SECOR

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December 11, 2007

Mr. Michael D. Noll
ConocoPhillips Company
11921 185th AVE SE
Snohomish, WA 98290

RE: Air Sparge/Vapor Recovery System Installation Report
ConocoPhillips Site No. 2603146 (RM&R #1680)
8408 Aurora Ave. North
Seattle, WA 98013

Dear Mr. Noll:

SECOR International Incorporated (SECOR) is pleased to present this installation report for an Air Sparge (AS) / Vapor Recovery System (VRS) at ConocoPhillips Facility Number 2603146 located at 8408 Aurora Ave. North Seattle, Washington (site)(Figure 1). The remediation system is designed to volatize petroleum hydrocarbon contaminants in the groundwater using air sparge and recovering the volatized vapors in the unsaturated zone using a vapor extraction system. The following discussion describes the remediation system installation and its operation.

## SITE DESCRIPTION

The site is located in King County, Washington and is situated in Section 6 of Township 25 North, Range 3 East of the United States Geological Survey (USGS) Seattle North, Washington 7.5-minute topographic quadrangle. The immediate surrounding area consists primarily of commercial establishments with some residential housing. The site is bounded by North 85th Street to the north and North 84th Street to the south. Aurora Avenue North is situated west of the site and residential buildings are situated to the south and east.

The site is currently occupied by an operating 76-branded fuel dispensing station and convenience store. Site features include two dispenser islands with gasoline only and one dispenser island with gasoline and diesel, three gasoline underground storage tanks (USTs), one diesel UST, a convenience store, and a remediation system compound. The site is paved with concrete along the dispensers, USTs, parking areas and driveway bordered by planters.

## BACKGROUND

Various environmental assessment and remediation activities have been conducted at the site by previous consultants beginning in 1991. Total petroleum hydrocarbons characteristic of gasoline (TPH-g), TPH characteristic of diesel (TPH-d), TPH characteristic of heavy oil (TPH-o) and benzene, toluene, ethylbenzene, and total xylenes (BTEX) have historically been detected in the groundwater above the Washington State Model Toxic Control Act (MTCA) Method A cleanup levels. Review of the historic groundwater monitoring results indicates impacted

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groundwater around the underground storage tanks (USTs) and to the south and west of the southernmost dispenser islands.

In October 1996, a combined Air Sparge (AS) / Soil Vapor Extraction (SVE) system was installed and operated until June 2000. The system removed approximately 2,052 pounds of hydrocarbons. In November 2000, the system was restarted by another consultant and operated until March 2002, recovering an additional 430 pounds of hydrocarbons. The system was shut down in March 2002 following the discovery of a suspected new release from fuel dispensing equipment. The remediation system was removed by Custom Backhoe in 2005.

## APPLICATION AND APPROACH

AS and SVE pilot tests were conducted by SECOR on October 12 and 13, 2006. The results indicated an AS radius of influence (ROI) of 25 feet. The SVE ROI varied because some Vapor Extraction (VE) wells were in native soil while others were in pea-gravel used to grade the site.

A network of AS wells (AS-9 through AS-16) and VE wells (VE-1 through VE-8) were installed in the proximity of the contaminated areas as well as downgradient to prevent offsite migration. Details regarding the installation of the AS and VE wells are provided in an additional SECOR report, '2603146 System Well Installation Report'. The locations of the wells are shown in Figure 2.

## SYSTEM INSTALLATION

### Scope of Work

The completed scope of work included the following:

- Preparing a site specific Health and Safety Plan;
- Notifying the municipal Utility Notification Center and hiring a private utility locator to identify any potential conflicts with existing underground utilities;
- Trenching and plumbing from each AS and VE well to the equipment compound using existing plumbing where possible;
- Disposal of soil, concrete, and decon water;
- Installation of new AS compressor, VE blower, knockout drum, carbon vessels, and control panel;
- System startup.

## SUBSURFACE INSTALLATION

The subsurface trenching and plumbing was conducted from November 8, 2006 through December 1, 2006 by Custom Backhoe and Dumptruck Services of Bellevue, WA. The existing plumbing was used where possible to avoid retrenching the whole site. Trenches were excavated from the existing plumbing to the wells using a backhoe and hand shovels. Two-inch schedule 40 PVC pipe was installed approximately 1.5 to 2 feet below grade connecting

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the VE wells to the existing plumbing. One-inch diameter schedule 80 PVC was installed at the same depth connecting the existing plumbing to the AS wells.

All lines were pressure tested from the well to the compound using an air compressor to apply approximately 20 PSI to each line. The lines were able to maintain the pressure for at least 3 to 4 minutes. The trenches were backfilled with compact density fill, compacted and repaved with concrete. The trench in the south planter was filled with native soil and compacted back to its original grade. The locations of the trenches are shown in Figure 2.

## ABOVE-GRADE INSTALLATION

The remediation system was installed inside of the existing compound in the southeast corner of the site. The equipment was furnished by H2 Oil Recovery Equipment, Inc. (H2 Oil) and installed by Custom Backhoe and Dumptruck Services on January 25, 26, and 29, 2007. The equipment consists of a Rotron Model DR555K58 blower with a 3 horsepower motor; a 55 gallon moisture separator equipped with a level switch and a ½ horsepower Dayton model liquid transfer pump; a Rietschle Thomas DTA 80 rotary-vane oil-less air sparge compressor coupled with a 7.5 horsepower Baldor motor; and two 55 gallon Clean Environmental Concepts TSU-55 vapor phase carbon filters. Both the air sparge and vapor extraction wells are connected together inside the compound using a separate manifold for each system. Each individual line is equipped with valves for flow adjustment, gauges for pressure/vaccum measurement, and sample ports (only on the vapor extraction system).

The system is run by a 240 volt AC, 100 Amp, single phase power supply that feeds a breaker panel inside the compound. The system is controlled by an H2 Oil control panel equipped with a Mini-Pico program logic control and main disconnect on the front of the panel. An equipment layout is shown in Figure 3 and a process and instrumentation diagram is shown in Figure 4. The system operation and maintenance manual is included as Attachment A.

## SYSTEM START-UP ACTIVITIES

On February 13 and 14, 2007, SECOR personnel conducted system startup activities to retrieve an air sample to determine if an air permit would be required. The analytical report is included as Attachment B. The vapor extraction and air sparge blowers were run for 1 hour with no load to allow for break in. Pressure was gradually introduced to the air sparge wells until a pressure of 10 pounds per square inch (PSI) and a velocity of 5 feet per minute (FPM) were reached. Vacuum was gradually introduced to the vapor recovery wells until a vacuum of 10 inches of water column was measured in the moisture separator. Air sparge flow rates will be increased as groundwater levels decrease during summer months.

On February 14, an air sample was taken from the blower effluent and submitted under chain of custody documentation to Lancaster Laboratories in Lancaster Pennsylvania. The vapor sample was analyzed for TPH-g per EPA method 25 and BTEX per EPA method 18. Results indicated a TPH-g concentration of 98 parts per million volume (ppmV). None of the BTEX constituents analyzed were detected in the sample. Based on the analytical results, a Notice of Construction (NOC) application was filed with the Puget Sound Clean Air Agency In March 2007. The system was shut down until an air permit was received.

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On July 17, 2007, SECOR personnel restarted the system upon receipt of Puget Sound Clean Air Agency NOC 9622.

## WASTE MANAGEMENT

Soil and asphalt debris generated during trenching activities were stored on the site in stockpiles covered with Visqueen. Custom Backhoe transported the waste in a DOT approved dump truck to a Waste Management facility for disposal. The disposal documents are included as Attachment C.

## EVALUATION OF EFFECTIVENESS

Evaluation of the effectiveness of the remediation system will be made on a monthly basis by monitoring the following system parameters:

- Radius of influence of air sparge wells;
- Applied vacuum to vapor recovery wells;
- Applied pressure and flow rate to air sparge wells;
- And pounds of TPH-g and benzene removed by the vapor recovery system.

The effectiveness of the remedial approach will also be evaluated through quarterly groundwater monitoring.

We appreciate the opportunity to be of service on this project. Please contact the undersigned if you have any questions regarding the information presented herein.

Sincerely,
**SECOR International Incorporated**

Matthew Davis
Staff Geologist

Joseph Rounds
Senior Project Manager

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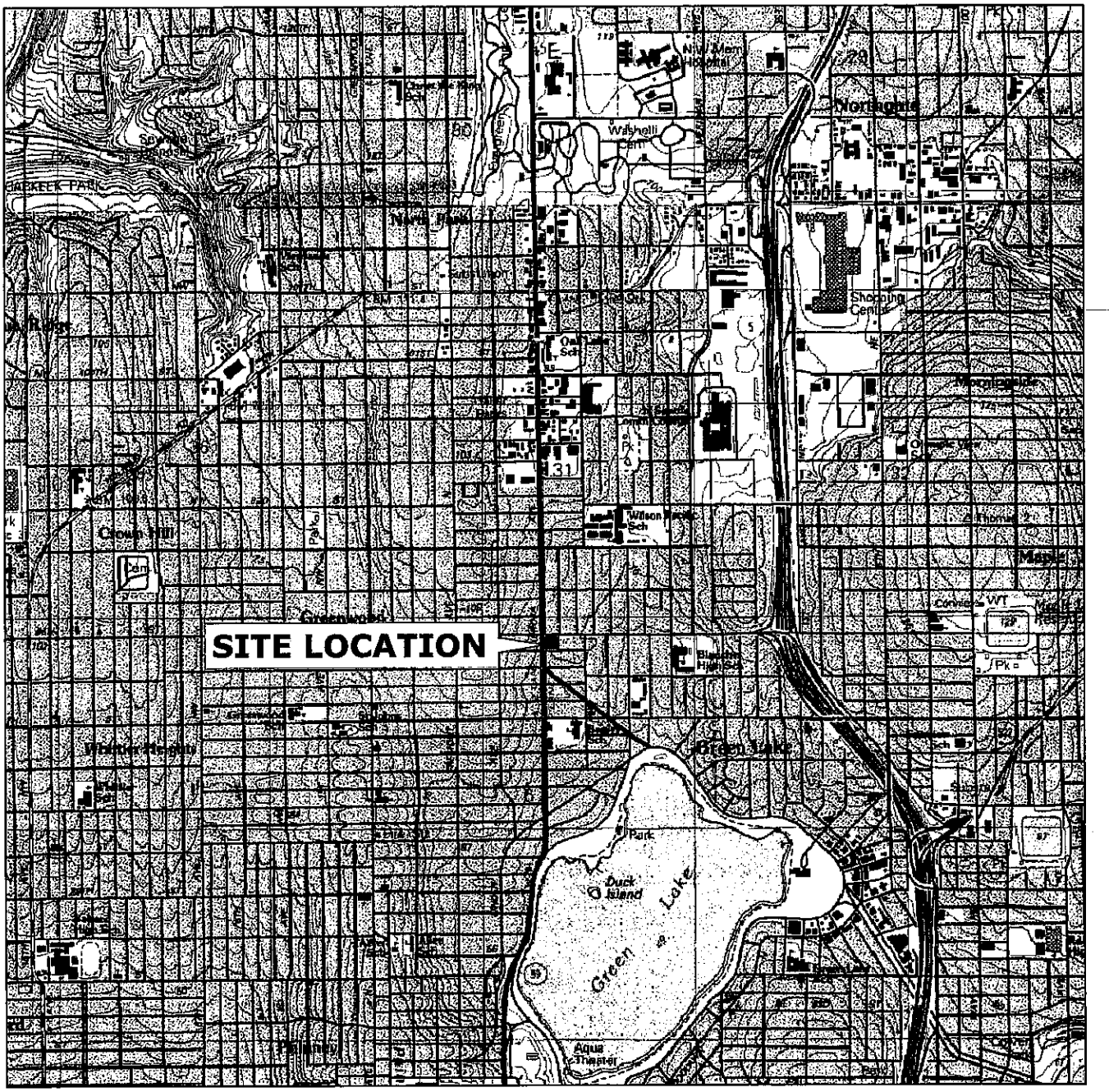
## LIST OF FIGURES

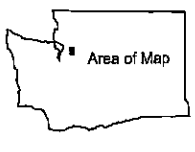


## LIST OF ATTACHMENTS

# FIGURES




North




WASHINGTON

1 1/2 0 1

SCALE (MILES)

1000 0 1000 2000 3000 4000 5000 6000 7000

SCALE (FEET)

REFERENCE: USGS 7.5 MINUTE QUADRANGLE; SEATTLE NORTH, WASHINGTON; 1979

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FOR: ConocoPhillips

FACILITY NO. 2603146 (RM & R 1680)
8408 AURORA AVENUE NORTH
SEATTLE, WASHINGTON

**SITE LOCATION MAP**

FIGURE: **1**

| JOB NUMBER: | DRAWN BY: | CHECKED BY: | APPROVED BY: | DATE: |
|---|---|---|---|---|
| 01CP.01680.01 | CTORRES | MT | AL | 07/03/04 |

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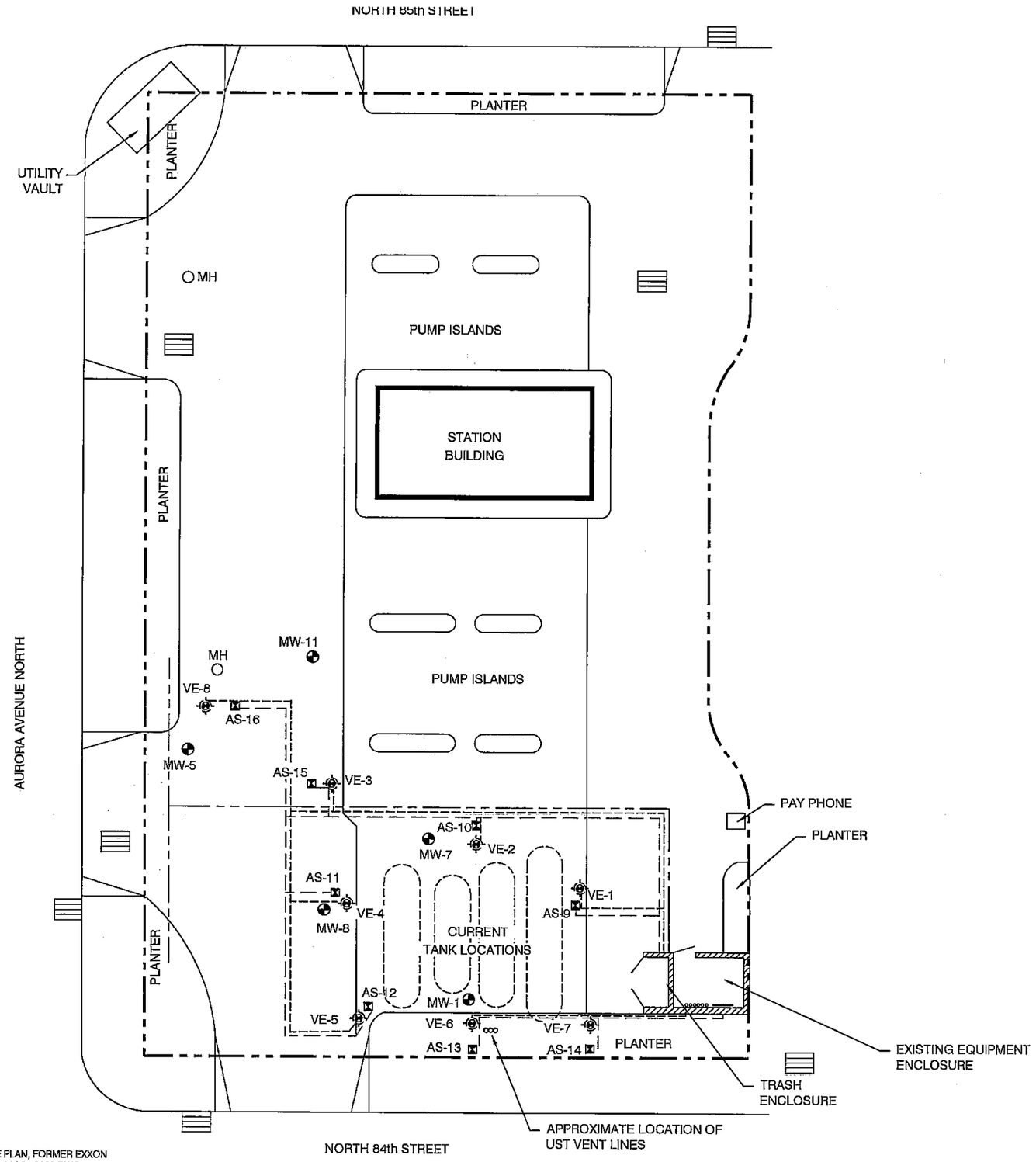


LEGEND

- APPROXIMATE SITE BOUNDARY
- NEW AS LINES
- NEW VE LINES
- OLD AS AND VE LINES
- PROPOSED LOCATION OF NEW AS WELL
- PROPOSED LOCATION OF NEW VE WELL
- MW-5 MONITORING WELL LOCATION
- MH MANHOLE
- STORMWATER CATCH BASIN

SOURCE:
BASE MAP FROM ENVIRONMENTAL RESOLUTIONS, INC. (ERI), GENERALIZED SITE PLAN, FORMER EXXON STATION 7-3535, PLATE 2, DATED 09/24/02, PROJECT NO. 31110, CADD FILE 31110.11.L04.0002.DWG

PREPARED BY:

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REDMOND, WASHINGTON
PHONE: (425) 372-1600/1650 (FAX)

FOR:
ConocoPhillips
FACILITY NO. 2603146
8404 AURORA AVENUE NORTH
SEATTLE, WASHINGTON

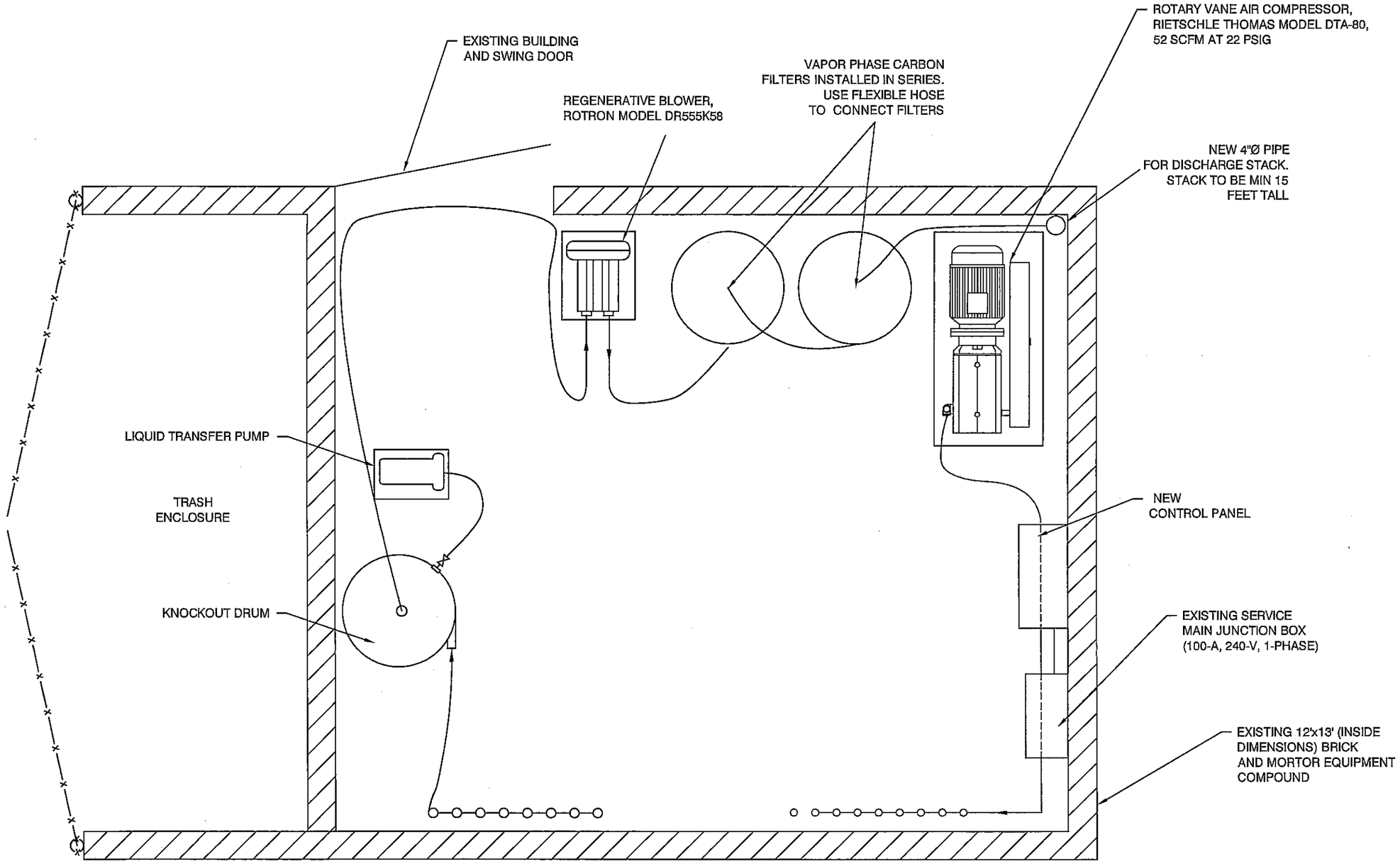
TITLE:
**SITE PLAN**

| | |
|---|---|
| DRAWN BY: AMK | DESIGNED BY: AMK |
| CHECKED BY: | APPROVED BY: |
| PROJECT NUMBER: 01CP.01680.05 | SCALE: AS SHOWN |
| DATE: 11/04/05 | FILE PATH: K:/01CP |

FIGURE:
**FIGURE 2**

P:\STAFF\CONOCOPHILLIPS\3146 AURORA AVE\SYSTEM INSTALL\REPORT\SITE PLAN.DWG MODIFIED BY MDAVIS AT DEC 19, 2007 - 13:18

01CP-3146-9-1509-03(SITE PLAN).DWG




N

0 40 80

APPROXIMATE SCALE (FEET)

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FOR:

ConocoPhillips

FACILITY NO. 2603146
8404 AURORA AVENUE NORTH
SEATTLE, WASHINGTON

TITLE:

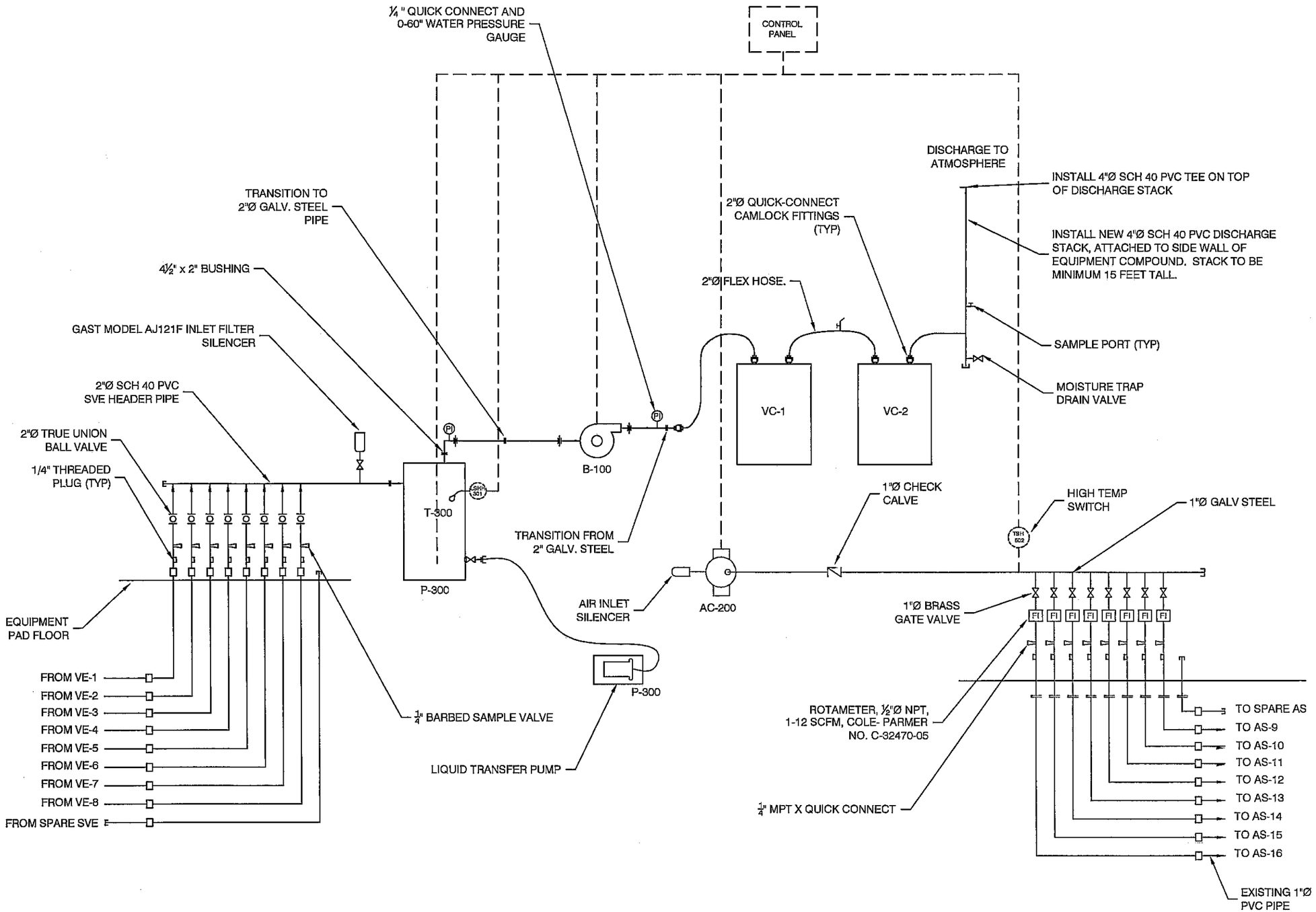
**EQUIPMENT LAYOUT**

| | |
|---|---|
| DRAWN BY: AMK | DESIGNED BY: AMK |
| CHECKED BY: | APPROVED BY: |
| PROJECT NUMBER: 01CP.01680.05 | SCALE: AS SHOWN |
| DATE: 11/04/05 | FILE PATH: K:/01CP |

FIGURE:

# FIGURE 3

01CP-3146-9-1509-05(EQUIP LAYOUT).DWG




LEGEND:

| | |
|---|---|
| B-100 | 2"Ø REGENERATIVE BLOWER (200 SCFM AT 45 INCHES WATER), 3-HP, 230 VAC, 30-A, 1Ø, 60 HZ MOTOR, ROTRON DR55K58. |
| AC-200 | ROTARY-VANE OILLESS AIR SPARGE COMPRESSOR (52 SCFM AT 22 PSIG), 230-VAC, 60 HZ, 7.5-HP, 1-Ø MOTOR, RIETSCHILE THOMAS DTA-60 . |
| T-300 | MOISTURE SEPARATION TANK WITH 2.5"Ø TANGENTIAL INLET AND 4.5"Ø OUTLET, INTEGRATED VACUUM RELIEF VALVE AND GAUGE, |
| P-300 | LIQUID TRANSFER PUMP, 1½ " OUTLET, ⅓ HP, 1 Ø, 120 VAC, DAYTON MODEL 3BB68 |
| VC-1/VC-2 | VAPOR PHASE CARBON FILTERS, 55-GALLON / 155 LB CARBON CAPACITY, CLEAN ENVIRONMENTAL CONCEPTS TSU-55 |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FOR:
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FACILITY NO. 2603146
8404 AURORA AVENUE NORTH
SEATTLE, WASHINGTON

TITLE:
**PROCESS AND INSTRUMENTATION DIAGRAM**

| | |
|---|---|
| DRAWN BY: AMK | DESIGNED BY: AMK |
| CHECKED BY: | APPROVED BY: |
| PROJECT NUMBER: 01CP.01660.05 | SCALE: AS SHOWN |
| DATE: 11/04/05 | FILE PATH: K:/01CP |

FIGURE:
**FIGURE 4**

01CP-3146-9-1509-04(P&ID).DWG

# ATTACHMENT A
# SYSTEM OPERATION AND MAINTENANCE MANUAL

ConocoPhillips Site 2603146
8408 Aurora Ave. North
Seattle, Washington
December 11, 2007

# CONTENTS

# Please consider the Tenets of Operational Excellence as listed below:

1) Always operate within design or environmental limits.

2) Always operate in a safe and controlled condition.

3) Always ensure safety devices are in place and functioning.

4) Always follow safe work practices and procedures.

5) Always meet or exceed customer's requirements.

6) Always maintain integrity of dedicated systems.

7) Always comply with all applicable rules and regulations.

8) Always address abnormal conditions.

9) Always follow written procedures for high-risk or unusual situations.

10) Always involve the right people in decisions that affect procedures and equipment.

# H2 OIL RECOVERY EQUIPMENT, INC.

MAIN OFFICE
P.O. BOX 9028
Bend, OR 97708
Telephone (541) 382-7070
FAX (541) 382-2242




Release Date - November 9, 1998

## WARRANTY - DISCLAIMER

H2 warrants its products to be free from defects in materials and workmanship for a period of one (1) year from the original date of installation or eighteen (18) months from original date of shipment, whichever period is shorter. In the event of a covered defect and subject to proper reporting by Buyer and the opportunity to inspect as set forth below, H2 will repair or replace the defective equipment at its option. H2 shall not be responsible for consequential damages, if any, incurred or claimed by Buyer, including, but not limited to leakage related to the failure of H2 manufactured equipment, loss of income, expenses arising from use and/or installation of the equipment, or unforeseen circumstances related to equipment operation. Manufacturer's liability as stated herein cannot be altered or enlarged except when approved in writing and signed by an officer of the Manufacturer.

Buyer shall report all claimed defects to H2, in writing, within (4) four business days of discovery by Buyer and shall not undertake repair or replacement until H2 has been allowed to inspect the claimed defect. H2 shall make every effort to make a prompt inspection after receipt of notice from Buyer. Pending inspection and/or repair, Buyer will follow all instructions of H2 for preservation and protection of the equipment. **ALL REPAIRS AND RELATED EXPENSES TO BE MADE BY AUTHORIZED H2 PERSONNEL ONLY.**

The warranty granted herein does not extend to products sold by H2 that are warranted by the original equipment manufacturer. Buyer shall be responsible for travel, mileage, labor and per diem connected to the repair or replacement of products not manufactured by H2, per H2's rate schedule. Any freight charges are to be prepaid by Buyer.

Products manufactured and/or sold by H2 Oil Recovery Equipment, Inc. are sold "as is" WITHOUT WARRANTY, EXPRESS OR IMPLIED, AND WITH ALL FAULTS, including warranties of title, against infringement, merchantability and suitability of the product for any particular application or purpose, **except otherwise expressly set forth herein.**

Buyer's order was placed in Deschutes County, Oregon. The Warranty-Disclaimer shall be governed and construed according to the laws of the state of Oregon. Other than in the event of lien foreclosure proceedings commenced in the jurisdiction in which the equipment is installed, any suit or action between H2 and Buyer arising out of this shall be brought in Deschutes County, Oregon. In the event suit or action is instituted to enforce any of the terms, the losing party shall pay, in addition to court costs, the prevailing party's attorney fees, whether at trial or on appeal.

**ABOVE WARRANTY IS VOID IN THE EVENT OF ANY UNAUTHORIZED ALTERATIONS TO PRODUCT, LACK OF RECOMMENDED SAFETY OR FILTRATION DEVICES, IMPROPER INSTALLATION BY OTHERS, ABUSE, MISUSE, NEGLIGENCE, ABNORMAL USE, EXCESSIVE PRESSURE OR VACUUM, TRANSIT DAMAGE, FIRE OR ACCIDENT.**

# PREFACE

## CAUTION NOTE

This instruction manual has been prepared to serve as a general guide in operating and maintaining Soil Vapor Extraction (SVE) and Air Sparge (AS) equipment furnished by H2 Oil Recovery Equipment, Inc. It is intended for use by **qualified personnel** with knowledge of SVE / AS systems and their operation. It is not intended to cover all possible variations in equipment or to provide for specific operating problems, which may arise. Should additional information be required, H2 Oil or its field representatives should be contacted.

It is recognized that no amount of written instructions can replace intelligent thinking and reasoning on the part of the operators. This manual is not intended to relieve the operating personnel of the responsibility for proper operation of the equipment. Personnel should become thoroughly familiar with the equipment before operating or maintaining the equipment.

H2 Oil Recovery Equipment, Inc.'s liability for the equipment furnished is as set forth in the contract. H2 Oil does not assume responsibility for any equipment not furnished by H2 Oil. No employee of H2 Oil is authorized to assume any responsibility for equipment not furnished by H2 Oil.

Competent supervision of mechanical and electrical equipment operation and maintenance is necessary to maintain safe and reliable operation.

PRIOR TO INITIAL OPERATION, PLEASE READ THIS MANUAL AND ALL EQUIPMENT MANUALS INCLUDED THOROUGHLY IN ORDER TO AVOID ANY POSSIBLE DAMAGE TO PERSONNEL OR THE EQUIPMENT.

## SAFETY CONSIDERATIONS

Your company's policies and procedures for safely operating the SVE / AS system supersede the safety considerations listed below. It is your responsibility to follow your company's safety procedure. If there aren't any, follow those established by OSHA, DEQ and/or NEC, as a minimum.

## ELECTRICAL SAFETY

- Before attempting any procedures, locate the main electrical source and understand how to safely control it.

- Whenever possible, be sure to lockout and tagout the electrical before beginning any repair or replacement tasks. Refer to your H2 Oil equipment manual and your company's safety policies and procedures for specific instructions.

- During periods of lightning activity, do not connect or disconnect any cables or perform installation, maintenance or reconfiguration.

- Notify nearby personnel that you are attempting to operate or service this system. Follow your company's lockout/tagout procedure.

BEFORE POWERING UP THE AS SYSTEM -

- Know how to stop the system and automatic operation in an emergency.

- Understand the system's alarm indications.

- Ensure that all safety devices in the work area are properly installed and functional.

# 1.0 SYSTEM INSTALLATION

## 1.1 INSTALLATION INSTRUCTIONS

The following installation procedures are intended as a guide for properly installing and maintaining the blower system. Completely familiarize yourself with the equipment manuals, vendor cut sheets, data sheets and any other useful literature supplied with the equipment. **Each manual has specific guidelines and procedures for safe operation and maintenance of the equipment and should be thoroughly read before operation of the complete SVE / AS system.** If unsure or unfamiliar with the installation of SVE / AS systems consult an H2 Oil Representative for further information as required.

### 1.1.1 BLOWER INSTALLATION PROCEDURES -

- Install the blowers and any other equipment on solid level footing. If blower system is mounted on a skid, make sure the skid surface is level.
- All system piping must be clean internally before starting unit. A screen may need to be installed at the blower intake port to stop any foreign material from entering the blower at start-up. This screen should be removed before putting blower into service.
- Silencers and check valves are directional and should be mounted so that the airflow is in the proper direction.
- Inspect your site to determine if you need to install any other safety devices such as but not limited to check valves or pressure relief valves.
- Intake and exhaust filters are external to the blower and will provide adequate filtration for most applications. Check filters periodically and replace when necessary.
- Silencers must be installed squarely without stress applied to the adjacent piping. Undue weight should not be placed on the silencer flange connections. Do not weld silencers, which have shelldamp lagging or internal packing.
- Care must be taken to insure that piping connections are plumbed squarely so that undue stress is not applied to the blower or base. The flexible connector is designed to compensate for mechanical motion and to provide vibration and sound absorption. It could be rendered useless if used to compensate for misaligned pipe.
- Make sure motor is wired for proper rotation. Proper rotation is usually indicated on the blower's housing.

- Assure that each of the blower's motor starter's thermal overload relay is adjusted to the full load amperage of the motor as indicated on the motor's nameplate.

### 1.1.2 GENERAL PROCEDURES -

- Install equipment only in a **NON-HAZARDOUS (NON-CLASSIFIED)** location.
- Remove any shipping plugs and wrapping from the control panel and anywhere else they may have been placed.
- Make all electrical connections as specified in the Note to Installer and Electrical Schematics. All electrical work shall be performed by licensed and/or qualified personnel.
- Verify proper supply voltage, circuit breakers, and wire gauges as specified in the Note to Installer.
- Open the control panel and replace the timers, relays and any other equipment that may have been disconnected for shipping purposes. The timers and relays are labeled and will correspond to the timer and relay bases, which are also labeled.
- Connect any other ancillary equipment that has either been supplied by H2 or other equipment manufacturers. Refer to the respective equipment manuals for installation instructions and procedures.
- Test all safety interlocks and alarms prior to start-up.

### 1.1.3 SYSTEM START-UP -

- Open unloading valve or manually vent discharge line.
- Rotate blower manually before starting under power to assure free operation.
- "Jog" units (less than 1 rotation) to check rotation for proper direction and moving parts for clearance.
- Start the unit and run for 15 minutes at no load.
- Apply the load gradually and observe operation for one hour. Observe for excessive heat, noise, vibration, and pressure or oil loss.
- Unload unit for one minute prior to shutdown.

- After the blowers have been started and until such time that the blowers have been put into service, they must be run a minimum of one hour per week to keep all internal surfaces lubricated and free of moisture. In externally moist environments, it may be necessary to run the blowers for a longer period of time and at a more frequent interval.

### 1.1.4 NORMAL OPERATION -

- Material line must be clear before starting unit.
- Maintain and clean inlet filter to eliminate restriction.
- Continually check discharge temperature. Maximum temperatures are listed in the blower manuals. Turn unit "off" if excessive temperature is present and see blower manual for possible causes.
- A relief valve venting to atmosphere indicates that a restriction is present in the piping. Turn the unit "off" and eliminate the restriction.
- Upon shutdown, make sure the blower does not turn in opposite direction, thus drawing in material from the pipeline. The check valve should eliminate this from happening. In the event of a check valve failure, remove and replace defective check valve. If there are multiple blowers on the header and there is a check valve failure, close the discharge butterfly valve on the affected blower to prevent auto-rotation from back pressure in the system.
- Anti-corrosive oil should be sprayed in blower in the event of extended shutdown.
- Be sure to plug open ports so dirt and other contaminants do not enter the unit. It is now ready for shutdown or storage.

### 1.1.5 STORAGE -

While in storage, blowers must be kept clean and free from moisture and rotated a minimum of 20 revolutions each week to maintain warranty. Storage in excess of six months or storage in a damp or corrosive environment is not recommended. If such storage is necessary, refer to the blower's manual for more information.

## 1.2 NOTE TO INSTALLER

Installation shall be performed by a qualified electrician following the guidelines of the NEC and local codes. Use specified branch circuit protection or equivalent. Use specified wire sizes as determined by NEC table 310-16. Make sure such factors as wire type, temperature, length and derating due to multiple conductors in a raceway are accounted for.

1. One circuit is necessary to provide power to this system control panel. The customer must provide a 240 volt, Single Phase, 100 amp rated; power supply circuit with adequate circuit protection.

   The following is a list of fuses, voltage, load description and minimum wire size for each individual branch circuit located within the system. Note: Minimum wire size does allow for any voltage drop. It is the installing electrician's responsibility to size wire properly based on length of wires and amp draws.

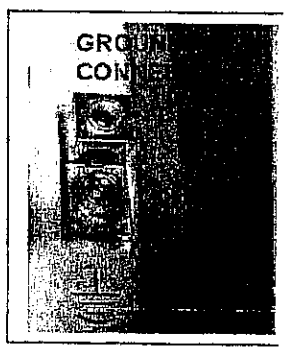
| QTY | SIZE | VOLTAGE | DESCRIPTION | MIN AWG |
|---|---|---|---|---|
| 2 | 100 Amp | 240vac | Incoming Power | #3 |
| 2 | 25 Amp | 240vac | SVE Blower | #12 |
| 2 | 10 Amp | 240vac | AWS Pump | #14 |
| 1 | 15 Amp | 120vac | Control Power | #14 |

Highlighted Terminals Require Field Connection

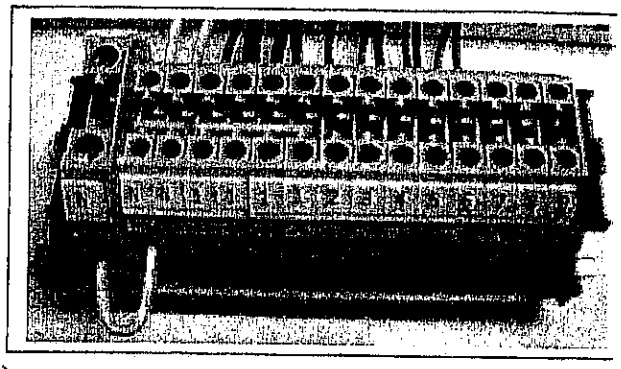
## 1.3 TERMINAL DESIGNATION

### MAIN POWER CONNECTION

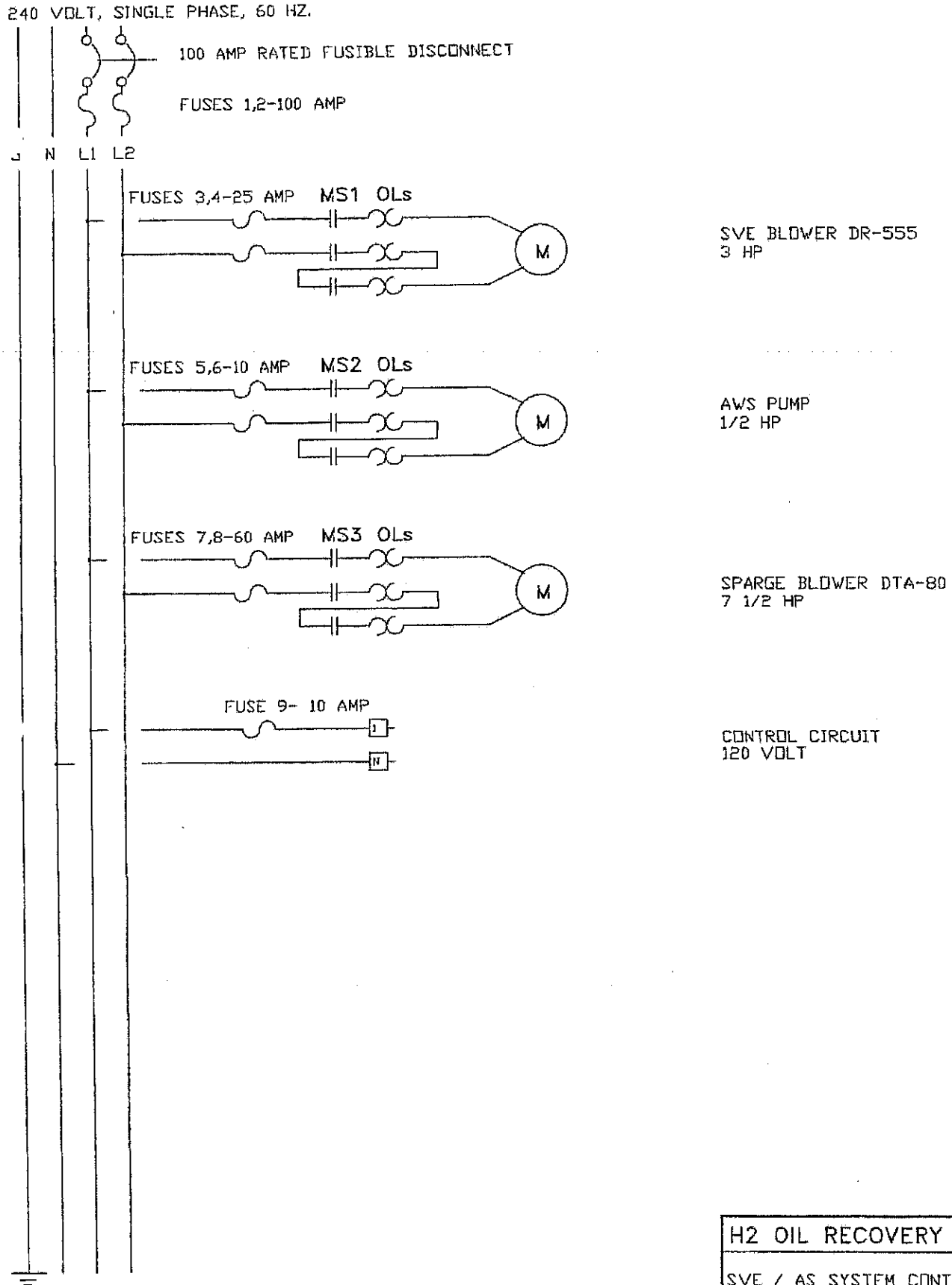
L1 Connect directly to top of Fusible Disconnect (240 Volt)
L2 Connect directly to top of Fusible Disconnect (240 Volt)



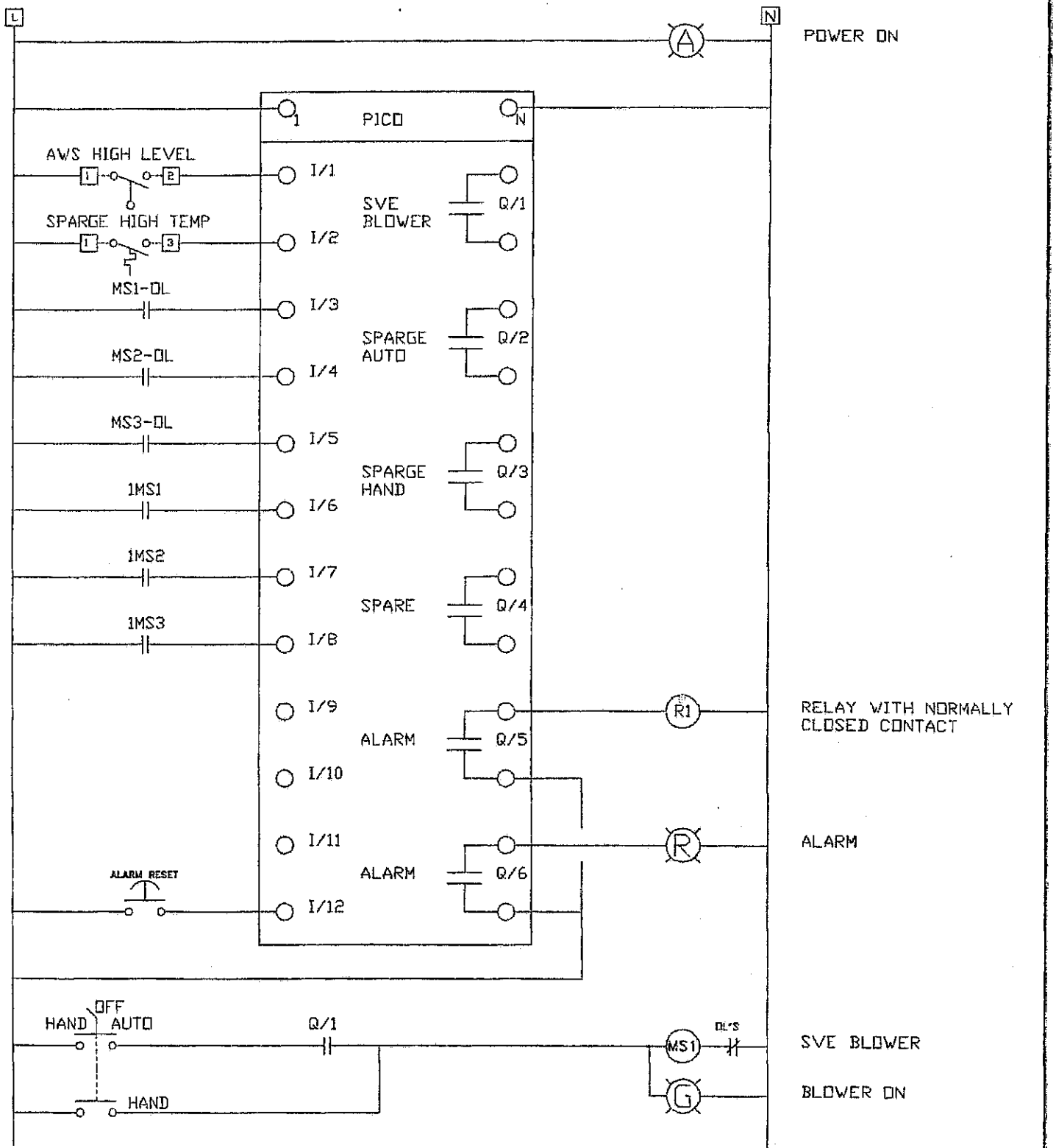

System Ground



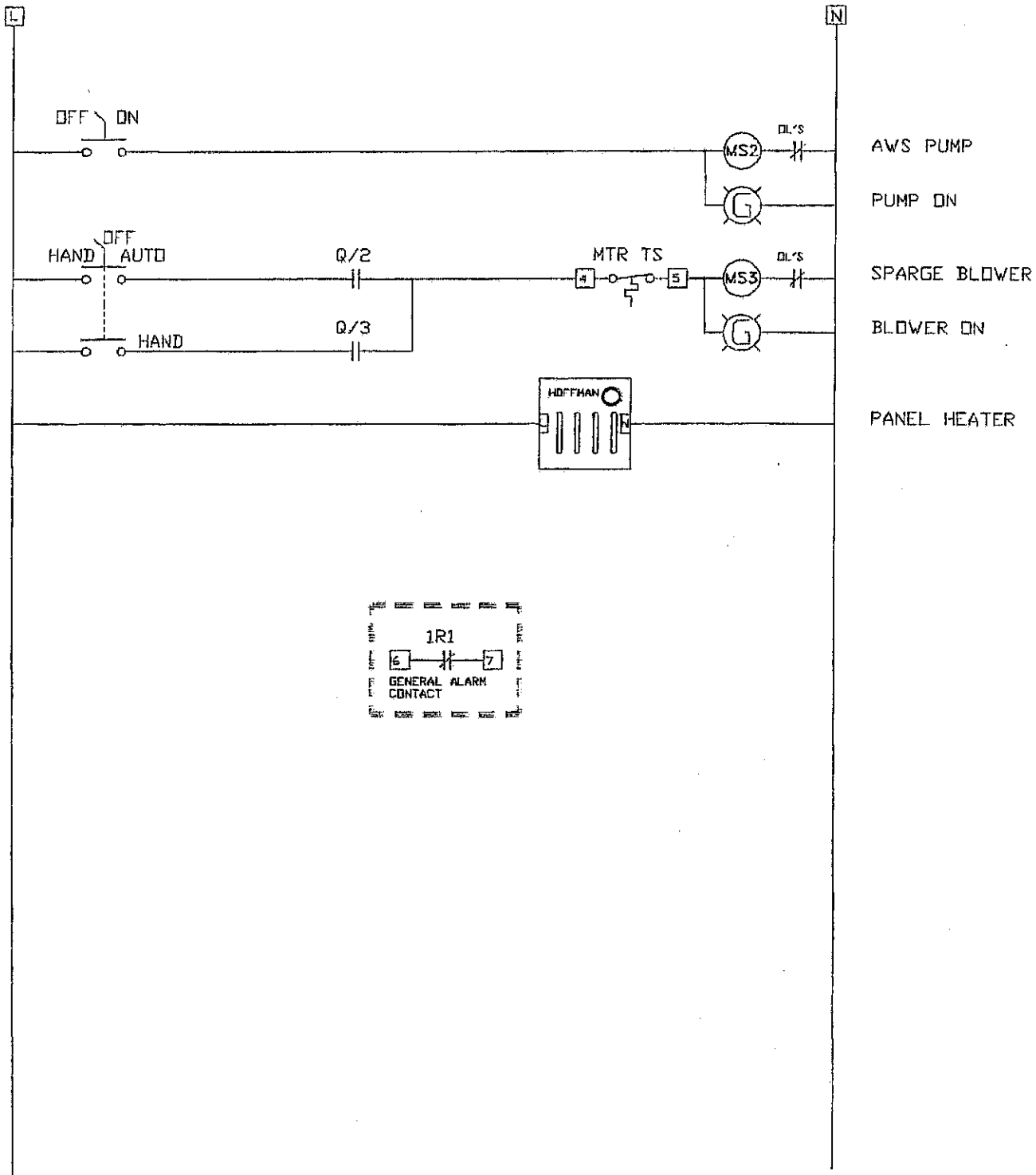
| | |
|---|---|
| N | Incoming Neutral for Controls (120 Volts) |
| N | Control Neutral (120 Volts) |
| 1 | Control Neutral (120 Volts) |
| 1 | Control Power to AWS High Level Float Common (120 Volts) |
| 1 | Control Power to Sparge High Temp Switch Common (120 Volts) |
| 1 | Control Power (120 Volts) |
| 2 | Control Power (120 Volts) |
| 3 | To AWS High Level Float N.O. |
| 4 | To Sparge High Temp Switch N.O. |
| 5 | To Sparge Blower Motor Internal Temp Switch Common |
| 6 | To Sparge Blower Motor Internal Temp Switch N.C. |
| 7 | From Relay 1 Common |
| 8 | From Relay 1 N.C. |
| 9 | Spare Terminal |
| | Spare Terminal |




| H2 OIL RECOVERY EQUIPMENT | | |
|---|---|---|
| SVE / AS SYSTEM CONTROL | | |
| DESIGN BY RS | SCALE | DRAWING NO. |
| DRAWN BY RS | DATE 1/15/07 | E260721A |
| CAD | DATE | |
| REVISED BY | DATE | |




| H2 OIL RECOVERY EQUIPMENT | | |
|---|---|---|
| SVE / AS SYSTEM CONTROL | | |
| DESIGN BY: RS | SCALE | DRAWING NO. |
| DRAWN BY RS | DATE 1/15/07 | E260721B |
| JOB # | DATE | |
| REVISED BY | DATE | |







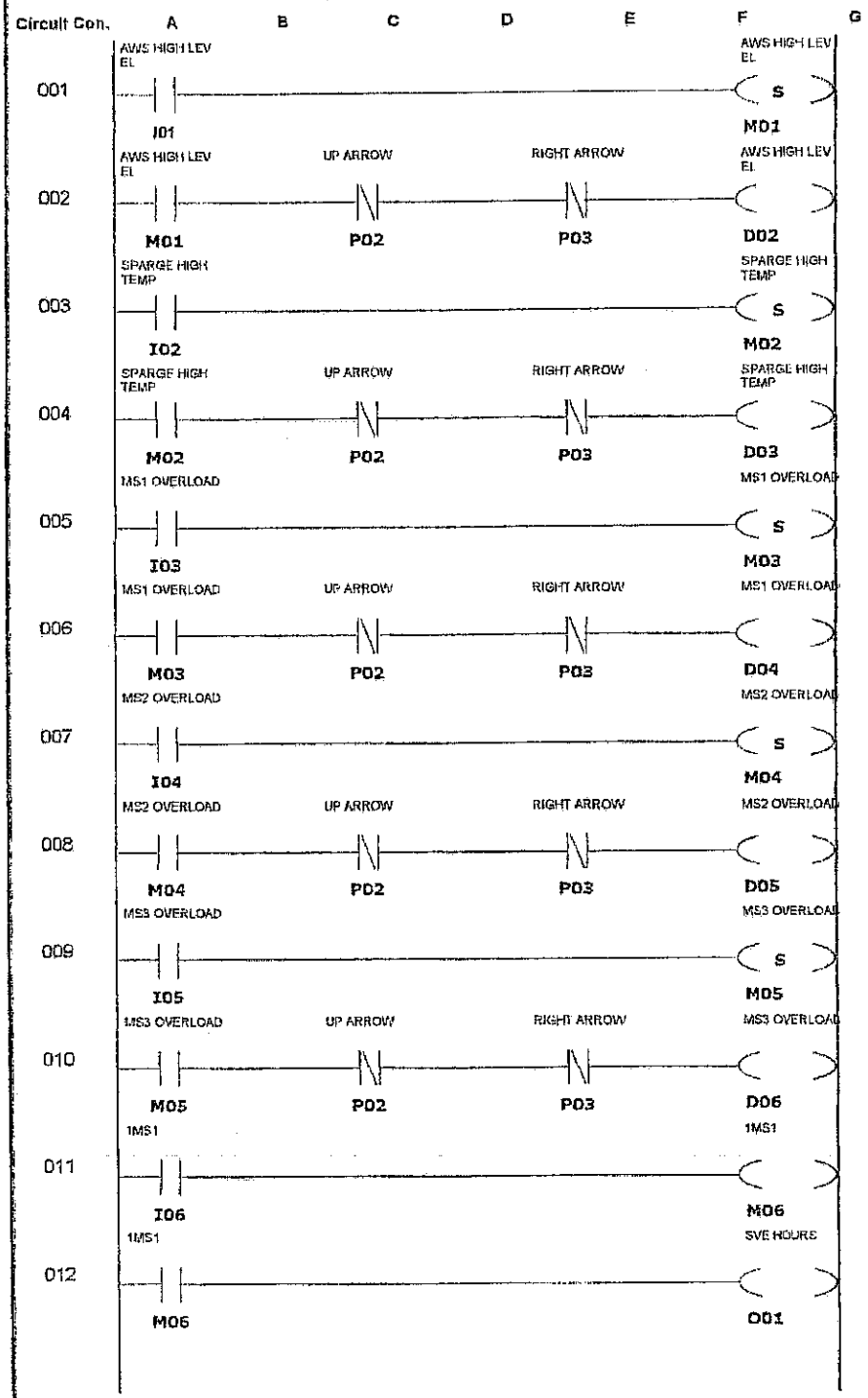
| H2 OIL RECOVERY EQUIPMENT | | |
|---|---|---|
| SVE / AS SYSTEM CONTROL | | |
| DESIGN BY: RS | SCALE | DRAWING NO. |
| DRAWN BY RS | DATE 1/15/07 | E260721C |
| JOB# | DATE | |
| REVISED BY | DATE | |

# Documentation
# »260721 PLC PROGRAM.e60«

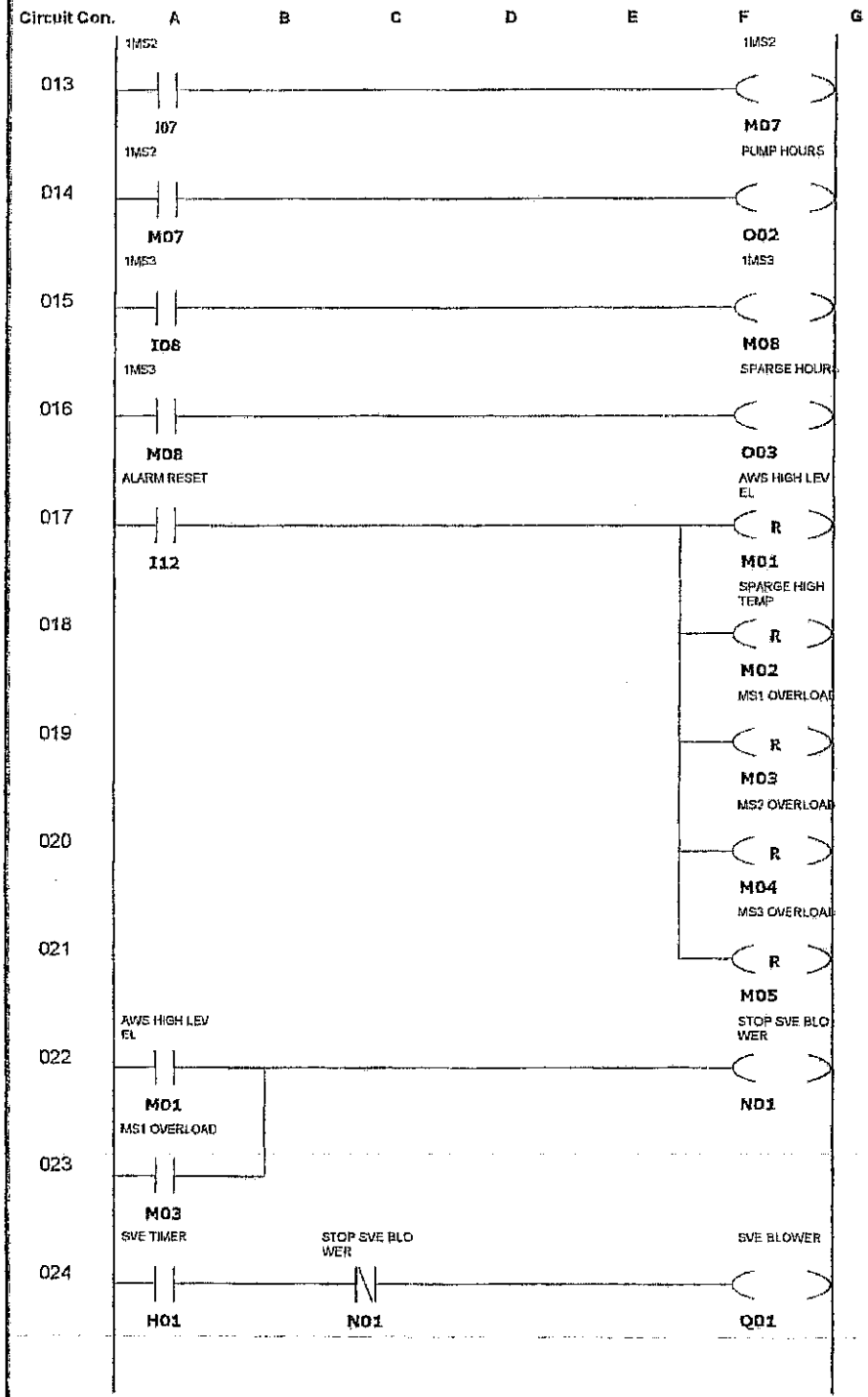
1760-L16AWA-E...

| | | | |
|---|---|---|---|
| Customer: | JEFF YATES | Author: | RICK |
| Customer Doc. No.: | | Editor: | |
| | | Checked: | |
| Order No.: | 260721 | Creation Date and Time: | 1/15/2007 1:27:40 PM |
| Factory No.: | H2 OIL RECOVERY | Last Changed: | 1/16/2007 11:00:10 AM |
| Document No.: | | Print Date and Time: | 1/16/2007 11:00:38 AM |

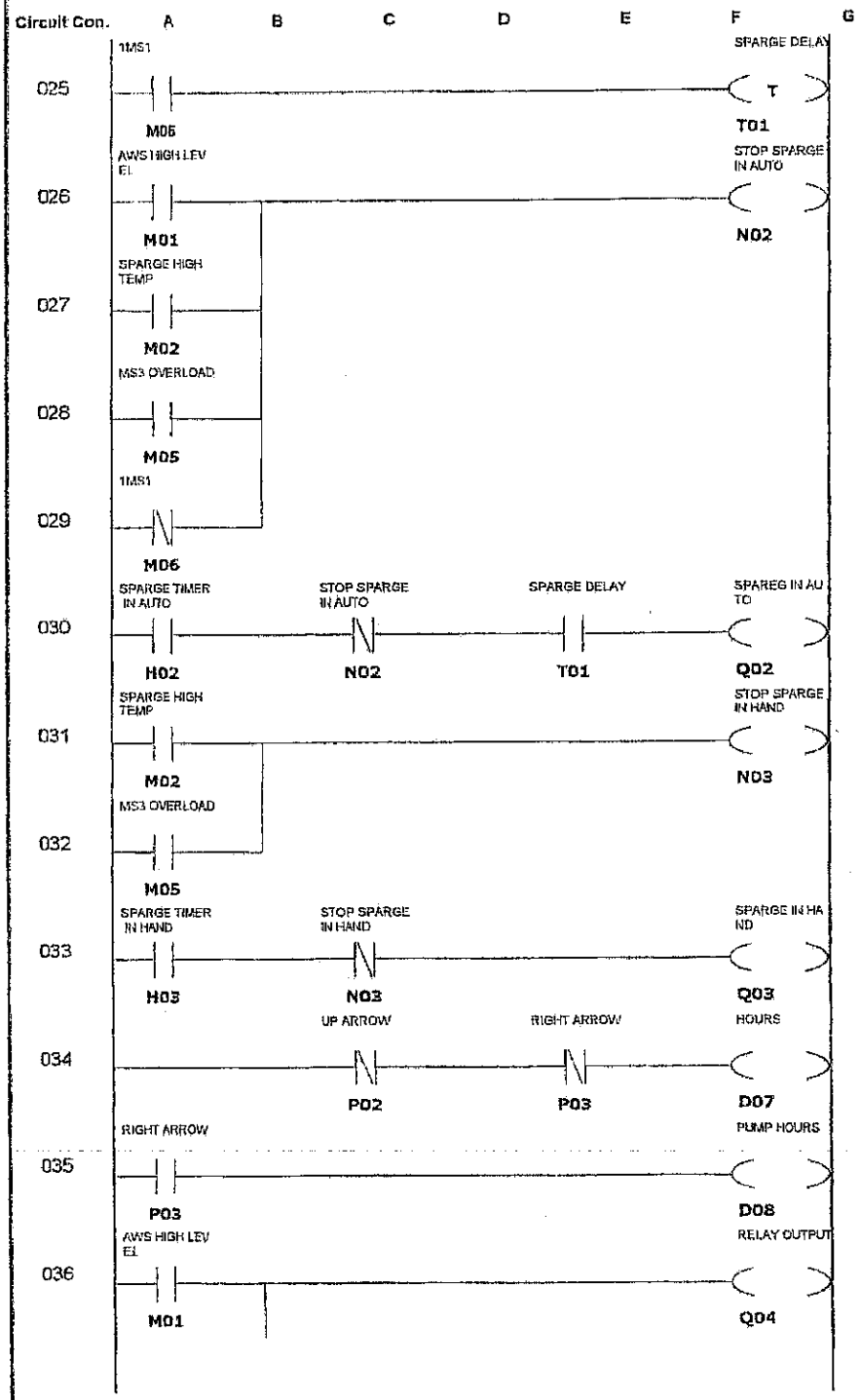
| | |
|---|---|
| **Documentation created with:** | PicoSoft 6.10 , Build 2433 |
| **Device Type:** | 1760-L18AWA-EX ser.B |
| **Device version:** | 01- xxxxxxxxxxx |
| **Program Name:** | »« |
| **I Debounce:** | off |
| **P Buttons:** | on |
| **Card Mode:** | off |
| **Retention:** | M9 - M12: off<br>N9 - N16: off<br>C8: off<br>D1 - D8: off<br>T8: off<br>M13 - M16: off<br>C5 - C7: off<br>C13 - C16: off<br>T7: off<br>T13 - T16: off |
| **Daylight Saving Time:** | US |
| **Password:** | off |
| **Cycle time:** | 0 ms |



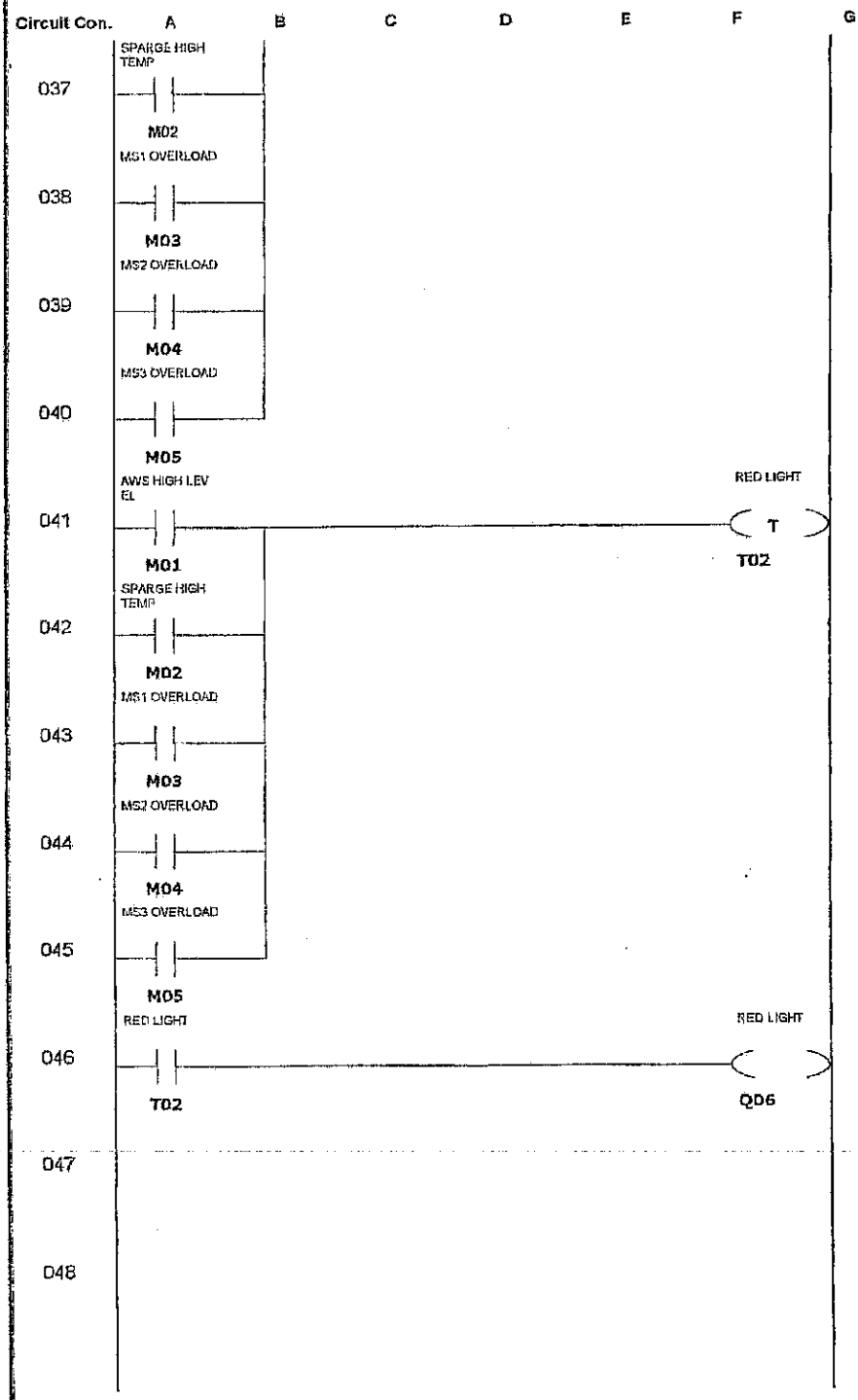

| | | | | | |
|---|---|---|---|---|---|
| Date | 1/16/2007 | Customer | JEFF YATES | Order No.: | 260721 |
| Editor | | Customer Doc. No.: | | Factory No.: | H2 OIL RECOVERY |
| Checked | | | | Document No. | |
| | | PLC PROGRAM FOR 260721<br>CONOCO PHILLIPS | | Author | RICK |
| | | | | Sheet 3 of 10 | |
| | | | | NET-ID: - | |




| | | | | | |
|---|---|---|---|---|---|
| Date: | 1/16/2007 | Customer: | JEFF YATES | Order No.: | 260721 |
| Editor: | | Customer Doc. No.: | | Factory No.: | H2 OIL RECOVERY |
| Checked: | | | | Document No.: | |
| | | PLC PROGRAM FOR 260721<br>CONOCO PHILLIPS | | Author: | RICK |
| | | | | Sheet: 4 of 10 | |
| | | | | NET-ID: - | |




| | | | | | |
|---|---|---|---|---|---|
| Date: | *1/16/2007* | Customer: | *JEFF YATES* | Order No.: | *260721* |
| Editor: | | Customer Doc. No.: | | Factory No.: | *H2 OIL RECOVERY* |
| Checked: | | | | Document No.: | |
| | *PLC PROGRAM FOR 260721 CONOCO PHILLIPS* | | | Author: | *RICK* |
| | | | | Sheet: 5 of 10 | |
| | | | | NET-ID: - | |




| | | | | | |
|---|---|---|---|---|---|
| Date: | 1/16/2007 | Customer: | JEFF YATES | Order No.: | 260721 |
| Editor: | | Customer Doc. No.: | | Factory No.: | #2 OIL RECOVERY |
| Checked: | | | | Document No.: | |
| | | PLC PROGRAM FOR 260721<br>CONOCO PHILLIPS | | Author: | RICK |
| | | | | Sheet 6 of 10 | |
| | | | | NET-ID: - | |

D 2:
SEPARATOR
HIGH LEVEL
-.-
-.-

D 5:
MS2 OVERLOAD
-.-
-.-
-.-

D 3:
SPARGE HIGH
TEMPERATURE
-.-
-.-

D 6:
MS3 OVERLOAD
-.-
-.-
-.-

D 4:
MS1 OVERLOAD
-.-
-.-
-.-

D 7:
SVE HOURS
###### O1: Actual value
###### O3: Actual value
SPARGE HOURS

| | | | | | |
|---|---|---|---|---|---|
| Date: | 1/16/2007 | Customer | JEFF YATES | Order No.: | 260721 |
| Editor: | | Customer Doc. No. | | Factory No. | H2 OIL RECOVERY |
| Checked: | | | | Document No. | |
| | | PLC PROGRAM FOR 260721<br>CONOCO PHILLIPS | | Author: | RICK |
| | | | | Sheet: 7 of 10 | |
| | | | | NET-ID: - | |

D 8:
PUMP HOURS
######  O2: Actual value

H 3:
Channel A: Parameter display = On
Monday - Sunday 00:00 - --:--
Channel B: Parameter display = On
- - - --:-- - --:--
Channel C: Parameter display = On
- - - --:-- - --:--
Channel D: Parameter display = On
- - - --:-- - --:--

H 1:
Channel A: Parameter display = On
Monday - Sunday 00:00 - --:--
Channel B: Parameter display = On
- - - --:-- - --:--
Channel C: Parameter display = On
- - - --:-- - --:--
Channel D: Parameter display = On
- - - --:-- - --:--

O 1:
Parameter display = On
Setpoint =000000 [h]

H 2:
Channel A: Parameter display = On
Monday - Sunday 00:00 - --:--
Channel B: Parameter display = On
- - - --:-- - --:--
Channel C: Parameter display = On
- - - --:-- - --:--
Channel D: Parameter display = On
- - - --:-- - --:--

O 2:
Parameter display = On
Setpoint =000000 [h]

O 3:
Parameter display = On
Setpoint =000000 [h]

T 1 (On-delayed)
Parameter display = On
I1: 5 s . 000 ms

T 2 (Flashing)
Parameter display = On
I1: 0 s . 500 ms
I2: 0 s . 500 ms

| | | | | |
|---|---|---|---|---|
| Date: | 1/16/2007 | Customer: JEFF YATES | Order No.: | 260721 |
| Editor: | | Customer Doc. No. | Factory No.: | H2 OIL RECOVERY |
| Checked: | | | Document No.: | |
| | | PLC PROGRAM FOR 260721<br>CONOCO PHILLIPS | Author: | RICK |
| | | | Sheet 9 of 10 | |
| | | | NET-ID. - | |

| Operand | Comment | Circuit Con |
|---|---|---|
| I1 | AWS HIGH LEVEL | 1A |
| I2 | SPARGE HIGH TEMP | 3A |
| I3 | MS1 OVERLOAD | 5A |
| I4 | MS2 OVERLOAD | 7A |
| I5 | MS3 OVERLOAD | 9A |
| I6 | 1MS1 | 11A |
| I7 | 1MS2 | 13A |
| I8 | 1MS3 | 15A |
| I12 | ALARM RESET | 17A |
| Q1 | SVE BLOWER | 24G |
| Q2 | SPAREG IN AUTO | 30G |
| Q3 | SPARGE IN HAND | 33G |
| Q4 | RELAY OUTPUT | 36G |
| Q6 | RED LIGHT | 46G |
| M1 | AWS HIGH LEVEL | 1G, 2A, 17G, 22A, 26A, 36A, 41A |
| M2 | SPARGE HIGH TEMP | 3G, 4A, 18G, 27A, 31A, 37A, 42A |
| M3 | MS1 OVERLOAD | 5G, 6A, 19G, 23A, 38A, 43A |
| M4 | MS2 OVERLOAD | 7G, 8A, 20G, 39A, 44A |
| M5 | MS3 OVERLOAD | 9G, 10A, 21G, 28A, 32A, 40A, 45A |
| M6 | 1MS1 | 11G, 12A, 25A, 29A |
| M7 | 1MS2 | 13G, 14A |
| M8 | 1MS3 | 15G, 16A |
| P2 | UP ARROW | 2C, 4C, 6C, 8C, 10C, 34C |
| P3 | RIGHT ARROW | 2E, 4E, 6E, 8E, 10E, 34E, 35A |
| N1 | STOP SVE BLOWER | 22G, 24C |
| H1 | SVE TIMER | 24A |
| O1 | SVE HOURS | 12G |
| T1 | SPARGE DELAY | 25G, 30E |
| N2 | STOP SPARGE IN AUTO | 26G, 30C |
| D2 | AWS HIGH LEVEL | 2G |
| H2 | SPARGE TIMER IN AUTO | 30A |
| O2 | PUMP HOURS | 14G |
| T2 | RED LIGHT | 41G, 46A |
| N3 | STOP SPARGE IN HAND | 31G, 33C |
| D3 | SPARGE HIGH TEMP | 4G |
| H3 | SPARGE TIMER IN HAND | 33A |
| O3 | SPARGE HOURS | 16G |
| D4 | MS1 OVERLOAD | 6G |
| D5 | MS2 OVERLOAD | 8G |
| D6 | MS3 OVERLOAD | 10G |
| D7 | HOURS | 34G |
| D8 | PUMP HOURS | 35G |

# 2.0 SYSTEM OVERVIEW

## 2.1 SOIL VAPOR EXTRACTION (SVE) / AIR SPARGE (AS) SYSTEM

The system consists of a regenerative (SVE) blower, a positive displacement (AS) blower, and a centrifugal AWS pump. All parts of this system are controlled by a single control panel.

## 2.2 CONTROL PANEL

Shown in Figure 2-2 is the system control panel. Each of the selector switches and indicating lamps on the control panel serve a specific function. The indicator lamps signify specific system status or alarm conditions. Refer to the Alarm Section for more detailed information about the possible causes of the alarms and how to recover from them.

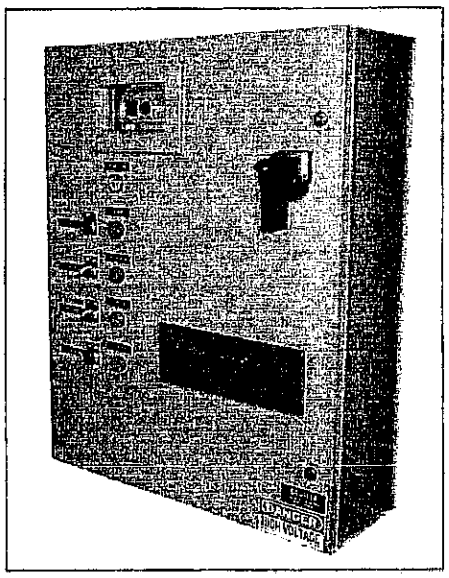


FIG. 2-2. SYSTEM CONTROL PANEL

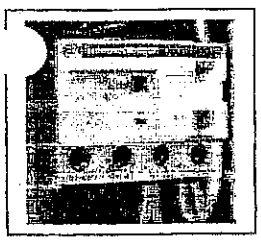
# 3.0 SYSTEM ALARMS

The system is set up to monitor various types of failure conditions. Generally, a fault by any one of these alarms will not allow the system to function while in the normal operating mode. A manual reset is required by depressing the "RESET" switch before operation can resume. In the event of a device failure (motor overload) a reset button is located on each corresponding motor starter and must be reset before operation can continue. These alarms will cause the Red Alarm Light to be illuminated and a Pico PLC text display.

## 3.1 ALARMS

SEPARATOR HIGH LEVEL - A float switch has been installed on the Air Water Separator and will provide an alarm signal to the control panel to shutdown the blower system in the event of excessive liquid in the AWS. If this fault should occur, drain the AWS then reset it by depressing the "RESET" button. Operations should resume.

SPARGE HIGH TEMPERATURE - A temperature switch has been installed on the Air Sparge Exhaust Piping and will provide an alarm signal to the control panel to shutdown the blower system in the event of excessive temperature at the Air Sparge Exhaust. If this fault should occur, cool the system then reset it by depressing the "RESET" button. Operations should resume.



MS1 OVERLOAD - Each motor is monitored for an over current trip condition, which is indicated by the Pico PLC Text display and the overload relay of the motor starter. A small plastic window is located next to the current trip adjustment dial. If the letter "T" appears in the window, the motor has tripped out on an over current. DETERMINE THE CAUSE OF THE OVERLOAD BEFORE RE-STARTING THE SYSTEM. A manual reset is required on the overload relay to resume operation.

MS2 OVERLOAD - Each motor is monitored for an over current trip condition, which is indicated by the Pico PLC Text display and the overload relay of the motor starter. A small plastic window is located next to the current trip adjustment dial. If the letter "T" appears in the window, the motor has tripped out on an over current. DETERMINE THE CAUSE OF THE OVERLOAD BEFORE RE-STARTING THE SYSTEM. A manual reset is required on the overload relay to resume operation.

MS3 OVERLOAD - Each motor is monitored for an over current trip condition, which is indicated by the Pico PLC Text display and the overload relay of the motor starter. A small plastic window is located next to the current trip adjustment dial. If the letter "T" appears in the window, the motor has tripped out on an over current. DETERMINE THE CAUSE OF THE OVERLOAD BEFORE RE-STARTING THE SYSTEM. A manual reset is required on the overload relay to resume operation.

# 4.0 SYSTEM OPERATION

## 4.1 START-UP PROCEDURE

1. Refer to System Overview Section for identification and description of system components. Locate the system CONTROL PANEL.

2. Place the MAIN DISCONNECT, "ON-OFF" switch in the "OFF" position.

3. Energize breaker panel with proper voltage. (240 Volt, 60hz, Single Phase, with a Neutral)

4. Turn the MAIN DISCONNECT switch to the "ON" position. The Amber Power On light should be illuminated.

5. Place the SVE BLOWER "HOA" switch in the auto position. The green "BLOWER ON" light should be illuminated; this indicates the SVE Blower is functioning. The SVE blower will not operate if an alarm condition exists within the system; when in the Auto mode. Refer to the Alarm Section for more information on fault conditions and corrections.
   Placing the "HAND-OFF-AUTO" switch in the "HAND" position allows the SVE motor to run regardless of any fault conditions or timer cycles. Do not run the SVE unattended in when the Hand mode.

6. Place the SPARGE BLOWER "HOA" switch in the auto position. The green "BLOWER ON" light should be illuminated; this indicates the SPARGE Blower is functioning. The SPARGE blower will not operate if an alarm condition exists or if the SVE interlock does not exist; when in the Auto mode. Refer to the Alarm Section for more information on fault conditions and corrections.
   Placing the Sparge Blower "HAND-OFF-AUTO" switch in the "HAND" position allows the Sparge Blower to run independently of the SVE Blower. Alarm conditions will function the same for either; Auto or Hand mode.

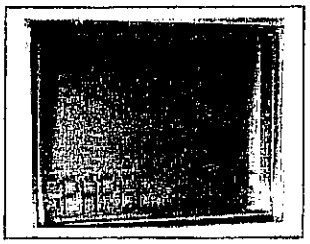
   The system should now run automatically as long as no alarm conditions become present.

7. The AWS pump operation is controlled by the "OFF / ON" switch only. Do not operate this pump when unattended. Operating the pump without water may cause damage to the pump.

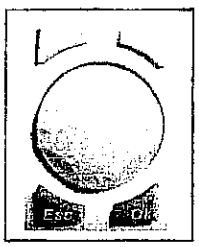
The Pico PLC has three built in timers to control each blower's hours of operation. Setting of the timers is done either with a laptop connected to the PLC, (preferred method) or by setting them manually using the Pico PLC pushbuttons and display screen. The timers are set at the factory to operate continuously.

# PICO TIMER SETTING TUTORIAL

Your system has 3 separate timers used to cycle the blowers as needed. These timers are a function of the Pico PLC. Each timer can be adjusted by using the built in Pico programming push buttons or by connecting to the Pico with a personal computer. The personal computer option is the easiest method.
The following steps will describe how to make changes to the timers by using the Pico push buttons.

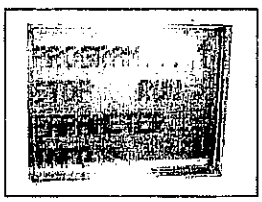


**Default Screen With Hour Meters**

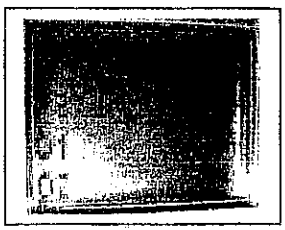



**Pico Push Buttons**

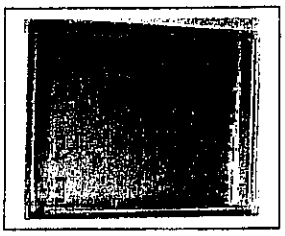
With the default screen press the OK button. (The PROGRAM text will flash.)



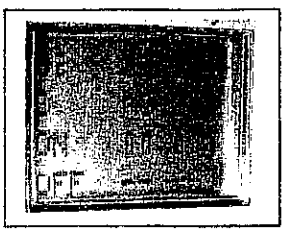
Scroll down with down arrow to highlight the Parameter text. After cursor is on the Parameter press the OK button once. Timers 1 and 2, and hour meters 1 and 2 will appear.



Press the down arrow 7 times. On the left side of the screen you will see the clocks 1 thru 3.



Land the cursor on the clock you wish to set.
Clock 1 is for SVE hours of operation.
Clock 2 is for Sparge in AUTO operation.
Clock 3 is for Sparge in HAND (independent) operation.
When cursor is in place press the OK button
The illustration below shows the #2 clock.



This clock shows that it will operate from Monday through Sunday; it comes on at 00:00 and there is not an off time entered. This clock will give continuous operation.

Make Changes to the timer and return to the default screen by pressing the ESC button several times.

# ATTACHMENT B
# SYSTEM VAPOR SAMPLE ANALYTICAL REPORT

ConocoPhillips Site 2603146
8408 Aurora Ave. North
Seattle, Washington
December 11, 2007

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax:717-656-2681 • www.lancasterlabs.com

# Analysis Report

ANALYTICAL RESULTS

Prepared for:

ConocoPhillips
5528 NW Doane Ave.
Portland OR 97210

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 1025776. Samples arrived at the laboratory on Friday, February 16, 2007. The PO# for this group is 4507750036 and the release number is NOLL.

| Client Description | Lancaster Labs Number |
|---|---|
| Influent Tedlar Bag Grab Air Sample | 4983665 |

| | | |
|---|---|---|
| ELECTRONIC COPY TO | SECOR International | Attn: Matt Davis |
| ELECTRONIC COPY TO | SECOR International | Attn: Marc Sauze |

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax:717-656-2681 • www.lancasterlabs.com

# Analysis Report

Questions? Contact your Client Services Representative
Barbara A Weyandt at (717) 656-2300

Respectfully Submitted,

Michele J. Smith

Michele J. Smith
Group Leader

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax:717-656-2681 • www.lancasterlabs.com

# Analysis Report



Lancaster Laboratories Sample No. AQ 4983665

Influent Tedlar Bag Grab Air Sample
Site# 1680
8408 Aurora Ave-Seattle, WA

Collected:02/14/2007 15:15 by MD

Account Number: 11817

Submitted: 02/16/2007 10:00
Reported: 03/01/2007 at 11:43
Discard: 04/01/2007

ConocoPhillips
5528 NW Doane Ave.
Portland OR 97210

| CAT No. | Analysis Name | CAS Number | As Received Final Result | MDL | Units | As Received Final Result | MDL | Units | DF |
|---|---|---|---|---|---|---|---|---|---|
| 07059 | BTEX | | | | | | | | |
| 07063 | Benzene | 71-43-2 | N.D. | 0.5 | ppm(v) | N.D. | 2. | mg/m3 | 1 |
| 07064 | Toluene | 108-88-3 | N.D. | 0.8 | ppm(v) | N.D. | 3. | mg/m3 | 1 |
| 07065 | Ethylbenzene | 100-41-4 | N.D. | 0.4 | ppm(v) | N.D. | 2. | mg/m3 | 1 |
| 07068 | Xylene (total) | 1330-20-7 | N.D. | 0.7 | ppm(v) | N.D. | 3. | mg/m3 | 1 |
| 07548 | >C4-C10 Hydrocarbons in Air | | | | | | | | |
| 07551 | >C4-C10 Hydrocarbons hexane | n.a. | 98. | 1.0 | ppm(v) | 350. | 3.5 | mg/m3 | 1 |

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

MDL = Method Detection Limit

## Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|
| 07059 | BTEX | EPA 18 modified | 1 | 02/16/2007 18:50 | David I Ressler | 1 |
| 07548 | >C4-C10 Hydrocarbons in Air | EPA 25 modified | 1 | 02/16/2007 18:50 | David I Ressler | 1 |

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax:717-656-2681 • www.lancasterlabs.com

# Analysis Report



## Quality Control Summary

Client Name: ConocoPhillips
Reported: 03/01/07 at 11:43 AM

Group Number: 1025776

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

### Laboratory Compliance Quality Control

| Analysis Name | Blank Result | Blank MDL | Report Units | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|
| Batch number: M070501ZA | Sample number(s): 4983665 | | | | | | | |
| Benzene | N.D. | 0.8 | ppm(v) | 82 | | 44-119 | | |
| Toluene | N.D. | 0.8 | ppm(v) | 85 | | 45-129 | | |
| Ethylbenzene | N.D. | 0.7 | ppm(v) | 85 | | 46-159 | | |
| Xylene (total) | N.D. | 0.7 | ppm(v) | 93 | | 47-165 | | |
| >C4-C10 Hydrocarbons hexane | N.D. | 1.0 | ppm(v) | | | | | |

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

# ConocoPhillips Analysis Request/Chain of Custody

Lancaster Laboratories

For Lancaster Labs Use ONLY Acct. #: 11817 Group # 1025776 Sample#: 4983665 SCR#:

007303

Site #: 03080 3196 AOC#: 1680

Site City: Seattle State: WA

Enfos PO# 4500750036

ConocoPhillips PM: Noll

Samplers Name: Matt Davis

| Sample Identification | Date Collected | Time Collected | Grab | Composite | Matrix: Soil | Water: Potable | Water: NPDES | Oil | Air | Analyses Requested: TPH-G CG-CLA | Analyses Requested: BTEX 8021 | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EFF | 2/14/07 | 1515 | X | | | | | X | | 1 | 1 | |

List total number of containers in the box under each analysis.

Preservation Codes

Preservative Codes
H = HCl T = Thiosulfate
N = $HNO_3$ B = NaOH
S = $H_2SO_4$ O = Other

**Consultant Information:**
Office City: Secor - Redmond State: WA
Project Manager: Sauer
Phone Number: 425-372-1600 Fax: x-1650
Email: MDAVIS@Secor.com

**Electronic Data Deliverables (Circle One) Yes / No Format_____**

**Reporting Requirements (Circle One)**
Standard Reports/QC Summary Full Validation (LLI Type I)
NJ Regulatory NJ Reduced NY ASP-A NY ASP-B Other_____

**Turnaround Time Requested in Business Days (TAT) (Circle One):**
(STD.) 5 day 48 hour 24 hour Other_____

| Relinquished by: | Date | Time | Received by: | Date | Time |
|---|---|---|---|---|---|
| [signature] | 2/15/07 | 1521 | | | |
| Relinquished by: | Date | Time | Received by: | Date | Time |
| | | | | | |
| Relinquished by: | Date | Time | Received by: | Date | Time |
| | | | [signature] | 2/16/07 | 1000 |

Relinquished by Commercial Carrier:
UPS_____ (FedEx) _____ Other_____

Temperature Upon Receipt N/A C°

# Lancaster Laboratories
# Explanation of Symbols and Abbreviations

*The following defines common symbols and abbreviations used in reporting technical data:*

| | | | |
|---|---|---|---|
| **N.D.** | none detected | **BMQL** | Below Minimum Quantitation Level |
| **TNTC** | Too Numerous To Count | **MPN** | Most Probable Number |
| **IU** | International Units | **CP Units** | cobalt-chloroplatinate units |
| **umhos/cm** | micromhos/cm | **NTU** | nephelometric turbidity units |
| **C** | degrees Celsius | **F** | degrees Fahrenheit |
| **Cal** | (diet) calories | **lb.** | pound(s) |
| **meq** | milliequivalents | **kg** | kilogram(s) |
| **g** | gram(s) | **mg** | milligram(s) |
| **ug** | microgram(s) | **l** | liter(s) |
| **ml** | milliliter(s) | **ul** | microliter(s) |
| **m3** | cubic meter(s) | **fib >5 um/ml** | fibers greater than 5 microns in length per ml |

**<** less than – The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

**>** greater than

**ppm** parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

**ppb** parts per billion

**Dry weight basis** Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.

*U.S. EPA data qualifiers:*

**Organic Qualifiers**

| | |
|---|---|
| **A** | TIC is a possible aldol-condensation product |
| **B** | Analyte was also detected in the blank |
| **C** | Pesticide result confirmed by GC/MS |
| **D** | Compound quatitated on a diluted sample |
| **E** | Concentration exceeds the calibration range of the instrument |
| **J** | Estimated value |
| **N** | Presumptive evidence of a compound (TICs only) |
| **P** | Concentration difference between primary and confirmation columns >25% |
| **U** | Compound was not detected |
| **X,Y,Z** | Defined in case narrative |

**Inorganic Qualifiers**

| | |
|---|---|
| **B** | Value is <CRDL, but ≥IDL |
| **E** | Estimated due to interference |
| **M** | Duplicate injection precision not met |
| **N** | Spike amount not within control limits |
| **S** | Method of standard additions (MSA) used for calculation |
| **U** | Compound was not detected |
| **W** | Post digestion spike out of control limits |
| ***** | Duplicate analysis not within control limits |
| **+** | Correlation coefficient for MSA <0.995 |

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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# ATTACHMENT C
# SOIL DISPOSAL DOCUMENTS

ConocoPhillips Site 2603146
8408 Aurora Ave. North
Seattle, Washington
December 11, 2007

ALASKA STREET

# WASTE PROFILE SHEET
# TERMS & CONDITIONS

Profile Number: _____

Expiration Date: _____

Service Agreement on File? ☐ Yes ☐ No

This form is to be used to comply with the requirements of governmental waste screening criteria.

Profile Addendum Attached? ☐ Yes ☐ No

## A. Waste Generator Information

1. Generator/Site Name: ConocoPhillips 2603146
2. SIC Code: 5541 (NAIC Code = 44711)
3. Site Address: 840R Aurora Avenue North,
4. Site City: Seattle
5. Site State: Washington 7. Zip Code: 98103
6. Site Country: United States
8. Generator USEPA/Federal ID#: WAD988488672
9. Site Phone: 206-525-4798
10. Customer Name: SECOR International, Inc.
11. Customer Phone: 425-603-9910
12. Customer Contact: Marc Sauza
13. Customer FAX: 425-372-1659

## B. Waste Stream and Billing Information

1. Waste Description, Category: Soil, non-hazardous
2. State Waste Code: _____
3. Billing Address: 12034 134th Court NE Suite 102, Redmond, WA 98052
4. Process Generating Waste: Drilling boreholes and trenching for remedial system installation
5. Transporter/Transfer Station: WM Management Alaska Street Transfer Station
6. Shipping Method: Bin on back of truck
7. Estimated Quantity (Weight & Vol.): _____ per ☐ Job ☐ Year ☐ Other _____
8. Delivery Date(s): _____
9. Personal Protective Equipment Requirements: Level D
10. Is this a US Dept. of Transportation (USDOT) Hazardous Material? ☐ Yes ☒ No (If no, skip 10, 11 and 12) (Non-hazardous waste; not regulated by D.O.T.)
11. Reportable Quantity: _____
12. Hazard Class / I.D. #: _____
13. Shipping Name: _____

☐ Check if additional information is attached. Indicate the number of attached pages: _____

## C. Generator's Certification (Please check appropriate responses, sign and date reverse side)

| | | Yes | No | |
|---|---|---|---|---|
| 1. | Is the waste represented by this waste profile sheet a "Hazardous Waste" as defined by USEPA, Canadian, Mexican, State, or Provincial regulation? | ☐ | ☒ | |
| 2. | Does the waste represented by this waste profile sheet contain regulated radioactive material or regulated concentrations of Polychlorinated Biphenyls (PCBs)? | ☐ | ☒ | |
| 3. | Does this waste profile sheet and all attachments contain true and accurate descriptions of the waste material? | ☒ | ☐ | |
| 4. | Has all relevant information within the possession of the Generator and Customer regarding known or suspected hazards pertaining to the waste been disclosed to the Contractor? | ☒ | ☐ | |
| 5. | Is the analytical data attached hereto derived from testing a representative sample in accordance with 40 CFR 261.20(c) or equivalent rules? | ☒ | ☐ | ☐ N/A |
| 6. | Will all changes that occur in the character of the waste be identified by the Generator and disclosed to the Contractor prior to providing the waste to the Contractor? | ☒ | ☐ | |

## D. WM Management's Decision

1. Management Method: _____
2. Designated Facility: _____ 3. Hours of acceptance: _____ ☐ N/A
4. Precautions, Special Handling Procedures, or Limitations on Approval: _____

Generic Approval: ☐ Yes ☐ No Special Waste Decision: ☐ Approved ☐ Disapproved

Sales Person: _____ Date: _____ Technical Manager: _____ Date: _____

**GENERATOR AND CUSTOMER MUST INITIAL HERE AND SIGN SECOND PAGE** INITIAL JFT

INITIAL _____

Jim Trotter Initial

| CUSTOMER: | GENERATOR: | COMPANY: |
| --- | --- | --- |
| (AUTHORIZED SIGNATURE) | (AUTHORIZED SIGNATURE) | (AUTHORIZED SIGNATURE) |
| (NAME, TITLE) | James F. Trotter, Site Manager (NAME, TITLE) | KRISTIN CASTNER (NAME, TITLE) |
| DATE: | DATE: 11/20/06 | DATE: |

Jim Trotter sign

106447 v04.SR (2@4V041.DOC) (#106447 v4 - Landfill Services Waste Profile and Terms)
11/17/06 3:13 PM

# BILL OF LADING/SCALE TICKET

WASTE MANAGEMENT, INC.

TICKET 34993
WMI ARRF
70 S. ALASKA ST.
SEATTLE WA.
TRUCK ID 13
TIME 01:14 PM 28 NOV 2006

| | | |
|---|---|---|
| GROSS | 53220 | LB |
| K TARE | 25600 | LB |
| NET | 27620 | LB |
| NET | 13.81 | TON |

TIME 01:14 PM 28 NOV 2006

**Generators Name & Address:**

CONOCO PHILLIPS 2603146

Billing: SECOR INTERNATIONAL

Contact Person: MARC SAUZE
Telephone: 425-503-9910

**Acknowledgement of Loading**

Name (Please Print) _____ Company _____

Signature _____ Date _____

**Deliver To:**

ALASKA RELOAD & RECYCLING FACILITY
70 SOUTH ALASKA STREET
SEATTLE, WASHINGTON 98134
TELEPHONE #: (206) 763-5025
MONDAY-FRIDAY 7:00AM-4:00PM

**Disposal Facility:**

COLUMBIA RIDGE LANDFILL AND
RECYCLING FACILITY
18177 CEDAR SPRINGS LANE
ARLINGTON, OREGON 97812
TELEPHONE: (541) 454-2030

**Transporter Name:**

Strang Trucking

**Truck #:** 13

**Waste Profile #: 16341CV**

**Waste Type: ADC**

**Expiration Date: 11/22/2007**

Jeff Rowe
Driver's Name (Please Print)

Driver's Signature _____ Date _____

**Remarks:**