90-7	ND	0.3
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-7	ND	0.3
1,4-Dichlorobenzene	106-46-7	ND	0.5
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88-3	ND	0.3
p,m-Xylenes		ND	0.4
o-Xylene	95-47-6	ND	0.4
			QC Limits (%)
Surrogates		Recovery (%)	LCL UCL
Bromochloromethane	74-97-5	87	50 - 150
1,4-Difluorobenzene	540-36-3	98	50 - 150

Not detected at or above limit of detection ND Information not available or not applicable



Results of Analysis for Busick Air

Client Reference: 40739.00 Clayton Project No. 92042.32

Sample Identification: MW-5

Date Sampled: 04/20/92

Lab Number:

9204232-02A

Date Received: 04/20/92

Sample Matrix/Media: Analytical Method:

WATER **EPA 601** Date Analyzed: 04/21/92

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35-4	ND	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	ND	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane '	107-06-2	ND	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.6
Bromodichloromethane	75-27-4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	7.5	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

ND Not detected at or above limit of detection Information not available or not applicable



Page 6 of 13

Results of Analysis for Busick Air

Client Reference: 40739.00 Clayton Project No. 92042.32

Sample Identification: MW-5

Sample Matrix/Media:

Analytical Method:

Lab Number:

9204232-02A

WATER

EPA 601

Date Sampled: Date Received:

04/20/92 04/20/92

Date Analyzed: 04/21/92

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons (contin	ued)		
2-Chloroethylvinylether	110-75-8	ND	1
Bromoform	75-25-2	ND	0.7
Tetrachloroethene	127-18-4	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.7
1,3-Dichlorobenzene	541-73-7	ND	2
1,2-Dichlorobenzene	95-50-1	ND	4
1,4-Dichlorobenzene	106-46-7	ND	4
Dichlorodifluoromethane	75-71-8	ND	1
Trichlorofluoromethane	75-69-4	ND	0.4
Freon 113	76-13-1	ND	0.6

ND Not detected at or above limit of detection Information not available or not applicable



Page 7 of 13

Results of Analysis for Busick Air

Client Reference: 40739.00 Clayton Project No. 92042.32

Sample Identification: MW-5

Lab Number:

9204232-02A

Date Sampled: Date Received: 04/20/92

Sample Matrix/Media:

WATER

Date Analyzed:

04/20/92 04/21/92

Analytical	Method:	EPA	602

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Aromatics			
Benzene	71-43-2	ND	0.4
Chlorobenzene	108-90-7	ND	0.3
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-7	ND	0.3
1,4-Dichlorobenzene	106-46-7	ND	0.5
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88-3	ND	0.3
p,m-Xylenes		ND	0.4
o-Xylene	95-47-6	ND	0.4
			QC Limits (%)
Surrogates		Recovery (%)	LCL UCL
Bromochloromethane	74-97-5	97	50 - 150
1,4-Difluorobenzene	540-36-3	99	50 - 150

ND Not detected at or above limit of detection Information not available or not applicable



Results of Analysis for Busick Air

Client Reference: 40739.00 Clayton Project No. 92042.32

Sample Identification: MW-6

04/20/92 Date Sampled:

Lab Number:

9204232-03A

Date Received: 04/20/92

Sample Matrix/Media: Analytical Method:

WATER EPA 601 Date Analyzed: 04/21/92

nalyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
urgeable Halocarbons		· · · · · · · · · · · · · · · · · · ·	
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35-4	ND	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	ND	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.6
Bromodichloromethane	75-27-4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	41	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

ND Not detected at or above limit of detection Information not available or not applicable



Results of Analysis for Busick Air

Client Reference: 40739.00 Clayton Project No. 92042.32

Sample Identification: MW-6

Date Sampled: 04/20/92

Lab Number:

9204232-03A

04/20/92 Date Received:

Sample Matrix/Media: Analytical Method:

WATER EPA 601 Date Analyzed: 04/21/92

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons (conting	ued)		
2-Chloroethylvinylether	110-75-8	ND	1
Bromoform	75-25-2	ND	0.7
Tetrachloroethene	127-18-4	ND	0.5
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Chlorobenzene	108-90-7	ND	0.7
1,3-Dichlorobenzene	541-73-7	ND	2
1,2-Dichlorobenzene	95-50 - 1	ND	4
1,4-Dichlorobenzene	106-46-7	ND	4
Dichlorodifluoromethane	75-71-8	ND	1
Trichlorofluoromethane	75-69-4	ND	0.4

ND Not detected at or above limit of detection Information not available or not applicable



Page 10 of 13

Results of Analysis for Busick Air

Client Reference: 40739.00 Clayton Project No. 92042.32

Sample Identification: MW-6

9204232-03A

Date Sampled: Date Received: 04/20/92 04/20/92

Lab Number: Sample Matrix/Media:

04/21/92

Analytical Method:

WATER **EPA 602** Date Analyzed:

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Aromatics			
Benzene	71-43-2	ND	0.4
Chlorobenzene	108-90-7	ND	0.3
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-7	ND	0.3
1,4-Dichlorobenzene	106-46-7	ND	0.5
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88-3	ND	0.3
p,m-Xylenes		ND	0.4
o-Xylene	95-47-6	ND	0.4
			QC Limits (%)
Surrogates		Recovery (%)	LCL UCL
Bromochloromethane	74-97-5	90	50 - 150
1,4-Difluorobenzene	540-36-3	99	50 - 150

ND Not detected at or above limit of detection Information not available or not applicable

Page 11 of 13

Results of Analysis for Busick Air

Client Reference: 40739.00 Clayton Project No. 92042.32

Sample Identification: METHOD BLANK

Sample Matrix/Media:

Lab Number:

9204232-05A

Date Received:

Date Sampled:

WATER EPA 601 Date Analyzed:

04/21/92

Analytical Method: EPA 60	01		
Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
Purgeable Halocarbons			
Chloromethane	74-87-3	ND	0.6
Bromomethane	74-83-9	ND	0.7
Vinyl chloride	75-01-4	ND	0.5
Chloroethane	75-00-3	ND	0.5
Methylene chloride	75-09-2	ND	2
1,1-Dichloroethene	75-35-4	ND	0.2
1,1-Dichloroethane	75-35-3	ND	0.4
Trans-1,2-Dichloroethene	156-60-5	ND	0.4
Cis-1,2-Dichloroethene	156-59-2	ND	0.4
Chloroform	67-66-3	ND	0.5
1,2-Dichloroethane	107-06-2	ND	0.3
1,1,1-Trichloroethane	71-55-6	ND	0.5
Carbon tetrachloride	56-23-5	ND	0.6
Bromodichloromethane	75-2 7- 4	ND	0.7
1,2-Dichloropropane	78-87-5	ND	0.5
Cis-1,3-Dichloropropene	10061-01-5	ND	0.5
Trichloroethene	79-01-6	ND	0.3
Dibromochloromethane	124-48-1	ND	0.6
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trans-1,3-Dichloropropene	10061-02-6	ND	0.6

Not detected at or above limit of detection ND

Information not available or not applicable



Page 12 of 13

Results of Analysis for Busick Air

Client Reference: 40739.00 Clayton Project No. 92042.32

Sample Identification: METHOD BLANK

Sample Matrix/Media:

Lab Number:

9204232-05A

WATER **EPA 601** Date Sampled:

Date Received:

Date Analyzed: 04/21/92

		Concentration	Limit of Detection		
Analyte	CAS #	(ug/L)	(ug/L)		
Purgeable Halocarbons (continu	ıed)				
2-Chloroethylvinylether	110-75-8	ND	1		
Bromoform	75-25-2	ND	0.7		
Tetrachloroethene	127-18-4	ND	0.5		
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5		
Chlorobenzene	108-90-7	ND	0.7		
1,3-Dichlorobenzene	541-73-7	ND	2		
1,2-Dichlorobenzene	95-50-1	ND	4		
1,4-Dichlorobenzene	106-46-7	ND	4		
1,7 0+011+0+0401120110	75-71-8	ND	1		
Dichlorodifluoromethane	13-11-0				
•	75-69-4	ND	0.4		

Not detected at or above limit of detection ND Information not available or not applicable

Page 13 of 13

Results of Analysis for Busick Air

Client Reference: 40739.00 Clayton Project No. 92042.32

Sample Identification: METHOD BLANK

Lab Number:

9204232-05A

WATER

Date Sampled:

Date Received:

Date Analyzed: 04/21/92

Sample Matrix/Media: Analytical Method:

EPA 602

Analyte	CAS #	Concentration (ug/L)	Limit o Detectio (ug/L)			
Purgeable Aromatics						
Benzene	71-43-2	ND	0.4			
Chlorobenzene	108-90-7	ND	0.3			
1,2-Dichlorobenzene	95-50-1	ND	0.5			
1,3-Dichlorobenzene	541-73-7	ND	0.3			
1,4-Dichlorobenzene	106-46-7	ND	0.5			
Ethylbenzene	100-41-4	ND	0.3			
Toluene	108-88-3	ND	0.3			
p,m-Xylenes		ND	0.4			
o-Xylene	95-47-6	ND	0.4			
			QC Limits (%)			
Surrogates		Recovery (%)	LCL UCL			
Bromochloromethane	74-97-5	82	50 - 150			
1,4-Difluorobenzene	540-36-3	95	50 - 150			

ND Not detected at or above limit of detection Information not available or not applicable



REQUEST FOR LABORATORY **ANALYTICAL SERVICES**

A Marsh & McLennan Company

For Clayton Use Only	Page	of	
Project No.	<u> </u>		
Batch No. Q 24	V232		
Ind. Code	W.F	·.	
Date Logged in 4	7/92 By	QK.	
	10 de 1777		

										Dat	e Logg	ged in	4/2	0/40	2	y pt	
Name RICHARD SILYA Title				Purci	hase (Order No).								39.00		
Company Busick Are Dept. Mailing Address City, State, Zip				Щ	Name KICHARO SILVA Company CLAYTOM Dept. Address City State Zip												
Mailing Address				18 응	ည	ompany	CI	RYT	DW	,		•			Dept.	***	
				เพ≶	T Ac	dress											
			 			<u> [Ci</u>	ty, State	e, Zip									
Date Results Req.: Rush Charges Authorized? Phone / Fax Results Samples are: Volume T.A.7 Yes No (check if applicable)			Sue	ANALYSIS REQUESTED (Enter an 'X' in the box below to indicate request; Enter a 'P' if Preservative added. *)													
Special Instructions: (method, limit of detection, etc.)			• •	Containers			/ N	$\overline{\mathcal{I}}$	7	\mathcal{T}	/	$\overline{}$	$\overline{}$	$\overline{}$	77		
* Explanation of Preservative:		Collected in the State of New York		1 15													
	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)			\$ <u>``</u>			\angle	\angle	\angle					OR LAB E ONLY
· · · · · · · · · · · · · · · · · · ·	MW-4	4-20-92	H20	40 mes	2	Xr	·[OIA	B
mw-5			40mLs	2	Xf	,									00-	1	
	m w - 6	_		40mL5	2	XF										03	1
TRIPT	BLANKS #0040792	上上	业	40 m25	2_		XP				_					04 4	7
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								لِلا						L	<u> </u>	L	
CHAIN	Relinquished by: Richard for	v 4	D . 67	(print)	Collector's Signature: Ruchard film												
OF	Relinquished by: Kichard An	loa		12/1615	Received by:												
CUSTODY Relinquished by: Date/Time			Received at Lab by: Polker & Lunu Shiauth Date Time to 4:15										4:15				
	Method of Shipment:			<u>-</u>	Sample Condition Upon Receipt: Acceptable												
Authorized by: Richard film (SAMPLER) Date 24-20-92 (Client Signature Must Accompany Request)			-														
Please retu	Please return completed form and samples to one of the Clayton Environmental Consultants, Inc				. labs	listed	below:										
	COOKER WILLIAM CONTRACTOR OF THE CONTRACTOR OF T												IΓ)ISTR	BUTIC	M·	

22345 Roethel Drive Raritan Center Novi, MI 48375 (313) 344-1770

160 Fieldcrest Ave. Edison, NJ 08837 (908) 225-6040

400 Chastain Center Blvd., N.W. Suite 490

Kennesaw, GA 30144 (404) 499-7500

1252 Quarry Lane Pleasanton, CA 94566 (510) 426-2657

WHITE - Clayton Laboratory YELLOW - Clayton Accounting - Client Retains PINK