



**DAMES & MOORE**

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**ENVIRONMENTAL UPDATE  
FLEISCHMANN'S YEAST FACILITY  
SUMNER, WASHINGTON**

**For**

**SUMNER NATURAL RESOURCES LLC  
D&M JOB NO.: 34848-006-005  
January 8, 1999**

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A DAMES & MOORE GROUP COMPANY

January 8, 1999

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Report  
Environmental Update  
Fleischmann's Yeast Facility  
Sumner, Washington  
D&M Job No.: 34848-006-005

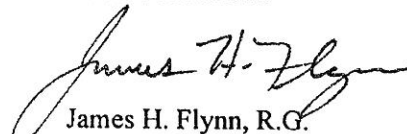
Dear Mr. Shimer:

Dames & Moore is pleased to present our Environmental Update Report for the Fleischmann's Yeast Facility (excluding the adjacent vinegar plant) located in Sumner, Washington. Dames & Moore's Assessment included a soil and groundwater investigation, an asbestos survey, a lead assessment, a PCB light ballast assessment, a mercury-containing light tube assessment, and a chemical container inventory. This update was completed in general accordance with our proposal to you dated September 2, 1998.

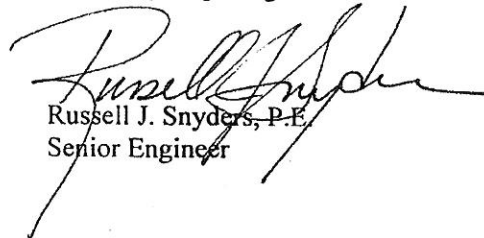
We trust this report provides you with the information you require at this time. If you have any questions about the information presented within this report, please call us.

Very truly yours,

DAMES & MOORE



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## TABLE OF CONTENTS

	Page
1.0 INTRODUCTION .....	1
1.1 PREVIOUS INVESTIGATIONS .....	1
1.2 SCOPE OF WORK .....	2
2.0 METHODS OF INVESTIGATION .....	3
2.1 SOIL AND GROUNDWATER INVESTIGATION .....	3
2.1.1 Sampling Methods and Procedures .....	3
2.1.2 Analytical Procedures .....	4
2.2 ASBESTOS SURVEY .....	5
2.3 LEAD SURVEY .....	5
2.4 PCB LIGHT BALLASTS, LIGHT TUBES AND CHEMICAL CONTAINERS .....	6
3.0 INVESTIGATION RESULTS .....	6
3.1 SUBSURFACE CONDITIONS .....	6
3.2 SOIL ANALYTICAL RESULTS .....	6
3.3 GROUNDWATER ANALYTICAL RESULTS .....	7
3.4 RESULTS OF ASBESTOS INVESTIGATION .....	8
3.5 RESULTS OF LEAD INVESTIGATION .....	9
3.6 RESULTS OF PCB LIGHT BALLASTS, LIGHT TUBES AND CHEMICAL CONTAINERS INVESTIGATION .....	9
4.0 RECOMMENDED REMEDIAL ACTIONS AND ESTIMATED COSTS .....	10
4.1 SOIL AND GROUNDWATER .....	10
4.1.1 Former Boiler USTs .....	10
4.1.2 Diesel AST .....	11
4.1.3 Building 4A .....	11
4.1.4 By-Product AST .....	12
4.2 CATCH BASINS .....	12
4.3 ASBESTOS-CONTAINING MATERIALS .....	12
4.4 LEAD-CONTAINING MATERIALS .....	12
4.5 PCB LIGHT BALLASTS, LIGHT TUBES AND CHEMICAL CONTAINERS .....	14
4.6 SUMMARY AND CONTINGENCIES .....	14
5.0 REFERENCES .....	16

## **TABLES**

- Table 1 – Summary of Historic Soil Analytical Results
- Table 2 – Summary of Historic Groundwater Analytical Results
- Table 3 – Areas of Concern and Sample Designations
- Table 4 – Summary of Soil Analytical Results for TPH and pH
- Table 5 – Summary of Soil Analytical Results for VOCs, Metals, and PCBs
- Table 6 – Summary of Groundwater Analytical Results
- Table 7 - Summary of Asbestos Sampling and Results
- Table 8 - Summary of Lead Chip Sampling and Results
- Table 9 – Summary of TCLP Sampling and Results
- Table 10 - Summary of PCB Ballasts and Light Tubes

## **FIGURES**

- Figure 1 – Site Location
- Figure 2 – Site Plan and Sampling Locations
- Figure 3 – Estimated Areas of Affected Soil and Groundwater

## **APPENDICES**

- Appendix A – Boring Logs
- Appendix B – Soil and Groundwater Analytical Reports
- Appendix C – EMSL Asbestos Analytical Reports
- Appendix D – EMSL Lead Chip Analytical Reports
- Appendix E – Inventory of Potentially Hazardous Materials

## 1.0 INTRODUCTION

This update report presents a summary of environmental conditions, recommended remedial actions, and estimated costs to address the presence of hazardous materials encountered in soil and groundwater beneath the property and within the onsite buildings at the former Fleischmann's Yeast Plant located at 1115 Zehnder Street in Sumner, Washington (Figure 1). The findings and recommendations presented in this report are based on previous investigations conducted for Burns Philp Food, Inc. (Burns Philp) by Hart Crowser (1995 and 1998) and recent investigations completed by Dames & Moore and described within this report. This work was completed in general accordance with our proposal to Sumner Natural Resources LLC dated September 2, 1998.

Dames & Moore understands that Sumner Natural Resources LLC is considering purchasing approximately 11 acres of the former Fleischmann's Yeast Plant hereinafter referred to as the "Subject Property" which is currently owned by Burns Philp. Burns Philp will retain a parcel located north of the Subject Property which is referred to as the Vinegar Plant Parcel. Our investigation did not focus on conditions on the Vinegar Plant Parcel, but did assess whether conditions on the Vinegar Plant Parcel have impacted the Subject Property. In the event that the Subject Property is acquired by Sumner Natural Resources LLC, it is anticipated that the existing structures will be demolished and the Subject Property will be redeveloped. Thus the environmental update assessed the presence of hazardous materials within the structures and materials used to build the structures.

Based on the findings of our investigation, we have identified environmental issues that should be addressed prior to the acquisition of the Subject Property by Sumner Natural Resources LLC. The estimated cost to implement the recommended remedial actions only address environmental concerns on the Subject Property and do not include costs which may be incurred to address issues on the Vinegar Plant Parcel. However, it should be recognized that in the case of soil and groundwater contamination which crosses the boundary between the Subject Property and the Vinegar Plant Parcel, it is not considered practical to remediate the Subject Property without addressing the contamination on the Vinegar Plant Parcel.

### 1.1 PREVIOUS INVESTIGATIONS

In 1998, Hart Crowser investigated soil and groundwater conditions beneath the Subject Property and the Vinegar Plant Parcel. Soil and/or groundwater samples were collected from 15 borings (P-1 through P-15) and two existing monitoring wells (MW-3 and MW-4) at locations shown on Figure 2. Soil samples were also collected from three catch basins (CB-1 through CB-3). Soil and groundwater samples collected at several locations contained concentrations of petroleum hydrocarbons that exceeded the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A or B cleanup levels. The analytical results for petroleum hydrocarbons detected in soil and groundwater are summarized in Tables 1 and 2, respectively. Areas where cleanup levels were exceeded were as follows:

- Soil samples in borings to the north and south of the former boiler underground storage tanks (USTs) (P-1 and P-2) contained petroleum hydrocarbons concentrations exceeding MTCA Method A cleanup levels between ground surface and 4 feet below ground

surface (bgs). Groundwater samples collected from the same borings also contained petroleum hydrocarbons at concentrations exceeding MTCA Method A cleanup level. We assume that both of these borings are located on the Vinegar Plant Parcel, in close proximity to the subject property.

- A soil sample from a boring to the north of the diesel above ground storage tank (AST) (P-6) contained petroleum concentrations exceeding the MTCA Method A cleanup level between ground surface and 5 feet bgs. A groundwater sample from this area was not collected and analyzed.
- A soil sample in a boring to the west of the former by-product ASTs on the west side of the Subject Property (P-10) contained petroleum concentrations exceeding the MTCA Method A cleanup levels between ground surface and 4 feet bgs. A groundwater sample from this area was not collected and analyzed.
- Soil samples collected from the three catch basins contained petroleum hydrocarbons concentrations exceeding the MTCA Method A cleanup level. Two of the catch basins (CB-2 and CB-3) are located on the Vinegar Plant Parcel. Catch basin CB-1 is located on the Subject Property adjacent to the south of the former water tanks.

Based on the results of Hart Crowser's investigation (1998) several areas of concern were identified. These areas included: current and former UST and AST locations, former paint and hazardous materials storage areas, stained and corroded concrete flooring, former land application areas, and former transformer locations. Previous investigation had also documented the presence of asbestos and lead with the onsite structures (Hart Crowser, 1996).

## **1.2 SCOPE OF WORK**

Dames & Moore conducted a soil and groundwater investigation to assess the extent of impacts identified by Hart Crowser (1998) and to assess whether the Subject Property had been impacted in other areas of concern not investigated by Hart Crowser. In addition, an asbestos survey was performed and other potentially hazardous substances (polychlorinated biphenyls, fluorescent light tubes and chemical containers) within the building were identified. Representative samples of potential demolition debris were also tested for lead to determine potential disposal requirements. The scope of work included the following:

- Drilling and sampling of 21 soil borings (SP-1 through SP-21) on November 12 and 13, 1998 using StrataProbe techniques
- Drilling and sampling six hand auger borings (HA-1 through HA-6) on November 19, 1998
- Collecting surface soil and sediment samples from former transformer locations, former land application areas, and from the aeration pond on November 19, 1998

- Collecting water samples from two on-site monitoring wells (MW-1 and MW-4) on November 19, 1998
- Analyzing selected soil and groundwater samples
- Performing a supplemental asbestos survey to identify asbestos-containing building materials (ACBM) present in the seven onsite buildings, including roofing materials
- Performing a lead-containing material screening assessment for representative paints and coatings on site
- Performing toxicity characteristic leaching procedure (TCLP) analysis for lead on representative samples to assess disposal requirements for demolition debris
- Identifying quantities of potential PCB light ballasts, fluorescent light tubes and containers of chemicals within the buildings on the Subject Property
- Preparing this update report documenting the findings of the assessment, recommended remedial actions and estimated costs

## **2.0 METHODS OF INVESTIGATION**

This section presents a description of the field procedures and approach to assessing the environmental concerns outlined above. The sampling procedures and methods are summarized below.

### **2.1 SOIL AND GROUNDWATER INVESTIGATION**

Based on review of the previous work by Hart Crowser (1995 and 1998), interviews with site personnel, review of regulatory agency records, and assessment of past and current hazardous materials usage and waste handling, Dames & Moore identified areas of concern where additional sampling was determined to be appropriate. The areas of concern and sample designations are summarized in Table 2 and the sampling locations are shown on Figures 2 and 3.

The soil and groundwater investigation was completed between November 12 and 20, 1998. Prior to implementing the subsurface sampling, Dames & Moore contacted a utility-locating company to perform an on-site survey.

#### **2.1.1 Sampling Methods and Procedures**

The soil and groundwater investigation included the drilling and sampling of 21 soil borings (SP-1 through SP-21). Dames & Moore retained Transglobal Environmental Geosciences Northwest, Inc. (TEG) of Lacey, Washington to complete the borings using truck-mounted StrataProbe equipment. Soil samples were collected by transferring the soil from a split spoon sampler to laboratory prepared glassware using a cleaned

stainless steel spoon. Groundwater samples were collected from the borings by driving the StrataProbe sampler to the desired sampling zone and then re-extracting the sampler approximately two feet to expose a screened section to allow water to infiltrate into the sampler. Clean dedicated polyethylene tubing was inserted into the probe and water was collected by withdrawing the necessary volume with a peristaltic pump. The water sample was then transferred to pre-cleaned, laboratory prepared glassware containing an appropriate preservative. Soil samples were collected continuously between approximately one foot bgs and the total depth of the boring. Groundwater samples were collected near the top of the water table. The holes were backfilled with bentonite chips hydrated with tap water. The top four inches of the borings were finished with cold patch asphalt or native soils as appropriate.

Six hand auger borings (HA-1 through HA-6) were advanced to depths of approximately 3 feet bgs using a stainless-steel hand auger. Soil samples were transferred from the auger to sample pre-cleaned, laboratory prepared glassware using a decontaminated stainless steel spoon or knife.

Surface and sediment samples were collected using a decontaminated stainless steel spoon or knife or dedicated disposable plastic scoop and transferred directly into pre-cleaned, laboratory prepared glassware.

Monitoring of the drilling and sampling was performed by a qualified Dames & Moore field technician. A detailed log of the subsurface materials was maintained and an organic vapor monitor (OVM) was used to screen the soils for organic vapors. Soils samples collected for stratigraphic control were placed in a plastic bag and then mixed to volatilize any organic compounds present in the sample. The OVM was then inserted into the bag to measure the organic vapor levels which were recorded on the boring logs. The OVM was calibrated prior to use. The soils were classified in general accordance with the Unified Soil Classification System.

Groundwater samples were collected from two onsite monitoring wells. Prior to sampling, three casing volumes of water were purged from the well using a disposable bailer. Temperature, pH and electrical conductivity were measured following the removal of each casing volume. Groundwater samples were collected using the disposable bailer. Purge water was stored onsite in drums.

The sampling equipment and any other down hole equipment was decontaminated by washing with a dilute Alconox solution, triple rinsed with tap water, and then double rinsed with distilled water after the completion of each sampling location.

### **2.1.2 Analytical Procedures**

Soil and groundwater samples were submitted for analysis to TEG's laboratory in Lacey, Washington, an Ecology-accredited laboratory. All samples were transferred under strict chain of custody protocols. Selected soil and water samples were analyzed for one or more of the following: diesel- and oil-range petroleum hydrocarbons by NWTPH-D extended; gasoline-range petroleum hydrocarbons and benzene, toluene, ethyl benzene and xylenes (BTEX) by NWTPH-G and U.S. Environmental Protection Agency (EPA) Method 8020; volatile organic compounds (VOCs) by EPA Method 8260; semi-volatile organic compounds by EPA Method 8270, RCRA metals by EPA 6000/7000 series methods; PCBs by EPA Method

8082; nitrates by EPA Method 300.0; and/or pH by EPA Method 150.1. The analyses selected for each sample were based on previous analytical results, interviews with site personnel, review of regulatory agency records,

## **2.2 ASBESTOS SURVEY**

The supplemental asbestos survey was performed following the sampling protocol for the demolition areas as outlined under AHERA, 40 CFR 763, the Puget Sound Air Pollution Control Agency, Regulation III, Article 4, and the State of Washington Department of Labor and Industries WAC 296-62-077. Sample locations were chosen in a random fashion, with emphasis being placed on obtaining samples of each type of accessible suspect material. The survey was conducted by Asbestos Hazard Emergency Response Act (AHERA) accredited building inspectors.

Samples were collected in a non-abrasive manner by carefully removing small portions of the suspect material with a sharp knife or other hand tool suitable to the material being sampled. Each sample was placed in a pre-labeled plastic container immediately after collection. Sample containers were then placed in a large resealable plastic bag for transportation to the laboratory. The sampling instrument was subsequently wiped with a clean moist cloth to decontaminate the tool and prevent the potential release of asbestos fibers or contamination of subsequent samples. Data pertinent to each sample (e.g., date, sample number, material description, and material condition) were recorded on a field data sheet. The field data forms are kept on file at the Dames & Moore office.

Sixty-six asbestos bulk samples, copies of the field data sheet, and chain-of-custody submittal sheets were delivered to the EMSL Analytical, Inc. (EMSL) located in Seattle, Washington for asbestos analysis. The EMSL asbestos laboratory participates in the National Voluntary Laboratory Accreditation Program (NVLAP) for quality control procedures. As specified in 40 CFR Chapter I (1-1-87 edition) Part 763, Subpart F, Appendix A, each sample was analyzed using polarized light microscopy (PLM)/dispersion staining techniques, in accordance with EPA Method 600/M4-82-020. Detection limits for this type of analysis are approximately one percent (by volume). Materials containing more than one-percent asbestos are considered to be asbestos-containing building materials (ACBM).

## **2.3 LEAD SURVEY**

Dames & Moore's supplemental lead screening assessment was performed in conjunction with the asbestos survey. Sample locations for this assessment were chosen in a random fashion, with emphasis being placed on obtaining samples of each type of suspect coating surface material that was accessible.

Samples were collected by removing small portions of the suspect paint or other material with a sharp knife or other hand tool suitable to the material being sampled. If possible, samples were collected of loose materials or from materials with pre-existing damage. Each sample was placed in a pre-labeled plastic container immediately after collection. Data pertinent to each sample such as date, sample number, paint description, and material condition were recorded on a field data sheet. Sample containers were then placed in a large resealable plastic bag for transportation to the laboratory.

Lead chip samples were delivered to EMSL Analytical, Inc. under appropriate chain-of-custody procedures. EMSL Analytical, Inc. is accredited by the American Industrial Hygiene Association (AIHA) and participates in the Environmental Lead Proficiency Analytical Testing (ELPAT) program administered by the AIHA. Each sample was analyzed for total lead content using flame atomic absorption spectroscopy, in accordance with the U. S. EPA Method SW 846-7420. The limit of detection for this method varies by the volume of the sample, but in general, is approximately 0.01 percent by weight. Materials containing lead at concentrations above the limit of detection are considered a regulated lead-containing material (WAC 296-155-176).

## **2.4 PCB LIGHT BALLASTS, LIGHT TUBES AND CHEMICAL CONTAINERS**

The light ballast and mercury-containing fluorescent light tube assessment was performed during the asbestos and lead survey activities. Different light fixture types were dismantled and the ballasts were observed to determine PCB content. All light ballasts were assumed to be PCB-containing. However, any light ballasts on site with “nonPCB” labeling are considered as non-regulated by the PCB ballast regulations. The number and location of light ballasts and fluorescent tubes were recorded.

A cursory inventory of containers of potentially hazardous materials stored in the buildings on the Subject Property was completed by Dames & Moore. The purpose of the inventory was to determine the approximate quantity of materials that would require offsite removal. During the inventory, the type, approximate quantity and location of the potentially hazardous materials were recorded.

## **3.0 INVESTIGATION RESULTS**

### **3.1 SUBSURFACE CONDITIONS**

The StrataProbe borings were completed to depths ranging from 10 feet to 20 feet bgs. The soils beneath the site consist of 0 to 3 feet of gravelly fill overlying silt and clay, which extends to a depth of approximately 14 feet in the borings. Gravel with silt and sand was encountered below 14 feet in boring S-12. Groundwater was encountered in the borings between 5 and 13 feet bgs. Logs for the borings are included in Appendix A. The groundwater flow is assumed to be westerly based on water level elevation data from on-site monitoring wells (Hart Crowser, 1994).

### **3.2 SOIL ANALYTICAL RESULTS**

Soil analytical results are summarized in Tables 4 and 5. The applicable Washington Model Toxics Control Act (MTCA) Method A or B soil and groundwater cleanup levels for the compounds detected are also provided in the tables. The laboratory analytical reports are provided in Appendix B. Petroleum hydrocarbons were the only analytes detected above the MTCA cleanup levels. Results for petroleum hydrocarbons are discussed below.

Borings S-1 through S-3, S-19, and S-20 were advanced south of the former boiler USTs immediately south of the boundary between the Subject Property and the Vinegar Plant Parcel (Figure 3). Hydrocarbon odor and sheen were noted in soil samples collected from borings S-1 and S-2. Analyses of soil samples from borings S-2 indicated petroleum hydrocarbon concentrations exceeding MTCA Method A cleanup levels between 1 and 4 feet bgs (Table 4). Analysis of soil samples from borings S-1, S-3, S-19, and S-20 did not indicate petroleum hydrocarbons at reporting limits.

Two borings (S-4, S-5) were advanced west and north of the diesel AST located east of Building No. 1 (Figures 2 and 3). A slight hydrocarbon odor and sheen was noted in soil and groundwater collected from boring S-4. Hydrocarbon odors or sheen were not noted in boring S-5. Analyses of soil samples from borings S-4 indicated petroleum hydrocarbon concentrations exceeding MTCA Method A cleanup levels between 1 and 4 feet bgs (Table 4). Petroleum hydrocarbons were not detected in the soil sample analyzed from boring S-5.

Six hand auger borings were advanced beneath the concrete floors in Buildings 1 and 4/4A (Figure 3). Petroleum hydrocarbons exceeding MTCA Method A cleanup levels were detected in boring HA-1 at 3 feet bgs (Table 4). Analysis of soil samples in the remaining borings did not indicate petroleum hydrocarbons at reporting limits.

Soil samples in the remaining borings did not contain analytes of interest at concentrations exceeding MTCA Method A or B cleanup levels.

### **3.3 GROUNDWATER ANALYTICAL RESULTS**

The groundwater analytical results are summarized in Table 6. The applicable Washington Model Toxics Control Act (MTCA) Method A or B groundwater cleanup levels for the compounds detected are also provided on Table 6. Results for petroleum hydrocarbons are discussed below. The laboratory analytical reports are provided in Appendix B. Petroleum hydrocarbons were the only analytes detected above the MTCA cleanup levels. Results for petroleum hydrocarbons are discussed below.

Borings S-1 through S-3, S-19, and S-20 were advanced south of the former boiler USTs immediately south of the boundary between the Subject Property and the Vinegar Plant Parcel (Figure 3). Hydrocarbon odor and sheen was noted in groundwater samples collected from borings S-1 and S-2. Analyses of groundwater samples from the borings indicated petroleum hydrocarbon concentrations exceeded MTCA Method A cleanup levels in borings S-1 and S-2 (Table 4). Analysis of groundwater samples in borings S-3, S-19, and S-20 did not indicate petroleum hydrocarbons at reporting limits.

Two borings (S-4, S-5) were advanced west and north of the diesel AST adjacent to the east of Building No. 1 (Figure 3). A slight hydrocarbon odor and sheen was noted in the groundwater sample collected from boring S-4. Hydrocarbon odors or sheen were not noted in boring S-5. Analyses of groundwater samples from boring S-5 indicated petroleum hydrocarbon were detected, but at a concentration slightly below the MTCA Method A cleanup level. Petroleum hydrocarbons were not detected in the groundwater samples from boring S-4 (Table 6).

Groundwater samples in the remaining borings did not contain analytes of interest at concentrations exceeding MTCA Method A or B cleanup levels.

### **3.4 RESULTS OF ASBESTOS INVESTIGATION**

A total of 66 bulk samples were collected as part of the supplemental asbestos survey. A summary of the asbestos sampling and results is presented in Table 7 and includes the sample number, material description, sample location, and the analytical results. Supporting documentation for the asbestos samples, including a copy of the laboratory analysis reports with the chain-of-custody documents is provided in Appendix C.

Dames & Moore identified the following confirmed asbestos-containing materials:

#### BUILDING 1

- Tank pads
- Plaster wall located on the 2nd floor, locker room, west wall. Dames & Moore has taken additional samples of the adjacent plaster walls to confirm the limit of the asbestos-containing plaster. The additional samples determined that the asbestos-containing material was limited to the one select wall.

#### BUILDING 4A

- Roofing materials

#### BUILDING 16

- Black mastic from 12"x12" Vinyl Floor Tile
- Roofing materials

#### BUILDING 20

- Roofing materials
- Window glazing

#### OFFICE BUILDING

- Gold/white Sheet Vinyl Flooring
- Black Sheet Vinyl Flooring mastic

### **3.5 RESULTS OF LEAD INVESTIGATION**

The Dames & Moore survey included a total of 10 chip samples, all 10 samples collected were found to contain regulated levels of lead. Table 8 presents the sampling information and includes the sample number, substrate, component sampled, color, location, and the analytical results reported in percent by weight for lead. Supporting documentation for the lead survey samples, including a copy of the EMSL laboratory reports with the chain-of-custody is provided in Appendix D.

Building components identified on site that are coated with regulated Lead-Containing Materials include the following:

- Concrete, brick, and wood walls
- Wood windows, doors, trim, structural members and catwalk systems
- Metal equipment and steel building components

L & I Regulations WAC 296-155-17609, paragraph 2(a) states that coating materials are regulated where lead is present. Painted materials not sampled are to be assumed as lead-containing. If a material contains less than the detectable level for lead in one location and greater than the detectable level in at least one other area, the material should be considered a regulated lead-containing material.

The TCLP lead analysis was performed on samples of different components of the building collected during the asbestos and lead survey activities. The TCLP sampling was performed to determine if the leachable lead exceeded the regulated level of 5 milligrams/liter. The results of leachable lead from TCLP sampling are below the regulated level (Table 9). Supporting documentation of TCLP sampling is provided in Appendix D. The results of the TCLP analysis are significantly below the regulatory limit. The demolition debris should not be classified as lead waste based on our current data, expectations of the demolition project and the current regulations.

### **3.6 RESULTS OF PCB LIGHT BALLASTS, LIGHT TUBES AND CHEMICAL CONTAINERS INVESTIGATION**

The light ballast and mercury-containing fluorescent light tube assessment was performed during the asbestos and lead survey activities. Different light fixture types were dismantled and the ballasts were observed to determine PCB content. A summary of the number of PCB ballast and fluorescent light tubes identified in each building on the Subject Property is provided in Table 10.

A list of chemical containers and materials observed in the various buildings on the Subject Property is provided in Appendix E. The materials were typically in containers ranging in size from 1-gallon to 55-gallon. Some of the materials appeared to be in their original labeled containers and others appeared to have been transferred into temporary containers. Some materials were also contained in bags. The list provided in Appendix E is not comprehensive, but is representative of materials observed on November 20, 1998. The volume and quantities of containers are considered approximate.

## **4.0 RECOMMENDED REMEDIAL ACTIONS AND ESTIMATED COSTS**

Dames & Moore's environmental update conducted at the former Fleischmann's Yeast facility property in Sumner, Washington was intended to further assess areas of concern identified during previous investigations conducted by Hart Crowser and other concerns identified by Dames & Moore. Based on the findings of our investigation, we have identified environmental issues that should be addressed prior to the acquisition of the Subject Property by Sumner Natural Resources LLC. This section briefly summarizes each of these concerns, presents a recommended remedial action and estimates the cost for the remedial action.

### **4.1 SOIL AND GROUNDWATER**

The cost estimates presented below only address environmental concerns on the Subject Property and do not include costs which may be incurred to conduct necessary remediation on the Vinegar Plant Parcel. It should be recognized that in the case of soil and groundwater contamination which crosses the boundary between the Subject Property and the Vinegar Plant Parcel, it is not considered practical to remediate the Subject Property without addressing the contamination on the Vinegar Plant Parcel.

#### **4.1.1 Former Boiler USTs**

Based on our findings and Hart Crowser's previous results, a release of petroleum hydrocarbons has apparently occurred at the former boiler USTs. Petroleum hydrocarbons from the USTs have migrated through soil and groundwater onto the Subject Property. The estimated extent of these affected soils and groundwater on the Subject Property is denoted on Figure 3. Based on the available information, the volume of soil containing petroleum hydrocarbons above the MTCA Method A cleanup level is estimated to be 350 cubic yards. This estimate assumes an affected zone of soil approximately 5 feet thick over the area shown on Figure 3. This estimate is for affected soils on the Subject Property only, and does not include affected soils north of the proposed property boundary on the Vinegar Plant Parcel.

Soil excavation with offsite disposal or treatment is recommended to remediate conditions in this area. Following soil excavation it is recommended that groundwater be pumped from the excavation and that oxygen release compound (ORC) be placed within the excavation prior to backfilling to facilitate the biological degradation of any residual petroleum hydrocarbons within the groundwater. It is assumed that any remediation at this location would take place concurrently with remediation and tank assessment/closure on the Vinegar Plant Parcel.

The cost estimate for the remedial action is based on the excavation of 350 cubic yards (475 tons) of affected soil with offsite thermal treatment. Groundwater remediation is assumed to include the pumping and offsite disposal of 5,000 gallons of groundwater and the placement of 500 pounds of ORC within the excavation. The excavation would be backfilled and compacted with clean imported fill. To confirm that the groundwater cleanup is effective, two monitoring wells would be installed and sampled on a quarterly basis for two years. The estimated cost for this scope of work is \$75,000.

#### **4.1.2 Diesel AST**

Based on our findings and Hart Crowser's previous results, a release of petroleum hydrocarbons has apparently occurred in the vicinity of the diesel AST. Petroleum hydrocarbons from the AST have impacted soil on the Subject Property. The estimated extent of the affected soil on the Subject Property is shown on Figure 3. Based on the available information, the volume of soil containing petroleum hydrocarbons above the MTCA Method A cleanup level is estimated to be 90 cubic yards. This estimate assumes an affected zone of soil approximately 5 feet thick over the area shown on Figure 3. This estimate is for affected soils on the Subject Property only, and does not include a volume estimate for affected soils north of the proposed property boundary on the Vinegar Plant Parcel.

Soil excavation with offsite disposal or treatment is recommended to remediate conditions in this area. Although the petroleum hydrocarbon concentration in groundwater at this location did not exceed the MTCA Method A cleanup level, impacts were detected in the groundwater sample from boring S-5 at concentrations close to the cleanup level. Therefore, to address the possibility that groundwater exceeds the cleanup level in this area, it is recommended that groundwater be pumped from the excavation and that oxygen release compound be placed within the excavation prior to backfilling to facilitate the biological degradation of any residual petroleum hydrocarbons within the groundwater. It is assumed that any remediation at this location would take place concurrently with remediation and tank assessment/closure on the Vinegar Plant Parcel.

The cost estimate for the remedial action is based on the excavation of 90 cubic yards (135 tons) of affected soil with offsite thermal treatment. Groundwater remediation is assumed to include the pumping and offsite disposal of 2,000 gallons of groundwater and the placement of 200 pounds of ORC within the excavation. The excavation would be backfilled and compacted with clean imported fill. To confirm that the groundwater cleanup is effective, one monitoring well would be installed and sampled on a quarterly basis for two years. The estimated cost for this scope of work is \$25,000.

#### **4.1.3 Building 4A**

Based on our findings of this subsurface investigation, petroleum-containing soils have been identified beneath the floor of Building 4A. The estimated extent of these affected soils on the Subject Property is denoted on Figure 3. Although the extent of the affected soils was not clearly defined by the investigation, given the existing information it is estimated that the volume of affected soil is 50 cubic yards.

Soil excavation with offsite disposal or treatment is recommended to remediate conditions in this area. The cost estimate for the remedial action is based on the excavation of 50 cubic yards (75 tons) of affected soil with offsite thermal treatment and assumes that Building 4A and any other structures beneath which the affected soil may extend will be demolished. The excavation would be backfilled and compacted with clean imported fill. The estimated cost for this scope of work, including necessary demolition, is \$40,000.

#### **4.1.4 By-Product AST**

Based on Hart Crowser's result, soil west of the former by-product AST contains petroleum hydrocarbons above the MTCA Method A soil cleanup level. The estimated extent of these affected soils on the Subject Property is denoted on Figure 3. Although the extent of the affected soils was not clearly defined by the investigation, given the existing information it is estimated that the volume of affected soil is 50 cubic yards.

Soil excavation with offsite disposal or treatment is recommended to remediate conditions in this area. The cost estimate for the remedial action is based on the excavation of 50 cubic yards (75 tons) of affected soil with offsite thermal treatment. The excavation would be backfilled and compacted with clean imported fill. The estimated cost for this scope of work is \$10,000.

#### **4.2 CATCH BASINS**

The Hart Crowser investigation identified petroleum hydrocarbon concentrations exceeding MTCA Method A cleanup levels in a soil sample collected from a catch basin on the Subject Property. The recommended remedial approach is to remove the soil from the catch basins and transport it offsite for treatment or disposal. The volume of soil within the stormwater and process wastewater catch basins was estimated to be approximately 2 cubic yards. The estimated cost for this scope of work is \$2,000.

#### **4.3 ASBESTOS-CONTAINING MATERIALS**

Friable and non-friable asbestos-containing flooring materials were identified at the site. Asbestos fibers are potential health hazards when they become airborne. As long as the ACBM remain intact, undamaged, and in good condition, additional action is not considered necessary. However, the ACBM would require abatement prior to demolition activities.

To determine the cost of asbestos abatement, a bid for the removal of the ACBM was obtained from a qualified contractor. The cost estimate for the asbestos abatement is approximately \$57,000. It is estimated that it will take four weeks to complete the abatement project. Based on this project duration, the cost for required air monitoring and contractor oversight is estimated to be \$25,000. Therefore, the total cost associated with the abatement of the ACBM on the Subject Property is estimated to be \$82,000.

#### **4.4 LEAD-CONTAINING MATERIALS**

Lead-containing materials exist at each of the buildings assessed. The demolition of building at this site would require handling of lead-containing materials in accordance with L&I Regulation WAC 296-155-176. The contractor would be required to utilize work practices to control dust emissions and lead exposures to workers. Disposal of wastes would have to be in accordance with the State of Washington Department of Ecology Dangerous Waste Regulation, WAC 173-303.

WISHA requires that for work involving disturbance of lead or materials containing lead (e.g., lead-containing coatings), that personnel protection measures be utilized and personal protection equipment (PPE) used. If a contractor desires to downgrade the respiratory protection, collection of air samples is required for at least one shift and laboratory analysis of air samples cannot indicate concentrations of airborne lead higher than the action level. If exposures are documented over the action level, the employer shall implement an alternative engineering control to lessen the exposure to the employee.

It is Dames & Moore's opinion that methods used to control dust will also control lead exposure during demolition. However, air monitoring will be required at each building to confirm that lead concentrations in the air within regulated exposure limits. Prior to obtaining these data, the demolition workers will be required to use Level C PPE. It is expected that Level C PPE would be required for a period of 10 days. The estimated cost to perform the required air monitoring and perform the work in Level C PPE for a period of 10 days is \$15,000.

Although the dust may be controlled during demolition, peeling paint may not be readily recovered if it is not removed prior to demolition of the structure. In addition, the demolition contractor will be required to collect and analyze soil samples near the structures before and after demolition to demonstrate that lead from coating on the structures has not been released into the soil. To minimize the potential for lead to be released into the soil during demolition, peeling paint within the structures should be removed by hydroblasting and the water and paint chips should be recovered and properly disposed of at a permitted offsite facility. The cost for soil analysis, hydroblasting and disposal of one drum of lead waste materials is \$23,000.

The Washington State Department of Ecology currently requires that demolition wastes be characterized under the provisions of WAC 173-303, the Dangerous Waste Regulations. The Resource Conservation and Recovery Act (RCRA) requires that the TCLP test for lead be performed to evaluate if building debris is a potential hazardous waste under RCRA. The Toxicity Characteristic Leaching Procedures (TCLP) procedures evaluate the potential for wastes to leach toxic or hazardous materials following placement in a landfill. The maximum allowable concentration of lead in wastes for disposal as non-hazardous or non-dangerous is 5 parts per million. The TCLP testing procedure is to be performed on the actual wastes generated and would include a representative sampling of the entire waste stream to be disposed.

Dames and Moore collected five TCLP samples to determine if the waste was hazardous as required in the contract. The Dames and Moore samples were submitted to EMSL Analytical Services for lead analysis. The TCLP samples were analyzed to determine if the leachable lead exceeded the regulated level of 5 milligrams/liter. None of the samples exceeded the regulated standard established in Ecology's Dangerous Waste Regulation, WAC 173-303, TCLP Lead. Based on these results it is anticipated that the demolition debris would not be regulated as a lead waste with the exception of a small quantity of paint which would be separated from the building by hydroblasting selected painted surfaces. However, additional testing of the demolition debris will be required to confirm this assumption. The cost for the additional lead testing is estimated to be \$3,000.

Based on the assumption that the waste will not exceed the regulated standards in WAC 173-303, the total cost of lead-related items is estimated to be \$41,000.

#### 4.5 PCB LIGHT BALLASTS, LIGHT TUBES AND CHEMICAL CONTAINERS

Dames & Moore recommends that all light fixtures be disassembled prior to demolition to visually verify that PCB-containing ballasts are removed prior to demolition. Handling and transportation of PCB light ballasts shall be in accordance with the United States Environmental Protection Agency (EPA) governed by Toxic Substance Control Act (TSCA) PCB Regulations, 40 CFR 761. Dames & Moore recommends that mercury-containing fluorescent light tubes be removed prior to demolition activities without breakage to the light tubes. The United States Environmental Protection Agency (EPA) recommends recycling of fluorescent light tubes to an accredited recycler over the practice of disposal. The estimated cost for the removal and disposal of the PCB light ballasts and fluorescent light tubes is approximately \$5,000.

Dames & Moore recommends that chemical containers remaining on the Subject Property be temporarily moved to the Vinegar Plant Parcel and retained by Burns Philp until such time that Burns Philp can either utilize or dispose of the materials in accordance with applicable regulations. A number of drums are corroded or damaged, and overpack drums or other appropriate transfer containers are recommended to prevent spills or damage. Additionally, an effort should be made by Burns Philp to identify unlabelled drums, and to clarify the labeling of containers where labeling may be ambiguous.

Based on the number of containers and their locations, it is estimated that two qualified laborers with a truck, forklift and other appropriate equipment should be able to transfer the containers in approximately two days to an area on the Vinegar Plant Parcel designated by Burns Philp. The estimated cost to properly package and transport the containers to the Vinegar Plant Parcel is \$4,000.

#### 4.6 SUMMARY AND CONTINGENCIES

The investigations completed by Dames & Moore and Hart Crowser at the Subject Property have identified a number of environmental issues that should be considered prior to the acquisition of the Subject Property. Based on our experience with similar project we have developed a recommended approach and estimated costs to address each of the identified concerns. Each area of concern and the associated cost is presented below.

Soil and Groundwater	\$150,000
Catch Basins	\$ 2,000
Asbestos-Containing Materials	\$ 82,000
Lead-containing Materials	\$ 41,000
PCB Light Ballasts, Light Tubes and Chemical Containers	\$ 9,000

Based on the assumptions outlined in this report, the estimated total cost to address the environmental concerns is \$284,000. Due to the uncertainty associated with some of the assumptions presented above, the actual cost to implement and meet the intent of the remedial actions may be higher or lower than estimated. In Dames & Moore's opinion, it is appropriate to add a 20 percent contingency to cover potentially unforeseen environmental costs which may arise during the course of site remediation or demolition. With a

20 percent contingency, the estimated cost to address the environmental concerns is approximately \$341,000.

## 5.0 REFERENCES

Hart Crowser, 1994, Detailed Engineering Report, Fleischmann's Yeast Land Application System, Sumner, Washington, April 6.

Hart Crowser, 1995, Preliminary Environmental Assessment, Eastern Land Parcel Fleischmann's Yeast and Vinegar Facility, Sumner, Washington, September 29.

Hart Crowser, 1996, Pre-Demolition Environmental Services, Fleischmann's Yeast Plant, Sumner, Washington, May 1.

Hart Crowser, 1998, Phase II Environmental Site Assessment, Fleischmann's Yeast Eastern Property, Sumner, Washington, June 11.

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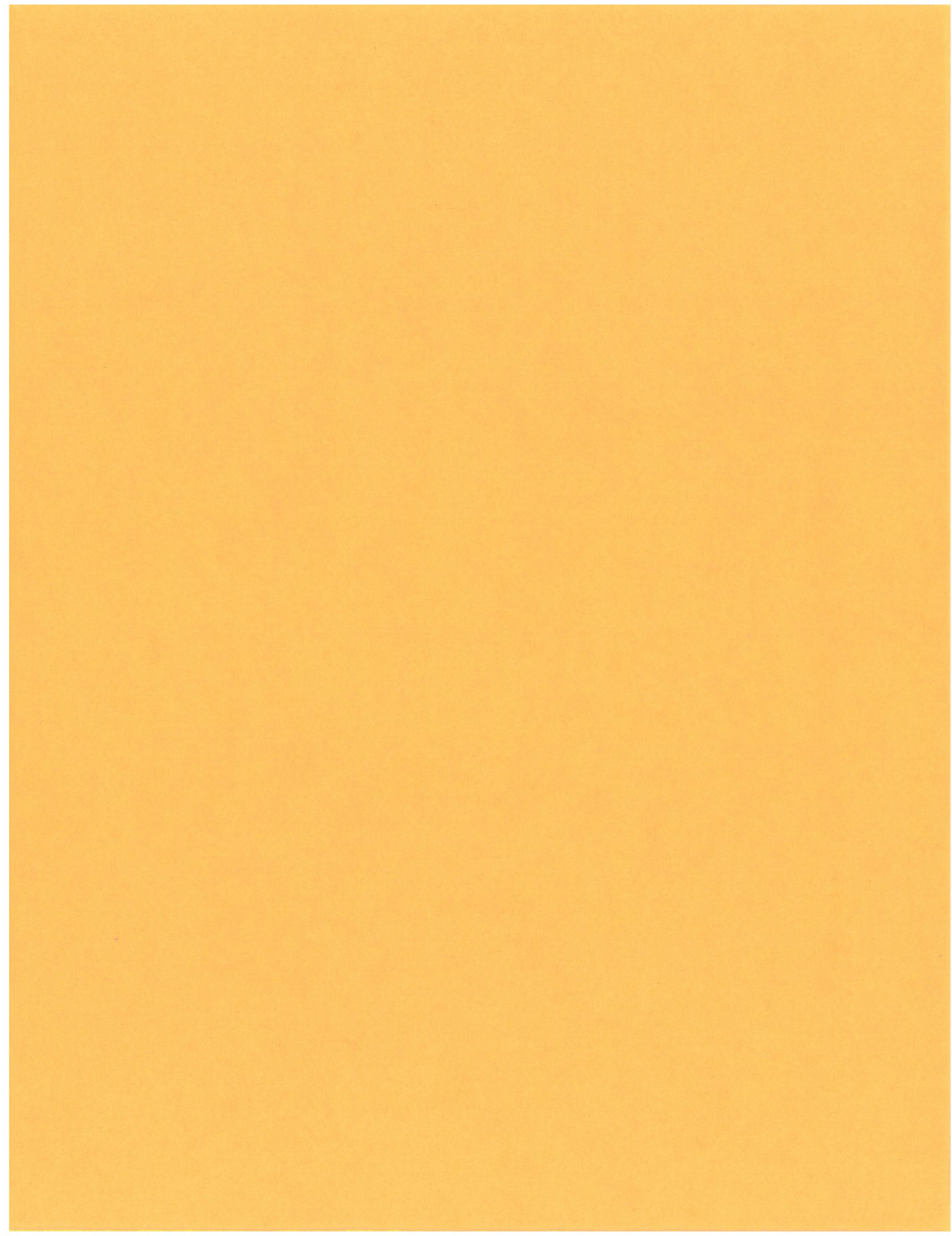
Soil and Groundwater	\$150,000
Catch Basins	\$ 2,000
Asbestos-Containing Materials	\$ 82,000
Lead-containing Materials	\$ 41,000
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In Dames & Moore's opinion, it is appropriate to add a 20 percent contingency to cover potentially unforeseen environmental costs which may arise during the course of site remediation or demolition. With a 20 percent contingency, the estimated cost to address the environmental concerns is approximately \$341,000.

## 5.0 REFERENCES

- Hart Crowser, 1994, Detailed Engineering Report, Fleischmann's Yeast Land Application System, Sumner, Washington, April 6.
- Hart Crowser, 1995, Preliminary Environmental Assessment, Eastern Land Parcel Fleischmann's Yeast and Vinegar Facility, Sumner, Washington, September 29.
- Hart Crowser, 1996, Pre-Demolition Environmental Services, Fleischmann's Yeast Plant, Sumner, Washington, May 1.
- Hart Crowser, 1998, Phase II Environmental Site Assessment, Fleischmann's Yeast Eastern Property, Sumner, Washington, June 11.



**Table 1**  
**Summary of Historical Soil Analytical Results**  
**Fleischmann's Yeast Project**  
**Sumner, Washington**

Sample ID <sup>1</sup>	Depth (ft, bgs)	Total Petroleum Hydrocarbons <sup>2</sup> (mg/kg)		
		Gasoline-Range Hydrocarbons	Diesel-Range Hydrocarbons	Oil-Range Hydrocarbons
P1-S1	0-4	10 U	<b>2,800</b>	<b>5,000</b>
P2-S1	0-4	10 U	20 U	<b>1,800</b>
P3-S1	0-5	10 U	20 U	50 U
P3-S2	5-8	10 U	20 U	50 U
P4-S1	0-4	10 U	20 U	50 U
P5-S1	0-5	10 U	20 U	95
P6-S1	0-5	10 U	20 U	<b>230</b>
P7-S1	2-5	10 U	20 U	50 U
P9-S1	0-5	10 U	20 U	50 U
P10-S1	0-4	10 U	20 U	<b>210</b>
P11-S1	3-5	10 U	20 U	50 U
P12-S2	5-8.5	10 U	20 U	50 U
P13-S1	1-4	56	20 U	110
P13-S2	4-8	37	20 U	82
P14-S1	0-4	10 U	20 U	180
P15-S1	0-4	10 U	20 U	<b>50 U</b>
P15-S1 (DUP)	0-4	10 U	20 U	<b>50 U</b>
CB-1	surface	10 U	20 U	<b>960</b>
CB-2	surface	10 U	20 U	<b>1,200</b>
CB-3	surface	10 U	20 U	270
CB-3 (DUP)	surface	10 U	20 U	210
MTCA Method A Soil Cleanup Level		100	200	200

**Notes:**

(DUP) Duplicate field sample

MTCA - Model Toxics Control Act

bgs - below ground surface

U - Sample was analyzed for, but not detected above the reporting limit shown.

<sup>1</sup> Samples collected during January 1998.

<sup>2</sup> Analyses performed by using EPA method 8020 (NWTPH-Dx/Dx and NWTPH-Gx).

Numbers in bold font indicate that the result reported exceeds a MTCA cleanup level.

Source: HartCrowser, 1998.

Table 2  
 Summary of Historical Groundwater Analytical Results  
 Fleischmann's Yeast Project  
 Sumner, Washington

Sample ID <sup>1</sup>	Total Petroleum Hydrocarbons <sup>2</sup> (ug/L)		
	Gasoline-Range Hydrocarbons	Diesel-Range Hydrocarbons	Oil-Range Hydrocarbons
P1	200 U	<b>1,600</b>	2,000 U
P2	200 U	<b>1,500</b>	<b>2,800</b>
P-3	200 U	800 U	2,000 U
P-7	540	800 U	2,000 U
P-9	200 U	800 U	2,000 U
P-13	200 U	800 U	2,000 U
MW-3	200 U	800 U	2,000 U
MW-4	200 U	800 U	2,000 U
MTCA Method A Groundwater Cleanup Level	1,000	1,000	1,000

**Notes:**

MTCA - Model Toxics Control Act

U - Sample was analyzed for, but not detected above the reporting limit shown.

<sup>1</sup> Samples collected during January 1998.

<sup>2</sup> Analyses performed by using EPA method 8020 (NWTPH-Dx/Dx and NWTPH-Gx).

Numbers in bold font indicate that the result reported exceeds a MTCA cleanup level.

Source: HartCrowser, 1998.

**TABLE 3**  
**AREAS OF CONCERN AND SAMPLE DESIGNATIONS**  
**FLEISCHMANN'S YEAST PROJECT**  
**SUMNER, WASHINGTON**

Area of Concern	Sample Designation	Sample Type
Former Boiler USTs	S-1, S-2, S-3, S-19, S-20	Soil and Groundwater
Diesel AST	S-4, S-5	Soil and Groundwater
Former Garage and Paint Shops	S-6, S-7, S-8, S-9, S-10	Soil and Groundwater
Upgradient	S-11, S-12	Groundwater
Former Ammonia AST	S-13	Groundwater
Former By-product Tanks/Downgradient	S-14, S-15	Soil and Groundwater
Former Diesel AST and Phosphoric Acid AST	S-16	Soil and Groundwater
Downgradient	S-18	Soil and Groundwater
Former Diesel AST	S-21	Groundwater
Former Land Application Areas	LA-1 through LA-9	Surface Soils (Composited into three samples)
Former Transformer Pads	T-1 through T-3	Surface Soils (Composited)
Aeration Pond	AP-1	Sediment
Stained or Corroded Concrete in Buildings 1 and 4	HA-1 through HA-6	Soil
Monitor Wells	MW-1, MW-4	Groundwater

**Table 4**  
**Summary of Soil Sample Analytical Results for TPH and pH**  
**Fleischmann's Yeast Project**  
**Sumner, Washington**

Sample ID/Date		Depth (ft, bgs)	Total Petroleum Hydrocarbons <sup>1</sup> (mg/kg)		pH <sup>2</sup> (S.U.)
			Diesel-Range Hydrocarbons	Heavy Oil-Range Hydrocarbons	
S-1-9	11/13/98	9	20 U	40 U	NA
S-1-9 (DUP)	11/13/98	9	20 U	40 U	NA
S-2-1	11/13/98	1-4	<b>18,000</b>	<b>6,600</b>	NA
S-2-10	11/13/98	10-13	20 U	40 U	NA
S-3-8	11/13/98	8-11	20 U	40 U	NA
S-4-4	11/13/98	4-7	<b>850</b>	40 U	NA
S-5-1	11/13/98	1-4	20 U	40 U	NA
S-6-1	11/13/98	1-4	20 U	40 U	NA
S-7-1	11/13/98	1-4	20 U	40 U	NA
S-7-4	11/13/98	4-7	20 U	40 U	NA
S-8-4	11/13/98	4-7	20 U	40 U	NA
S-9-1	11/13/98	1-4	20 U	40 U	NA
S-9-1 (DUP)	11/13/98	1-4	20 U	40 U	NA
S-10-1	11/13/98	1-4	20 U	40 U	NA
S-10-1 (DUP)	11/13/98	1-4	20 U	40 U	NA
S-11-7	11/13/98	7-10	20 U	40 U	NA
S-14-1	11/13/98	1-4	20 U	40 U	NA
S-15-4	11/13/98	4-7	20 U	40 U	NA
S-16-1	11/13/98	1-4	NA	NA	7.18
S-16-4	11/13/98	4-7	20 U	40 U	NA
S-18-1	11/13/98	1-4	20 U	40 U	NA
S-19-7	11/13/98	7-10	20 U	40 U	NA
S-20-7	11/13/98	7-10	20 U	40 U	NA
HA1-1	11/19/98	1	20 U	50 U	8.16
HA1-3	11/19/98	3	20 U	<b>2,700</b>	8.38
HA1-3 (DUP)	11/19/98	3	20 U	<b>2,800</b>	NA
HA2-1	11/19/98	1	20 U	50 U	7.87
HA2-3	11/19/98	3	20 U	50 U	7.83
HA3-1	11/19/98	1	20 U	50 U	7.95
HA3-3	11/19/98	3	20 U	50 U	8.18
HA4-1	11/19/98	1	20 U	50 U	7.27
HA4-3	11/19/98	3	20 U	50 U	7.36
HA5-1	11/19/98	1	20 U	50 U	7.3
HA5-3	11/19/98	3	20 U	50 U	6.45
HA6-1	11/19/98	1	20 U	50 U	7.02
HA6-3	11/19/98	3	20 U	50 U	5.3
HA6-3 (DUP)	11/19/98	3	20 U	50 U	NA
MTCA Method A Soil Cleanup Level			200	200	NE

**Notes:**

(DUP) Duplicate field sample

MTCA - Model Toxics Control Act

NA - Not Analyzed

NE - Not Established

bgs - below ground surface

S.U. - Standard Unit

<sup>1</sup> Analyses performed by using NWTPH-HCID and/or NWTPH-D extended.

<sup>2</sup> Analyses performed by using EPA method 9045.

U - Sample was analyzed for, but not detected above the reporting limit shown.

Numbers in bold font indicate that the result reported exceeds a MTCA cleanup level.

**Table 5**  
**Summary of Soil Sample Analytical Results for Volatile Organic Compounds, Metals, and PCBs**  
**Fleischmann's Yeast Project**  
**Sumner, Washington**

Sample ID/Date	Depth (ft, bgs)	Volatile Organic Compounds (ug/kg)					Metals (mg/kg)						PCBs (mg/kg)
		EPA Method 8020	EPA Method 8260B				EPA Methods 6010, 6020, 7471						EPA Method 8082
		BTEX <sup>1</sup>	Bromomethane	Chloromethane	n-Butylbenzene	Arsenic	Barium	Cadmium	Chromium	Mercury	Silver		
S-1-9	11/13/98	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-1-9 (DUP)	11/13/98	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-2-1	11/13/98	1-4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-2-10	11/13/98	10-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-3-8	11/13/98	8-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-4-4	11/13/98	4-7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-5-1	11/13/98	1-4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-6-1	11/13/98	1-4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-7-1	11/13/98	1-4	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-7-4	11/13/98	4-7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-8-4	11/13/98	4-7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-9-1	11/13/98	1-4	NA	NA	NA	NA	79 U	23	16 U	17	0.092 U	2 U	NA
S-9-1 (DUP)	11/13/98	1-4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-10-1	11/13/98	1-4	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-10-1 (DUP)	11/13/98	1-4	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-11-7	11/13/98	7-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-15-4	11/13/98	4-7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-16-1	11/13/98	1-4	NA	NA	NA	NA	110 U	75	22 U	27	0.099 U	4.5	NA
S-16-4	11/13/98	4-7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-18-1	11/13/98	1-4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-19-7	11/13/98	7-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-20-7	11/13/98	7-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HA1-1	11/19/98	1	NA	580 B1	89 J	570 U	NA	NA	NA	NA	NA	NA	NA
HA1-3	11/19/98	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HA1-3 (DUP)	11/19/98	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HA2-1	11/19/98	1	NA	430 JB1	63 J	190 J	NA	NA	NA	NA	NA	NA	NA
HA2-3	11/19/98	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HA3-1	11/19/98	1	NA	NA	NA	NA	1.9	65	1.4 U	24	0.12 U	2.7 U	NA
HA3-3	11/19/98	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HA4-1	11/19/98	1	NA	NA	NA	NA	1.2 U	1.2 U	1.2 U	4.1	0.11 U	11	NA
HA4-3	11/19/98	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HA5-1	11/19/98	1	NA	NA	NA	NA	1.2 U	33	1.2 U	20	0.15	2.4 U	NA
HA5-3	11/19/98	3	NA	NA	NA	NA	1.4 U	57	1.4 U	24	0.32	6.7	NA
HA6-1	11/19/98	1	NA	NA	NA	NA	1.1 U	40	1.1 U	22	0.1 U	2.2 U	NA
HA6-3	11/19/98	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HA6-3 (DUP)	11/19/98	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AP-1	11/20/98	1	NA	NA	NA	NA	2 U	2 U	2 U	4.4	0.21 U	13	NA
LA-1,2,3*	11/20/98	0.5	NA	NA	NA	NA	1.3	46	1.2 U	22	0.12 U	2.5 U	NA
LA-4,5,6*	11/20/98	0.5	NA	NA	NA	NA	1.9	49	1.4 U	20	0.12 U	2.8 U	NA
LA-7,8,9*	11/20/98	0.5	NA	NA	NA	NA	1.2 U	1.2 U	1.2 U	2.4 U	0.11 U	5.4	NA
T-1,2,3*	11/20/98	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
T-1,2,3* (DUP)	11/20/98	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
MTCA Method A or B Soil Cleanup Level			-	112,000 (B)	7,690 (B)	NE	20.0 (A)	5,600 (B)	2.0 (A)	100 (A)	1.0 (A)	400 (B)	1.0 (A)

**Notes:**

- (DUP) Duplicate field sample
- (A) - MTCA Method A soil cleanup level
- (B) - MTCA Method B soil cleanup level
- MTCA - Model Toxics Control Act
- NA - Not Analyzed
- ND - Not Detected
- NE - Not Established
- B1 - Sample was detected in the associated method blank. The sample concentration was determined not to be significantly higher than the associated method blank.
- J - Sample was analyzed for and positively identified, but the associated numerical value is an estimated quantity.
- U - Sample was analyzed for, but not detected above the reporting limit shown.
- bgs - below ground surface
- <sup>1</sup> BTEX - Benzene, Toluene, Ethylbenzene, and Xylenes
- \* Composite sample

Table 6  
 Summary of Groundwater Analytical Results  
 Fleischmann's Yeast Project  
 Sumner, Washington

Sample ID/Date		Total Petroleum Hydrocarbons <sup>1</sup> (ug/L)		BTEX <sup>2</sup> (ug/L)	Nitrate Nitrogen <sup>3</sup> (mg/L)	Total Metals <sup>4</sup> (mg/L)	VOCs <sup>5</sup> (ug/L)		Semi-VOCs <sup>6</sup> (ug/L)											
		Diesel-Range Hydrocarbons	Heavy Oil-Range Hydrocarbons				Barium	Naphthalene	Methylene Chloride	bis (2-Ethylhexyl) phthalate	2,6-Dinitro toluene	2-Methyl naphthalene	3- and 4- Methyl phenol	Acenaphthene	Benzoic Acid	Dibenzofuran	Di-n- butylphthalate	Di-n- octylphthalate	Fluorene	Naphthalene
S-1-W	11/13/98	21,000	16,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-2-W	11/13/98	18,000	11,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-3-W	11/13/98	200 U	400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-4-W	11/13/98	200 U	400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-5-W	11/13/98	750	400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-6-W	11/13/98	200 U	400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-7-W	11/13/98	200 U	400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-8-W	11/13/98	200 U	400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-9-W	11/13/98	200 U	400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-10-W	11/13/98	200 U	400 U	ND	NA	0.4	NA	10 U	0.63 B1	0.92 B1	0.11 U	0.56 U	0.11 U	0.56 U	0.56 U	NA	NA	NA	NA	NA
S-10-W (DUP)	11/13/98	200 U	400 U	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.18 JB1	0.56 U	0.11 U	0.11 U	0.56 U
S-11-W	11/13/98	200 U	400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-12-W	11/13/98	200 U	400 U	NA	NA	NA	140	10 U	5.2 U	1.2 J	1.1	4.2 J	7.7	5.2 U	1.5 J	5.2 U	5.2 U	1.1	59	7.3
S-13-W	11/13/98	NA	NA	NA	0.07	NA	NA	NA	1 B1	0.77 B1	0.098 U	0.49 U	0.4	0.12 J	0.49 U	0.42 JB1	0.49 U	0.098 U	0.098 U	0.49 U
S-14-W	11/13/98	200 U	400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-15-W	11/13/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-16-W	11/13/98	200 U	400 U	ND	NA	NA	NA	20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-18-W	11/13/98	200 U	400 U	ND	0.03 U	0.046	NA	10 U	0.78 JB1	1.7 B1	0.2 U	1 U	0.2 U	1 U	1 U	0.32 JB1	1 U	0.2 U	0.2 U	1 U
S-19-W	11/13/98	200 U	400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-19-W (DUP)	11/13/98	200 U	400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-20-W	11/13/98	200 U	400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-21-W	11/13/98	200 U	400 U	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-1	11/19/98	200 U	500 U	NA	NA	0.029	10 U	10 U	0.72 B1	0.13 J	0.093 U	0.47 U	0.093 U	0.44 JB1	0.47 U	0.14 J	0.11 J	0.093 U	0.093 U	0.47 U
MW-4	11/19/98	200 U	500 U	NA	NA	NA	10 U	3.1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-4 (DUP)	11/19/98	200 U	500 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MTCA Method A or B Groundwater Cleanup Level		1,000 (A)	1,000 (A)	-	25.6 (B)	1.2 (B)	320 (B)	5.0 (A)	6.25 (B)	1.6 (B)	NE	NE	960 (B) ✓	64,000 (B) ✓	NE	1,600 (B) ✓	320 (B) ✓	640 (B) ✓	320 (B)	9,600 (B)

Notes:

(DUP) Duplicate field sample

(A) - MTCA Method A groundwater cleanup level

(B) - MTCA Method B groundwater cleanup level

MTCA - Model Toxics Control Act

<sup>1</sup> Analyses performed by using NWTPH-D extended.

<sup>2</sup> BTEX - Benzene, Toluene, Ethylbenzene, and Xylenes. Analysis performed by using EPA method 8020.

<sup>3</sup> Analyses performed by using EPA method 300.

<sup>4</sup> Analyses performed by using EPA method 6010.

<sup>5</sup> Analyses performed by using EPA method 8260.

<sup>6</sup> Analyses performed by using EPA method 8270.

NA - Not Analyzed

ND - Not Detected

NE - Not Established

B1 - Sample was detected in the associated method blank. The sample concentration was determined not to be significantly higher than the associated method blank.

J - Sample was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

U - Sample was analyzed for, but not detected above the reporting limit shown.

Numbers in bold font indicate that the result reported exceeds a MTCA cleanup level.

**TABLE 7**  
**SUMMARY OF ASBESTOS SAMPLING AND RESULTS**  
**FLEISCHMANN'S YEAST PROJECT**  
**SUMNER, WASHINGTON**

Sample Number	Material Sampled	Sample Location	Analytical Results* Notes (#)
A-001	Black wall insulation	Building 1, SE corner storage room	ND
A-002	Light weight concrete from wall	Building 1, SE corner storage room	ND
A-003	Tank pad	Building 1, central tank	55% CH
A-004	2'X4' ceiling tile	Building 1, control room, central area	ND
A-005	2'X4' ceiling tile	Building 1, control room, central area	ND
A-006	Geometric pattern, SVF	Building 1, control room, door way	ND
A-007	White cove base mastic	Building 1, control room, north area	ND
A-008	White cove base mastic	Building 1, control room, door day	ND
A-009	Wall board	Building 1, control room	ND
A-010	Plaster wall	Building 1, locker room, west wall	2%CH
A-011	Plaster wall	Building 1, locker room, south wall	ND
A-012	Plaster wall	Building 1, SE room, west wall	ND
A-013	Built-up layers roofing materials	Building 1, roof, south side	ND
A-014	Hard tar	Building 1, roof, south side at edge	ND
A-015	Built-up layers roofing materials	Building 1, roof, north side	ND
A-016	Built-up layers roofing materials	Building 1, roof, south side	ND
A-017	Built-up layers roofing materials	Building 1, roof, northwest side	ND
A-018	Hard tar	Building 1, roof, northeast side	ND
A-019	Gray flooring	Building 1, south side of building	ND
A-020	Gray flooring	Building 1, north side of building	ND
A-021	Gypsum wall board	Building 1, Men's restroom	ND
A-022	Gypsum wall board	Building 1, Women's restroom	ND
A-023	Wall insulation	Building 1, north side storage room	ND
A-024	Wall plaster	Building 1, north side storage room	ND
A-025	Window glazing	Building 1, SE corner	ND
A-026	Window glazing	Building 1, NE corner	ND
A-027	Wall insulation	Building 16, cooler room, west wall, behind galvanized cover	ND
A-028	Wall insulation	Building 16, cooler room, central area, behind galvanized cover	ND
A-029	Wall insulation	Building 16, cooler room, east wall, behind galvanize cover	ND
A-030	12"X12" VFT	Building 16, lab, southeast area	ND
A-031	Black mastic from 12"X12" VFT	Building 16, lab, southeast area	12%CH
A-032	Cove base mastic	Building 16, lab, entrance	ND
A-033	2'X4' ceiling tile	Building 16, lab, central area	ND
A-034	Asphaltic paper	Building 4A, roof, south central corner	ND
A-035	Roofing material	Building 4A, roof, south central corner	5%CH=Roof 12%CH=Tar felt
A-036	Asphaltic paper	Building 4A, roof, NW corner	ND
A-037	Roofing material	Building 4A, roof, NW corner	5%CH=Roof 15%CH=Tar felt

**TABLE 7 (CONTINUED)**  
**SUMMARY OF ASBESTOS SAMPLING AND RESULTS**  
**FLEISCHMANN'S YEAST PROJECT**  
**SUMNER, WASHINGTON**

Sample Number	Material Sampled	Sample Location	Analytical Results*
			Notes (#)
A-038	Roofing material	Building 4A, roof, NE corner	15%CH
A-039	Window glazing	Building 4A, roof shed	ND
A-040	Pipe elbow	Building 20, pipes in central area	ND
A-041	Pipe elbow	Building 20, pipes in central area	ND
A-042	Pipe elbow	Building 20, pipes at wall penetration in central area	ND
A-043	Roofing paper	Building 20, roof, north central area	8%CH
A-044	Roofing material	Building 20, roof, north central area	25%CH
A-045	Roofing paper	Building 20, roof, south central area	8%CH
A-046	Roofing material	Building 20, roof, south central area	25%CH
A-047	Roofing paper	Building 20, roof, NE corner	15%CH
A-048	Roofing material	Building 20, roof, NE corner	35%CH
A-049	Window glazing	Building 20, west window	ND
A-050	Window glazing	Building 20, east window	5%CH
A-051	Geometric pattern SVF	Building 16, SE room, central area	ND
A-052	Geometric pattern SVF	Building 16, SE room, central area	ND
A-053	Gypsum wallboard with joint compound	Building 1A, north wall	ND
A-054	Gypsum wallboard with joint compound	Building 1A, south wall	ND
A-055	Composition roofing	Building 16, roof of lab, SW corner	5%CH=3rd layer
A-056	Multi layers roofing	Building 16, roof of cooler, north central area	3%CH=2nd layer
A-057	Multi layers roofing	Building 16, roof of cooler, south central area	5%CH=3rd layer
A-058	Gold/white SVF	Office building, SW corner office	15%CH Adhesive=ND
A-059	Black mastic from gold/white SVF	Office building, corridor of Women's restroom	3%CH
A-060	Cove base mastic	Office building, corridor of Women's restroom	ND
A-061	Cove base mastic	Office building, SW corner office	ND
A-062	2'X4' Fiberglass ceiling with backing	Office building, SW corner office	ND
A-063	12"X12" VFT	Office building, Men's restroom	ND
A-064	Yellow mastic from 12"X12" VFT	Office building, Men's restroom	ND
A-065	2'X2' ceiling tile	Office building, Men's restroom	ND
A-066	Black asphaltic flooring	Building 16, cooler room floor	ND
A-067	Plaster wall	Building 1, Locker room, east wall	ND
A-068	Plaster wall	Building 1, Locker room, north wall	ND
A-069	Plaster wall	Building 1, Locker room, south wall	ND
A-070	Plaster wall	Building 1, Locker room, north wall	ND

Key: CH = Chrysotile, GWB = gypsum wall board, SVF = sheet vinyl flooring, VFT = vinyl floor tile

**TABLE 8**  
**SUMMARY OF LEAD CHIP SAMPLING AND RESULTS**  
**FLEISCHMANN'S YEAST PROJECT**  
**SUMNER, WASHINGTON**

Sample No.	Substrate / Component	Paint Color	Sample Location	Results(% by weight for Lead)
L-001	Brick/wall	White	Building 1, north central area	0.688
L-002	Concrete/wall	Yellow	Building 1, south area of	0.387
L-003	Concrete/wall	Yellow	Building 4A, west exterior wall	0.406
L-004	Brick/wall	Yellow	Building 20, north exterior wall	0.099
L-005	Concrete/wall	Yellow	Building 4, east exterior wall	0.232
L-006	Wood/wall	Yellow	Building 16, east loading dock	1.488
L-007	Wood/door trim	Green	Building 16, east loading dock	0.012
L-008	Plaster/wall	White	Building 16, interior wall	0.434
L-009	Wood/door trim	Blue	Office building, exterior trim	0.303
L-010	Brick/wall	Yellow	Office building, exterior	1.679

- Note:
- 1) The State of Washington Department of Labor and Industries (L&I) WAC 296-155-17609, paragraph 2(a) states that the regulations are in force where lead is present. A renovation/demolition project would include compliance with the worker protection standards for lead references in WAC-296-155-17609.
  - 2) Painted materials not sampled are to be assumed as lead-containing.
  - 3) Regulated lead-containing materials are expected to have minimal impacts on the asbestos abatement project.

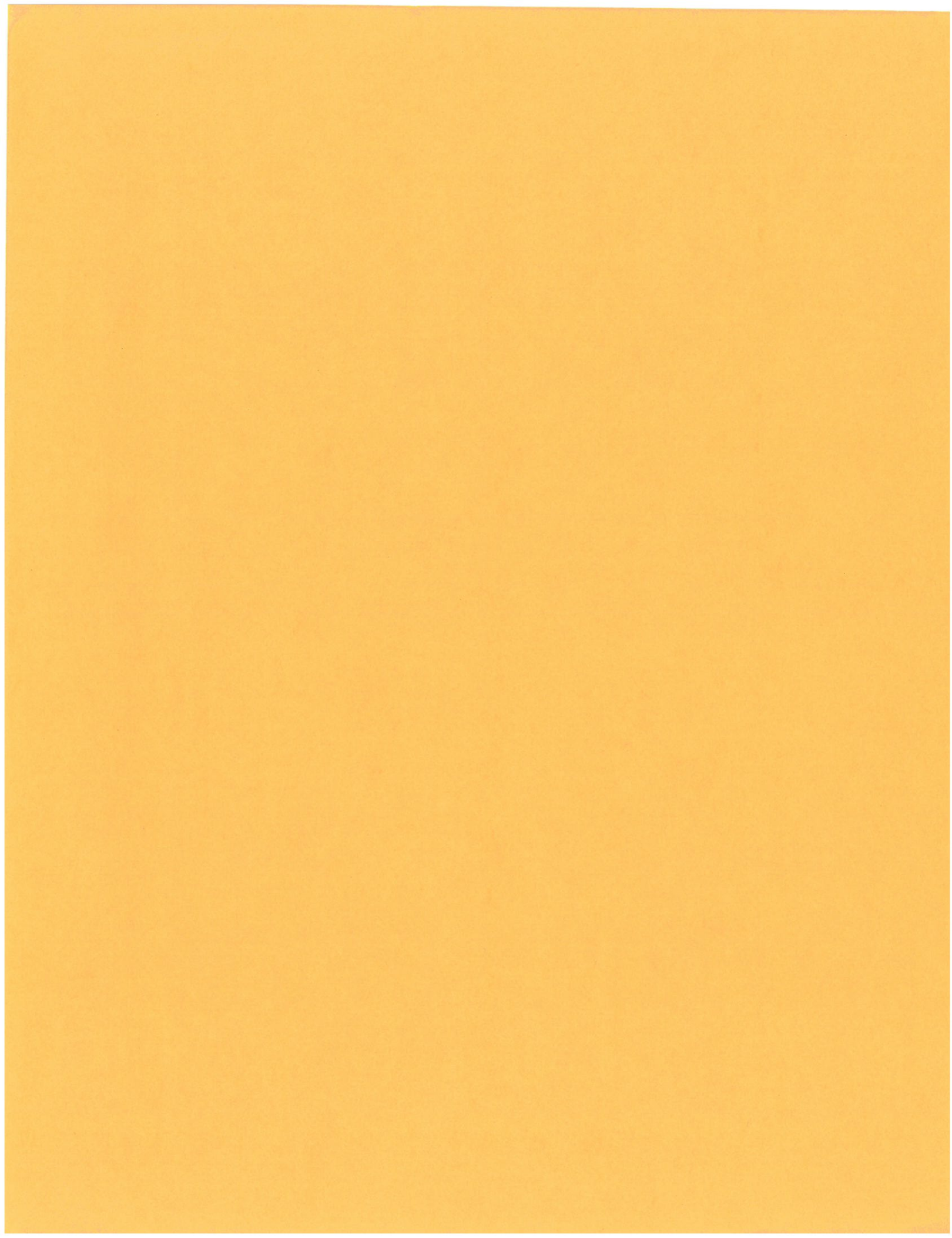
**TABLE 9**  
**TCLP LEAD SAMPLE RESULT**  
**FLEISCHMANN'S YEAST PROJECT**  
**SUMNER, WASHINGTON**

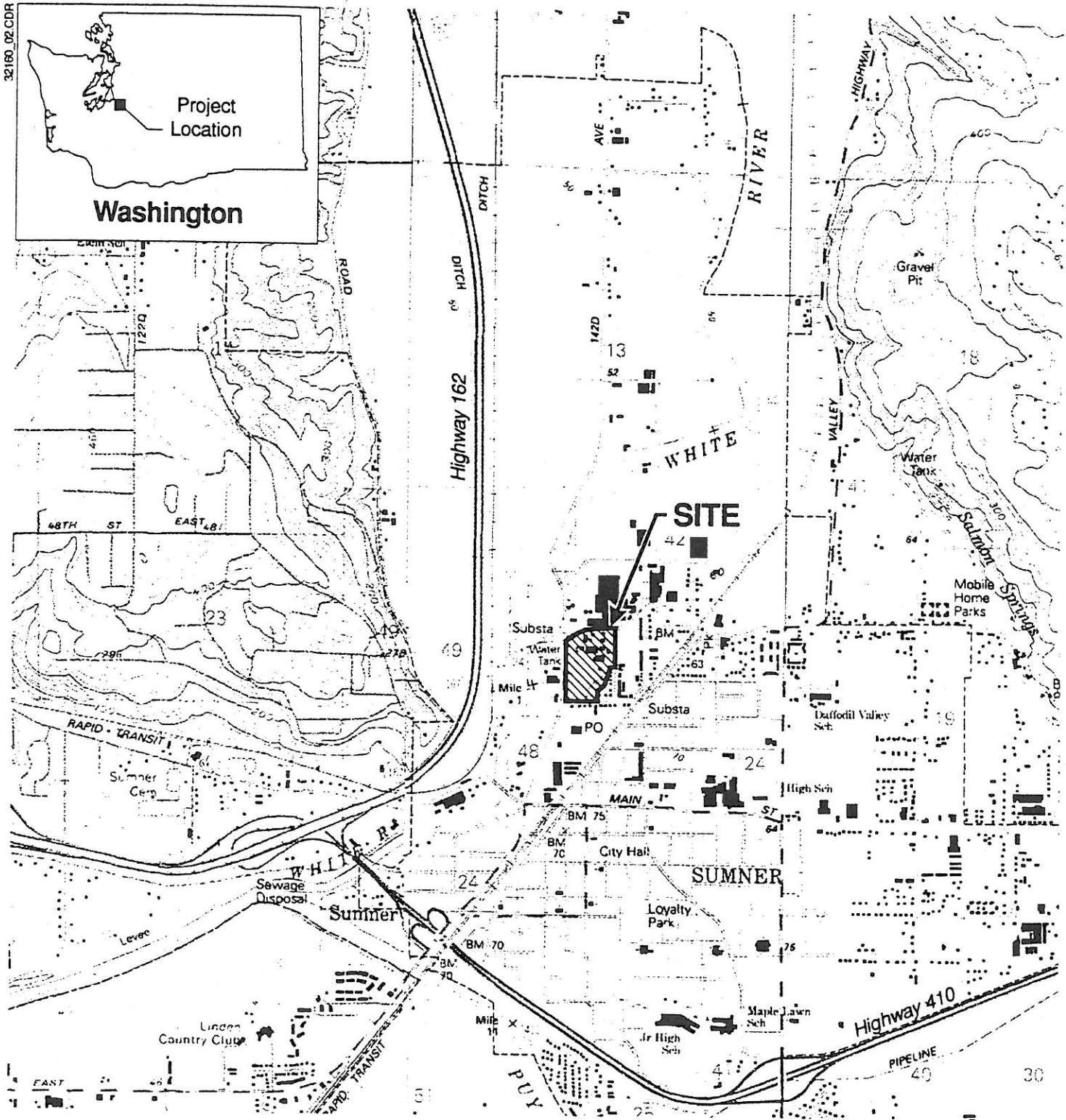
Sample Number	Sample Location	Materials	Lead Concentration in Leachate (mg/L)
T-001	Building #1	Concrete, brick, wood	0.1
T-002	Building #4&4A	Concrete, brick, wood	0.1
T-003	Building #20	Concrete, brick, wood	0.1
T-004	Building #16	Concrete, brick, wood	0.1
T-005	Office building	Concrete, brick, wood	0.2

**TABLE 10**  
**SUMMARY OF PCB BALLAST AND LIGHT TUBES**  
**FLEISCHMANN'S YEAST PROJECT**  
**SUMNER, WASHINGTON**

Building Number	PCB Ballast	Number of Light Fixtures	2-Foot Light Tubes	4-Foot Light Tubes	8-Foot Light Tubes
Building 1	55	35	20	90	4
Building 4	6*	0	0	0	0
Building 4A	2	2	4	0	0
Building 20	8	16	16	0	0
Building 16	110	55	0	90	110
Office Building	22	44	0	84	0
<b>TOTAL</b>	<b>203</b>	<b>152</b>	<b>40</b>	<b>264</b>	<b>114</b>

\* Spare ballasts on floor in various locations.





Map created with TOPO!™ © 1997 Wildflower Productions, www.topo.com

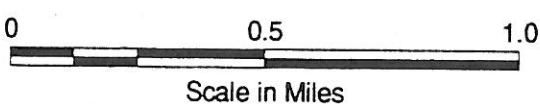











Figure 1  
SITE LOCATION MAP

**LEGEND**

- \*— Fence
- - - Property boundary
-  Property to be retained by Burns Philp (Vinegar Plant Parcel)
-  Hart-Crowser GeoProbe location
-  Groundwater monitoring well
-  Industrial water supply well location
-  Catch basin location
-  Dames & Moore StrataProbe location, November 1998
-  Dames & Moore soil surface sample location, November 1998
-  Dames & Moore sediment sample location, November 1998
-  Former structure

Source: Hart Crowser, 1998

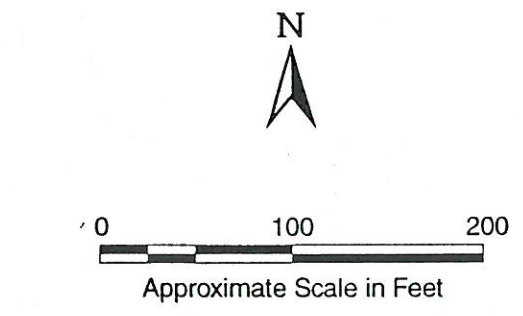
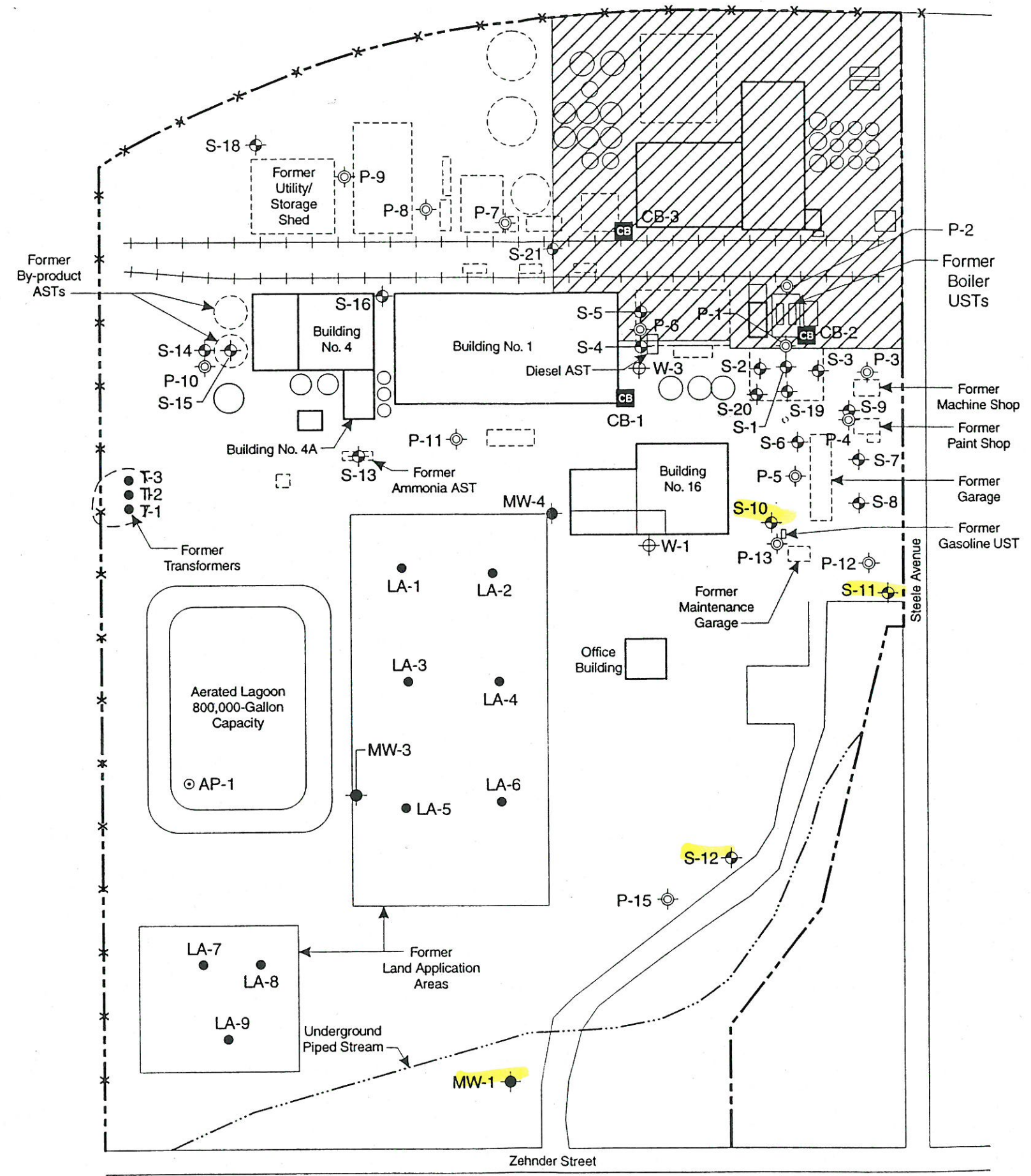
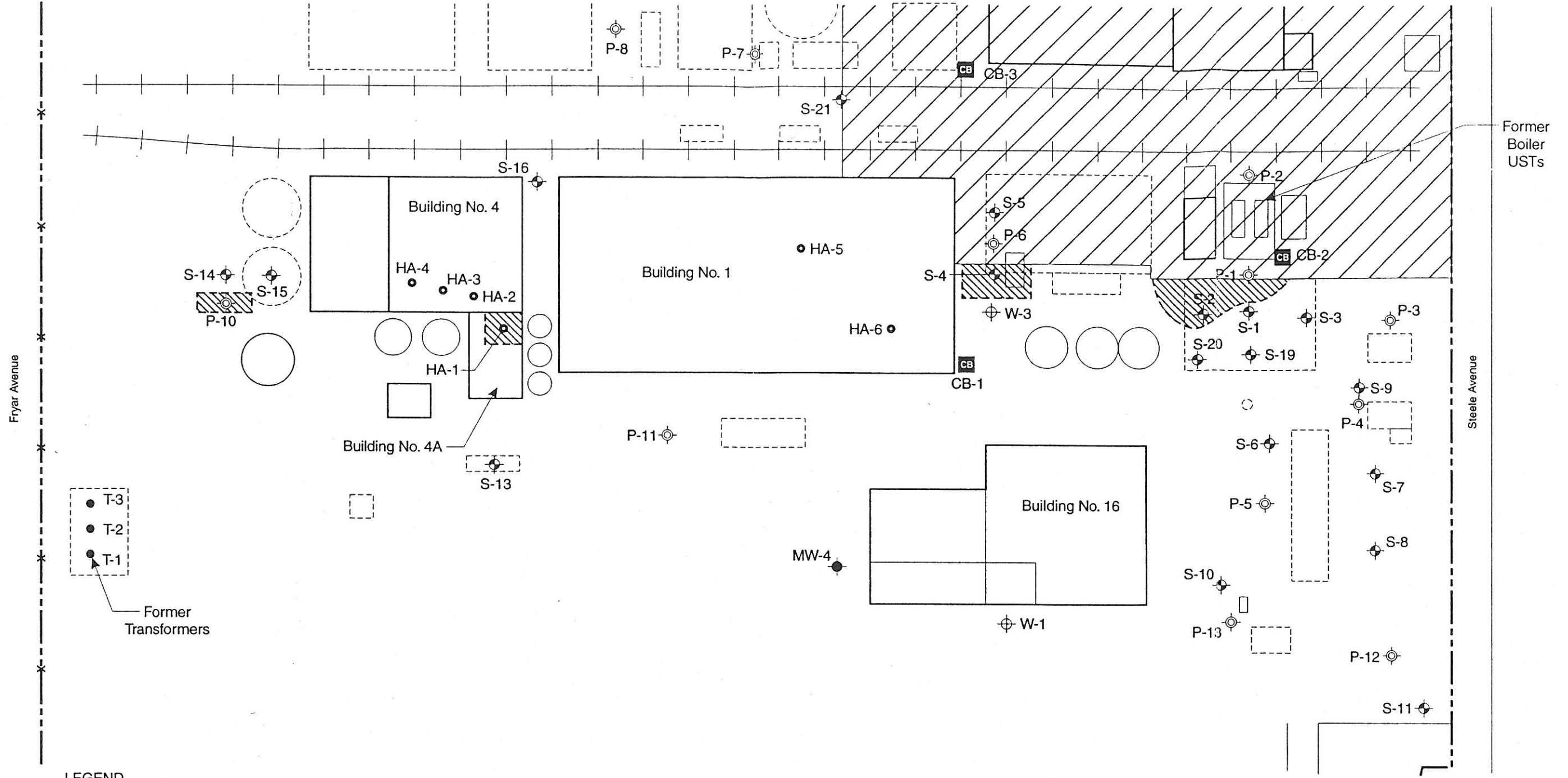
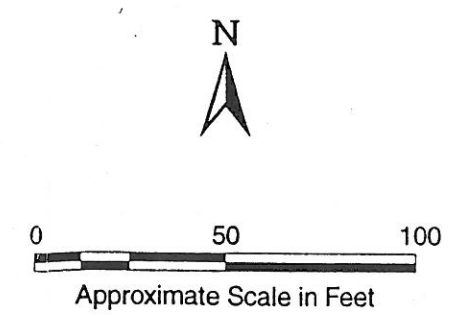


Figure 2  
**SITE PLAN AND SAMPLE LOCATIONS**



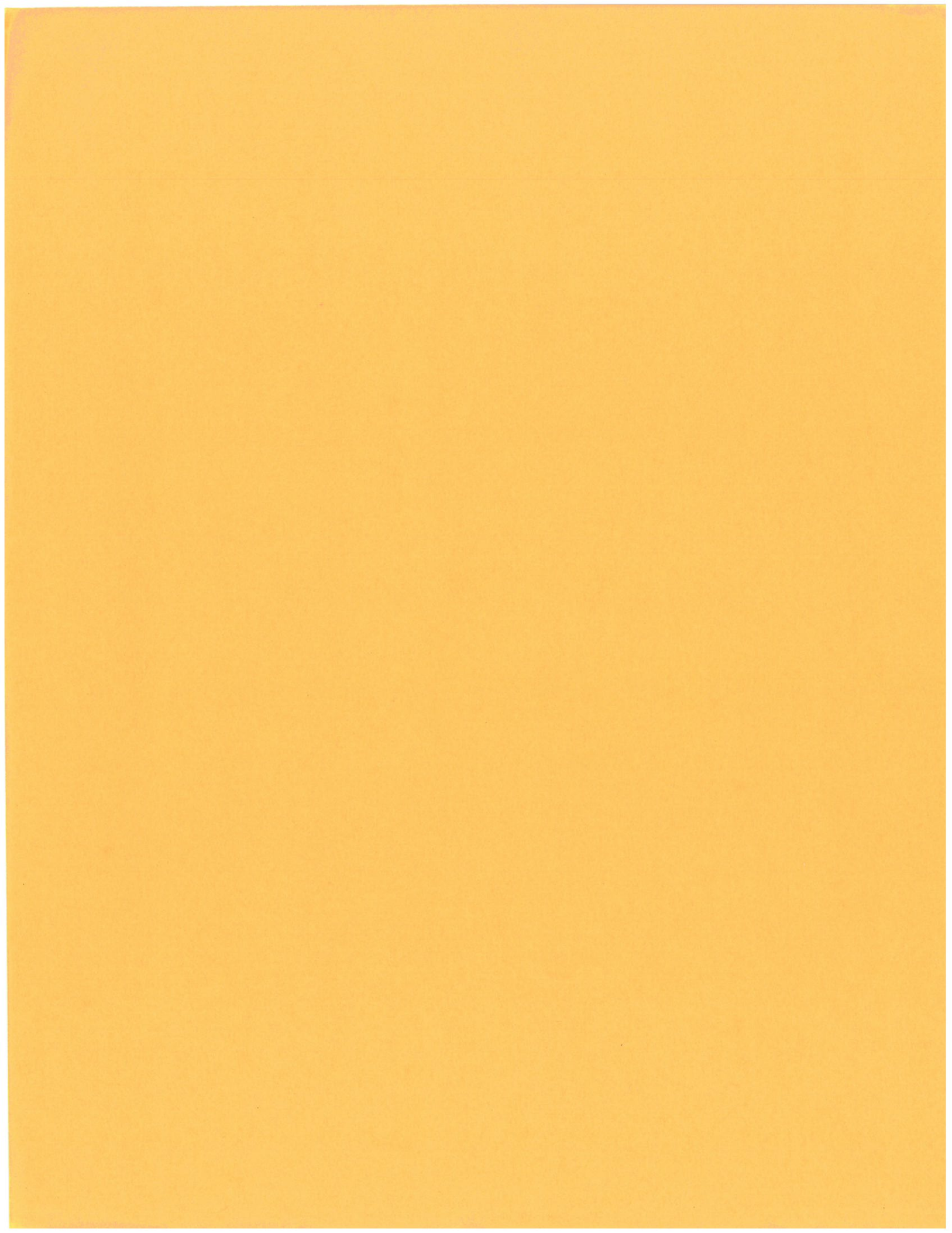
**LEGEND**

- \*— Fence
- Property boundary
- Property to be retained by Burns Philp (Vinegar Plant Parcel)
- Estimated area of soil and/or groundwater contamination
- Hart-Crowser GeoProbe location
- Groundwater monitoring well
- Industrial water supply well location
- Catch basin location
- Dames & Moore StrataProbe location, November 1998
- Dames & Moore hand auger sample location, November 1998
- Former structure



Source: Hart Crowser, 1998

Figure 3



**APPENDIX A**  
**BORING LOGS**



DRILLING CONTRACTOR TIG M

58734

BY KDA

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

LOCATION OF BORING

SEC Figure

JOB NUMBER	CLIENT	LOCATION
	SWOW	Summer
DRILLING METHOD:		BORING NUMBER
STRATA POINT		S-2
SAMPLING METHOD:		SHEET
SPLIT SPIN		1 OF 1
		DRILLING
		START TIME
		1000
		FINISH TIME
		1120
SURFACE CONDITIONS:		DATE
GRAV. FILL		DATE
		11/21/12

DATUM		ELEVATION			BLOWS/FT. SAMPLER	DEPTH IN FEET	SOIL GRAPH	DESCRIPTION
SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	OVA				
				AUGER	SAMPLE	CUTTINGS		
							0	Multiple Arrows to Right Part of Data Form
							1	Gr
	36 / 30	1045	2-1 / 1-4		26		2	Brn silt, w/ fine sand, some moist, mid stiff
							3	
	36 / 30	1045	2-4 / 1-7		12		4	Grassy dk gray, type sand, SPT on soil
							5	
							6	dk gray silt + clay, plastic, w/ some sand / silt
							7	1 1/2" round logs (DECOMPOSING) SOFT, TR WOOD
							8	
	36 / 30	1055	2-7 / 2-10		1		9	Gray GRASSY gray - brown silt clay less moisture, no log sand / silt
							10	
							11	
	36 / 36	1100	2-10 / 10-13		12		12	Moist to WE - Gray silty clay - moist plastic, TR type sand, SPT
							13	
							14	TR = 13'
							15	GR @ 7'
							16	TEMP SPT SET @ 7-13'
							17	Collect water sample S-P-W (1120)
							18	Water - silty, type sand, gray
							19	
							20	Bottom Backfill w/ Bottom

DRILLING CONTRACTOR Figman

58736

BY DL CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

See Figure  
~4' N.O. - OR'S LOCATION

LOCATION OF BORING										JOB NUMBER	CLIENT	LOCATION
											SWOW	Summer
										DRILLING METHOD:		BORING NUMBER
										STRATA PAPER		5-3
										SAMPLING METHOD:		SHEET
										SOIL SPIN		( OF )
												DRILLING
												START TIME
												FINISH TIME
												1270
										SURFACE CONDITIONS:		DATE
										GRAVELLY		DATE
												10/12/98

DATUM				ELEVATION				DEPTH IN FEET	SOIL GRAPH	SURFACE CONDITIONS:
SAMPLER TYPE	INCHES DRIVEN	INCHES RECOVERED	TIME	BLOWS/FT. SAMPLER	OVA					
					AUGER	SAMPLE	CUTTINGS			
								0		ALL FIN. SILTY/SANDY
								1	Gm	
								2		
	36	18	1230	3-2		12		3	ml	BROWN SILT, TR. F. SAND, MED. DENSE, MOIST, NO APP. ROOT/SHELL
								4		
								5		
	36	24	1210	3-5		35		6	ml/c	GRASSY GRAY SILT - / CLAY, LOW-MED. PLASTIC, ADHES TO WTC, NO APP. ROOT/SHELL
								7		
								8		
								9		TR. PEAT
								10		AS ABOVE, W/ GRASSY MAT. NO APP. ROOT/SHELL
	36	30	1245	3-8		40		11		TD = 11'
								12		GW = 6'
								13		TOP SCREEN SET - 6-110'
								14		Collect WATER SAMPLE S-3-W (1325)
								15		GRAY, SILTY, TR. ORGANIC MATTER.
								16		NO APP. ROOT/SHELL
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DRILLING CONTRACTOR *TEG NW*

58740

BY *VRA*  
DATE *11/11/11* CHECKED BY \_\_\_\_\_

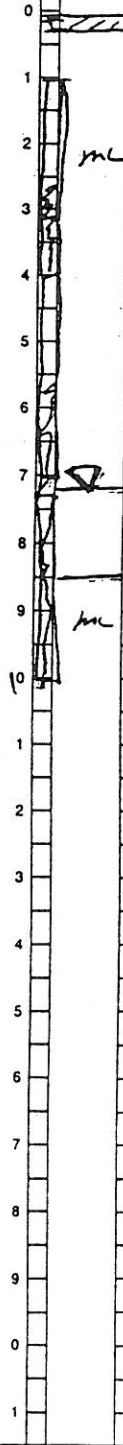
LOCATION OF BORING

*See Figure*

JOB NUMBER	CLIENT	LOCATION
	<i>Dsm-V</i>	<i>Sumner</i>
DRILLING METHOD:		BORING NUMBER
<i>Stroma Process</i>		<i>5-6</i>
SAMPLING METHOD:		SHEET
<i>SP-IT 300</i>		<i>1</i> OF <i>4</i>
START TIME	FINISH TIME	DATE
<i>1415</i>	<i>1430</i>	<i>11/12/11</i>
SURFACE CONDITIONS:		DATE
<i>3" Asphalt</i>		<i>11/12/11</i>

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	ELEVATION			DEPTH IN FEET	SOIL GRAPH
					AUGER	SAMPLE	CUTTINGS		
	<i>36 / 18</i>	<i>1415</i>	<i>6-1 / 1-4</i>						
	<i>36 / 18</i>	<i>1420</i>	<i>6-4 / 4-7</i>						
	<i>30 / 30</i>	<i>1425</i>	<i>6-7 / 7-10</i>						
			<i>1430</i>						

*Qun Not  
Classified*



*ASPHALT*

*BRN SILTY S. SAND*  
*Dry, ~~fine~~ - NO APP ORG / STRIP*

*AS ABOVE*

*GRADING WET*

*GRADING GRAY - LESS SAND*  
*NO APP ORG / STRIP*

*TP = 10'*  
*GW = 7'*  
*TRIP SAM. SET = 6-10'*  
*SAMP = 5-6 - W collect 1 (1430)*  
*GRAD TUBING - NO APP ORG / STRIP*

*BRN BACK FILL w/ STABILITE*



SEE  
Figures

DRILLING CONTRACTOR

58738

TEG/KW

CHECKED BY

6-2

BY

DATE

LOCATION OF BORING										JOB NUMBER		CLIENT		LOCATION							
<p>SEE Figures</p>												SWOW		Summer							
										DRILLING METHOD:										BORING NUMBER	
										Semi-Portable										S-5	
										SAMPLING METHOD:										SHEET	
										1 OF 1											
										DRILLING											
										START	FINISH										
										TIME	TIME										
										14:25											
										DATE	DATE										
										10/12/88											

DATUM				ELEVATION			DEPTH IN FEET	SOIL GRAPH	SURFACE CONDITIONS:
SAMPLER TYPE	INCHES DRIVEN INCHES RECOVERED	TIME	SAMPLE NUMBER SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA				
					AUGER	SAMPLE	CUTTINGS		
								3" ASPHALT	
								ASPHALT	
								NO RECOVERY	
	36 30	1425	2-1 1-4			1			
	36 18	1430	2-4 4-3			16		<p>10' - 11' M Brown SILT &amp; CLAY, SOFT, LOW-MED PLASTIC, MOIST, GRAY, WET (Red-Brown NO APP ORDN / STRAIN MOTTLED I.E. SAND)</p>	
	36 36	1435	2-7 7-10			18		AS ABOVE	
								<p>Grassy Gray, SOFT, med Plast mass of SHOR. No APP ORDN / or SHOR.</p>	
								<p>TD = 10' G<sub>max</sub> = 6' SET Tens Screen - 6-10' - Collect Water Sample: S-8-W (1450) Coring - INSUB, SILTY, NO APP ORDN / SHOR.</p>	
								PH = 6.2	
								Boring BACK Filled w/ Bentonite	







LOCATION OF BORING

SEE FIGURES

JOB NUMBER 34848-006-005	CLIENT SWOW	LOCATION Summer
DRILLING METHOD: STRADA PROOF		BORING NUMBER S-12
SAMPLING METHOD: SPLIT SPOON - SS GEO PROBE SAMPLER		SHEET 1 OF 1
		DRILLING START TIME 1455
		FINISH TIME 1530
		DATE 11/13/98

DATUM				ELEVATION			DEPTH IN FEET	SOIL GRAPH
SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER SAMPLE CUTTINGS			
							0	
	36 / 36	1505	12-1 / 1-4				1	
	36 / 36	1520	12-2 / 4-8				2	
	36 / 36	1535	12-3 / 2-8				3	
	36 / 36	1510	12-4 / 2-8				4	
	36 / 36	1525	12-5 / 12-16				5	
	36 / 36	1535	12-6 / 12-16				6	
							7	
							8	
							9	
							10	
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							19	
							20	
							21	

SURFACE CONDITIONS:  
TOP SOIL / GRASS

TOP SOIL

Brown to Lt Brown Silty F. Sand - w/ F Sand LENSES - MED DENSE Dry to moist - NO APP ODDN / STRAIN.

AS ABOVE - INCR. DENSITY - moist, NO APP. ODDN / STRAIN.

AS ABOVE, GRADING WBT

GRADING GRAY - NO APP ODDN / STRAIN.

AS ABOVE

DARK GRAY GRAVEL w/ SILT, SAND GUL TO 3/4", WBT, NO APP ODDN / STRAIN.

TD = 20'

GW ENC. ~ 13' BGS - SET Temp Sensor - 15' WATER SAMPLE S-12-W (1530) Brown - GRAY - TURBID, NO APP ODDN / SCREEN PH ~ 6 1/2

Boring Back Filled w/ Bentonite.

DRILLING CONTRACTOR: JEA - MW  
 48326  
 CHECKED BY: [Signature]  
 DATE:

See Figure

LOCATION OF BORING		JOB NUMBER	CLIENT	LOCATION
			SWOW	Summer
DRILLING METHOD:			BORING NUMBER	
STRATA PUNCH			S-13	
SAMPLING METHOD:			SHEET	
SOIL SPOON			11 OF 1	
			DRILLING	
			START TIME	FINISH TIME
			940	
SURFACE CONDITIONS:			DATE	DATE
TOPSOIL / GRAVEL PAD			7/13/50	

DRILLING CONTRACTOR

58744

CHECKED BY  
DATE

DATUM				ELEVATION			DEPTH IN FEET	SOIL GRAPH	SURFACE CONDITIONS:	
SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA					
					AUGER	SAMPLE	CUTTINGS			
								0	Gr	Gravel
								1		
	3/4	940	13-1					2		NO RECOVERY
								3		
	3/4	945	13-4					4		
								5		Brown to gray w/ orange mottles
								6	CL	STIFF SILTY CLAY, AUST. NO APP
								7		Gravel sand, mid plastic
								8		
								9		A2 A24: gray w/
	3/4	955	13-3					10		Gravelly gray SILTY CLAY, T <sup>W</sup> organic
	1/36		7-10					11		material, STIFF, NO APP w/ 200 / 500
								12		T.D. 112'
								13		WATER SAMPLE S-13-6 (1000)
								14		(WATER)
								15		Sample Brown - gray / V. Turbid
								16		No oil / SHALE - 5% ~ 6%
								17		Boz. BACK FILL w/ 3-4-10"
								18		
								19		
								20		
								21		

P.O. Box 9247  
Seattle, WA 98109-0247  
Phone: 206-282-6334  
Fax: 206-282-6330

# Cascade Columbia Distribution Company

# Fax

RECEIVED  
FAXED

To: Bob PRIDE

From: Bob  
~~Lance Jones~~

Company:

Date: 9/15/04

Fax: 425-814-5672

Pages: 5

Re:

Urgent     For Review     Please Comment     Please Reply     Please Recycle

•Comments:

Bob I've found the RAW DATA and sent them to you S-14, S-15, S-16. There are 17 other probes but they are further away. Let me know if you need anything else. Hope you can read them.

Bob COOE

206 763 2350

LOCATION OF BORING

JOB NUMBER

CLIENT

LOCATION

DRILLING METHOD:

BORING NUMBER

SHOULDER Probe

S-14

SAMPLING METHOD:

SHEET

Split Spoon

1 OF 1

DRILLING

START

FINISH

TIME

TIME

1015

DATE

DATE

11/13/52

DATUM

ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA			DEPTH IN FEET	SOIL GRAPH
					AUGER	SAMPLE	CUTTINGS		
	3 1/2 / 3 1/2	1020	1441 / 1-4						
	3 1/2 / 2	1025	1444 / 4-7						
	3 1/2 / 2 1/2	1036	1447 / 7-10						

SURFACE CONDITIONS:

ASPHALT

0" Asphalt

1" Gm

2" Dk gray silty clay / sand w/ Decan  
No Air voids / sp

3" Grassy Dark gray to gray silt  
Clay, stiff. No Air voids / sp  
Moist.

4" ml

5" As above, stiff.  
No gravel / stain

6" R

7" R

8" Grassy wet

9" ml

10" Grassy gray silt w/ F. sand  
Clay No Air voids / sp

11" T10-10'

12" Gm - 7' See Job Summary 7-10' 52  
(Water Sample S-141 - w 1045)  
Silty, gray-brown  
PH ~ 6.12

13" Boring Bottom End w/ 3" pipe

DRILLING CONTRACTOR

JCS/ML

58745

CHECKED BY

BY VDB

DATE

LOCATION OF BORING

JOB NUMBER

CLIENT

LOCATION

SWOW

Summer

DRILLING METHOD:

BORING NUMBER

5-15

SHEET

1 of

SAMPLING METHOD:

DRILLING

START TIME

10:30

DATE

11/15/50

FINISH TIME

DATE

S.C. Figure

DATUM

ELEVATION

SAMPLER TYPE

INCHES DRIVEN / INCHES RECOVERED

TIME

SAMPLE NUMBER / SAMPLE DEPTH

BLOWS/FT. SAMPLER

AUGER

SAMPLE

CUTTINGS

OVA

DEPTH IN FEET

SOIL GRAPH

SURFACE CONDITIONS:

Gravel Fill

GRAVEL FILL

Brown SILTY SAND, FILL. NO APP. WOOD/SHEEN

Gravel w/c  
Gray, Silty CLAY, STIFF, MED  
Peaty NO APP. WOOD/SHEEN

NO RECOVERY

TD-10'  
6'-5'  
CONTACT WATER SAMPLE 5'-15" (11W)  
- 5' SILTY SAND  
Silty, Gray, NO APP. WOOD/SHEEN

Boys Borehole w/ 13.5' diameter

DRILLING CONTRACTOR

58746

CHECKED BY

DATE

BY

LOCATION OF BORING

JOB NUMBER

CLIENT

LOCATION

Duow

Summer

DRILLING METHOD:

Stream Probe

BORING NUMBER

S-16

SHEET

1 OF 1

SAMPLING METHOD:

Split Spoon

DRILLING

START TIME

FINISH TIME

1315

DATE

DATE

11/13/58

DATUM

ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	ELEVATION			DEPTH IN FEET	SOIL GRAPH
					AUGER	SAMPLE	CUTTINGS		
	36 / 18	1315	16-1				0		
							1		
							2		
	36 / 26	1320	16-4				3		
							4		
							5		
	36 / 36	1330	16-7				6		
							7		
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							9		
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							18		
							19		
							20		
							21		

SURFACE CONDITIONS:

GRAVEL

Rail BALLAST (?)

GRAVELLY SILT / CLAY

GRAY SILT CLAY, MEDIUM STIFF, SLIGHT SILTY (?) CLAY NO APP. STRAIN

AS ABOVE TR. OILY MUD, TR. PIPE LESS STIFF, MUD MOUNTAIN NO APP. OIL / STRAIN

AS ABOVE, LESS PEAK, MUD TR. F. SAND @ 5 FT. NO APP. OIL / STRAIN

TID - 10'

GM - 7' 90' TAMP SCREEN 7-10' BY 3 WATER SAMPLE - S-16-W (1545)

GRAY, M. TUBES / SAND NO APP. OIL / STRAIN

BIT ~ 6 1/2

BORING BORE FEELER W/ BORE

DRILLING CONTRACTOR JCG

58748

BY \_\_\_\_\_ CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_



DRILLING CONTRACTOR *TeG New*

58733

BY *L.P.J.*  
 CHECKED BY \_\_\_\_\_  
 DATE \_\_\_\_\_

LOCATION OF BORING  
*20' S. of S-1*

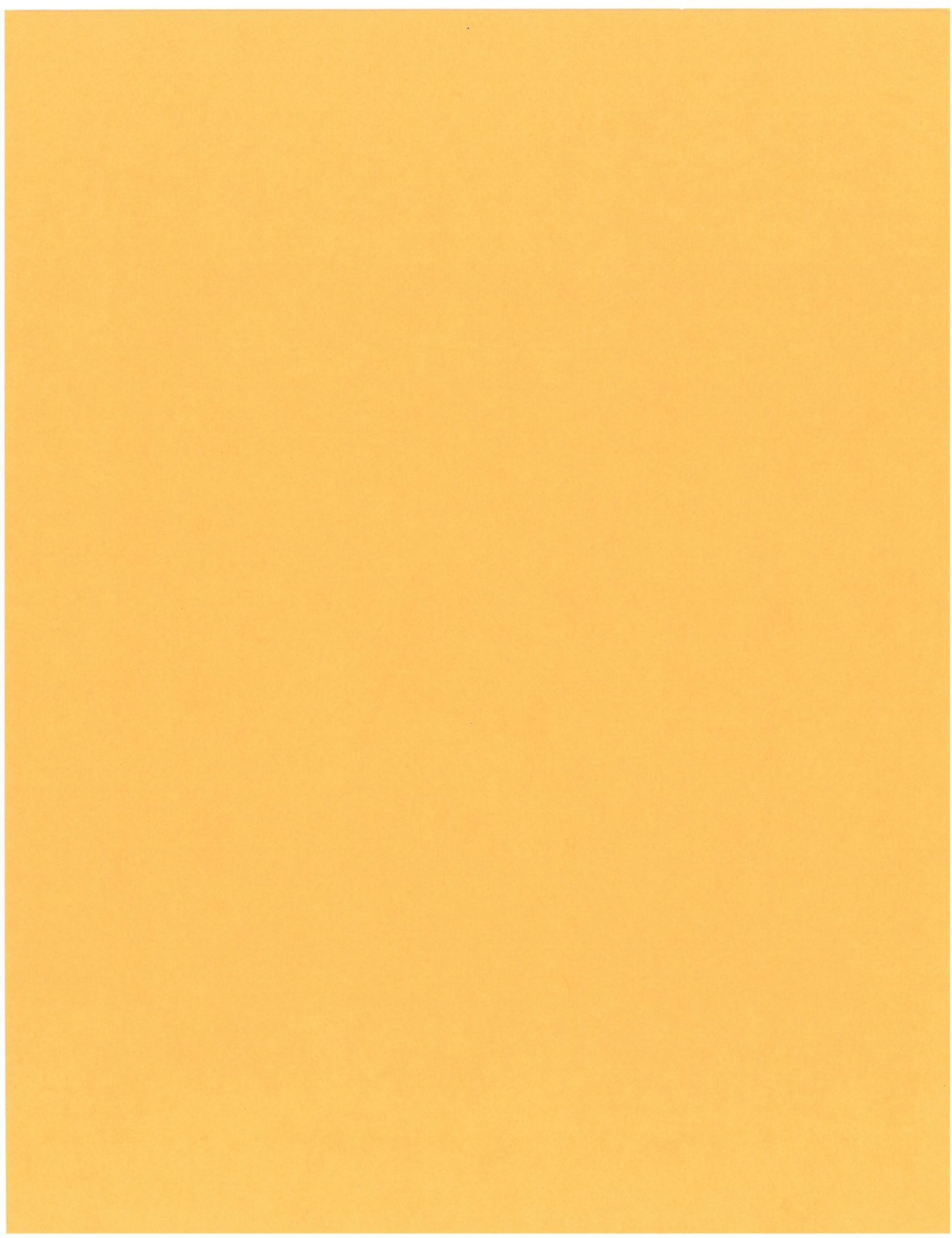
JOB NUMBER	CLIENT <i>SNOW</i>	LOCATION <i>SUNNYSIDE</i>
DRILLING METHOD: <i>STANDARD</i>		BORING NUMBER <i>S-19</i>
SAMPLING METHOD: <i>SPLIT SPIN</i>		SHEET <i>1 OF 1</i>
SURFACE CONDITIONS: <i>GRAVELL - FILL</i>		DRILLING START TIME <i>9:40</i> FINISH TIME <i>10:30</i>
		DATE <i>11/12/98</i>

SAMPLER TYPE	INCHES DRIVEN INCHES RECOVERED	TIME	SAMPLE NUMBER SAMPLE DEPTH	BLOWS/FT. SAMPLER	ELEVATION			DEPTH IN FEET	SOIL GRAPH
					AUGER	SAMPLE	CUTTINGS		
	<i>26 21</i>	<i>9:40</i>	<i>11-1 1-1</i>						
	<i>26 30</i>	<i>9:43</i>	<i>11-2 4-2</i>						
	<i>26 6</i>	<i>9:45</i>	<i>11-3 3-10</i>						

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*BR... SU w/ ES... clay  
 TO 2.0' - BR... m 2.5 ft, 6000  
 PL... ST... NO APP.../ST...  
 4.5' BR...  
 GRADING GR... W... CLAY, m...  
 NO APP.../ST...  
 GRADING W...  
 NO APP.../ST...  
 SET... 8-10' IS...  
 CONC... WATER... S-19-W  
 FH-7 (1000)  
 WATER - S... BR... NO APP.../ST...  
 SPEED  
 BORING BACK FILL w/ B...  
 TO 10'  
 GW ENL ~ 8'  
 BORING BACK FILL - 20 w/ B...*





**APPENDIX B**  
**SOIL AND GROUNDWATER ANALYTICAL REPORTS**