October 31, 2016 Reference No. 088328/2016

Ray Montes
New Mexico Environment Department
Ground Water Quality Bureau
2301 Entrada Del Sol
Las Cruces, NM 88001

Dear Mr. Montes:

Re: Long Term Pilot Study
Alamogordo Terminal
Alamogordo, New Mexico

GHD Services, Inc. (GHD) appreciates the opportunity to submit this proposed scope of work to provide continued environmental services for the Epic Midstream (Epic) Alamogordo Terminal located in Otero County, New Mexico. The facility is located on property owned by Epic in the northwest quarter of the northwest quarter of Section 25, Township 17 South, Range 9 East (Figure 1). The site is regulated by the New Mexico Environment Department (NMED), Ground Water Quality Bureau (GWQB).

1. Project Understanding

Based on a review of records, the Site has been in active assessment and remediation since 1981. Contaminates of concern (COC) consist of light non aqueous phase liquids (LNAPL), associated dissolved phase volatile organic compounds benzene, toluene, ethylbenzene, total xylenes (BTEX), and polycyclic aromatic hydrocarbons (PAHs) consisting of naphthalene, 1 monomethylnaphthalene, and 2 monomethylnaphthalene. The New Mexico Water Quality Control Commission (NMWQCC) regulatory limits for the site are:

Constituent	NMWQCC Regulatory Limit (Parts per Billion [ppb])
Benzene	10
Toluene	750
Ethylbenzene	750
Total Xylenes	620
PAHs	30

The depth to groundwater across the Site ranges from approximately 75 to 80 feet below ground surface. The groundwater gradient is to the south. A number of wells currently contain LNAPL.

On May 9, 2016 GHD received a call from the NMED GWQB stating that an odor of jet fuel had been observed in a residential water well located south of the site. On May 11, 2016 GHD collected water samples from this residence (located at 5996 Highway 54 in Alamogordo, New Mexico) as well as the

adjoining property to the north (5998 Highway 54). The water samples were analyzed on a 24 hour rush turn-around time and analyzed for benzene, toluene, ethylbenzene, xylene (BTEX) and naphthalene by EPA Method 8260 by Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico.

The analytical results for 5996 Highway 54 indicated the presence of BTEX concentrations that were below the New Mexico Water Quality Control Commission (NMWQCC) regulatory limits. However, concentrations of naphthalene exceeded the NMWQCC regulatory limits (Figure 2). The analytical results of the sample collected from 5998 Highway 54 was below the laboratory reporting limits (LRL) for BTEX and naphthalene. A point of entry treatment (POET) system was installed at the residence located at 5996 Highway 54 on May 24, 2016.

A residential water well search was performed in the area of the expected down gradient dissolved concentration flow path (Figure 2). The residential well search found three residences with water wells in use. All three wells were sampled for the presence of BTEX and naphthalene by EPA Method 8260. The results of the samples indicated the presence of benzene, ethylbenzene, and xylene below the NMWQCC regulatory limit in the water well located at 6 Munsey Street. The remaining concentrations were below the LRL (Cuccia Well, see Figure 2). The other two wells were below the LRL for BTEX and naphthalenes. A point of entry treatment (POET) system was installed at the residence located at 6 Munsey Street on May 28, 2016 as a precaution.

In addition, groundwater samples were collected from monitor wells STP 28 and STP 29. The analytical results of these monitor wells indicated the presence of BTEX and naphthalene concentrations in STP 28. The analytical results for STP 29 were below the LRL.

There are two public water supply wells, Boles #1 and Boles #6 located approximately 1375 feet and 1175 feet south of monitor well STP 29, respectively. The Boles #1 is currently in use. The Boles #6 is not currently in use and has not been operated since it first was purchased by the Boles Water System in 2006.

Three additional groundwater monitoring wells (STP-30, STP-31, and STP-32) and an air sparge well (AS-1) were installed in August and September. During the installation of AS-1, there was some concern as to whether air sparging would be an effective means of remediation based on the observed soils at the site (fat clay).

Due to this, a preliminary air sparge pilot study was performed to assess the viability of this remedial method. The preliminary air sparge pilot study was performed in September. The preliminary pilot study was successful at injecting air into the groundwater formation. In addition, data from the study indicated that a significant radius of influence (50 feet) may be achieved.

Due to the success of the preliminary pilot study, a longer term pilot study is being proposed. The purpose of the long term pilot study will be to assess if hydrocarbon volatilization and/or biodegradation is occurring with air sparging.

2. Scope of Activities

Additional Air Sparge Well Installation

Two additional air sparge wells are proposed to be installed for the pilot study (see Figure 3 for locations). One air sparge well will be placed approximately 50 feet east of the existing well. The second will be placed approximately 75 feet west (at least 25 feet past the power lines).

The air sparge wells will be advanced to a depth of 100 to 105 ft bgs (20 to 25 ft below the apparent groundwater table), depending on the geology. The boreholes for the air sparge wells will be continuously sampled from a depth of 80 ft bgs to the total depth of the well to facilitate more accurate logging of the subsurface soils. One soil sample will be collected from a depth of 80 ft bgs and analyzed for BTEX and naphthalenes by EPA Method 8260.

Each air sparge will be constructed with a 2-inch (in.) diameter, 5 ft long pre-packed 0.010-in. machine slot screen. The remainder of the well will be constructed with 2 in. diameter blank casing to the ground surface. The pre-packed screen and the annulus surrounding the screen will be backfilled with 20/40 silica sand. The sand will be placed from the bottom of the borehole to a depth of approximately 2 feet above the screen. A seal of coated ¼ in. bentonite pellets will be placed above the sand pack to the top of the groundwater table. The remainder of the borehole annulus will be filled with a 95 percent cement/5 percent bentonite grout to surface. Each well will be completed with a flush mounted well vault set within a 24 in. by 24 in. by 4 in. thick concrete pad.

The final construction of each air sparge well will be based upon actual field conditions and may be revised as additional data is obtained. Final boring logs will be completed and provided during future reporting for the Site.

Air Sparge Pilot Study

A pilot study will be performed to assess the potential use of air sparging technology to prevent the down gradient migration of petroleum hydrocarbons in the groundwater. GHD proposes to perform the pilot study for a period of six months.

The air sparge equipment will consist of using a Kerfoot Technologies, Inc. C-SPARGER® sparging system (See Attachment A). The C-SPARGER® sparging system consists of a fully contained panel mounted compressor, ozone generator, and control system that operates on 110 volt electricity. Power for the system would be provided by a power drop. The C-SPARGER® panel would be placed within a small trailer to protect it from the elements and theft and to minimize any noise that would be generated. The unit can operate up to three air sparge wells.

At the beginning of the pilot study, an 8 hour long air sparge well test would be performed on each of the newly installed wells (AS-2 and AS-3). The purpose of these tests is to assess the radius of influence of

each well. Following this, a test would be performed with all three wells. This test will be performed for approximately 8 hours.

During the well tests, air pressure and flow data will be recorded. Pressure data will be collected from STP-23 and STP-28 as well as the two on-site piezometers to assess the radius of influence. Parameters of pH, temperature, conductivity, dissolved oxygen, and ORP will be collected from these wells before and after the tests.

Following the short-term tests, a long term test will be performed. The system will be allowed to operate continuously for a period of 6 months. The system will be operated using only air for the first 3 months. Following that time, the ozone generator will be used to assess if a greater concentration reduction can be achieved.

Data from the system will be collected on a monthly basis during scheduled monitoring events. If the data warrants, the test may be operated for a longer period of time. The following data will be collected:

- Parameters of pH, temperature, conductivity, dissolved oxygen, and ORP will be collected from STP-23 and STP-28.
- Groundwater samples will be collected from STP-28. In addition to BTEX and Napthalenes, the sample will be analyzed for the following:
    - Nitrate/Nitrite
    - Sulfate
    - Total and dissolved iron
    - Ammonia-nitrogen
    - Orthophosphate-phosphorus
    - microbial counts

One set of analytical samples will be collected prior to the start of the air sparge pilot study to obtain background concentrations. The performance of the air sparge pilot study may be modified as data is obtained. Following completion of the pilot study, the data will be reduced and the efficacy of using air sparging will be assessed. If the data indicates that air sparging is an effective remedial method, a full scale system design will be recommended.

Schedule

GHD has received Epic approval to proceed with the scope of work. Work will be scheduled and initiated based on approval of scope activities by the NMED GWQB, availability of resources, and stakeholder concurrence.

If you have any questions or comments with regards to this work plan, please do not hesitate to contact our Albuquerque office at (505) 884-0672. Your timely response to this correspondence is appreciated.

Sincerely,

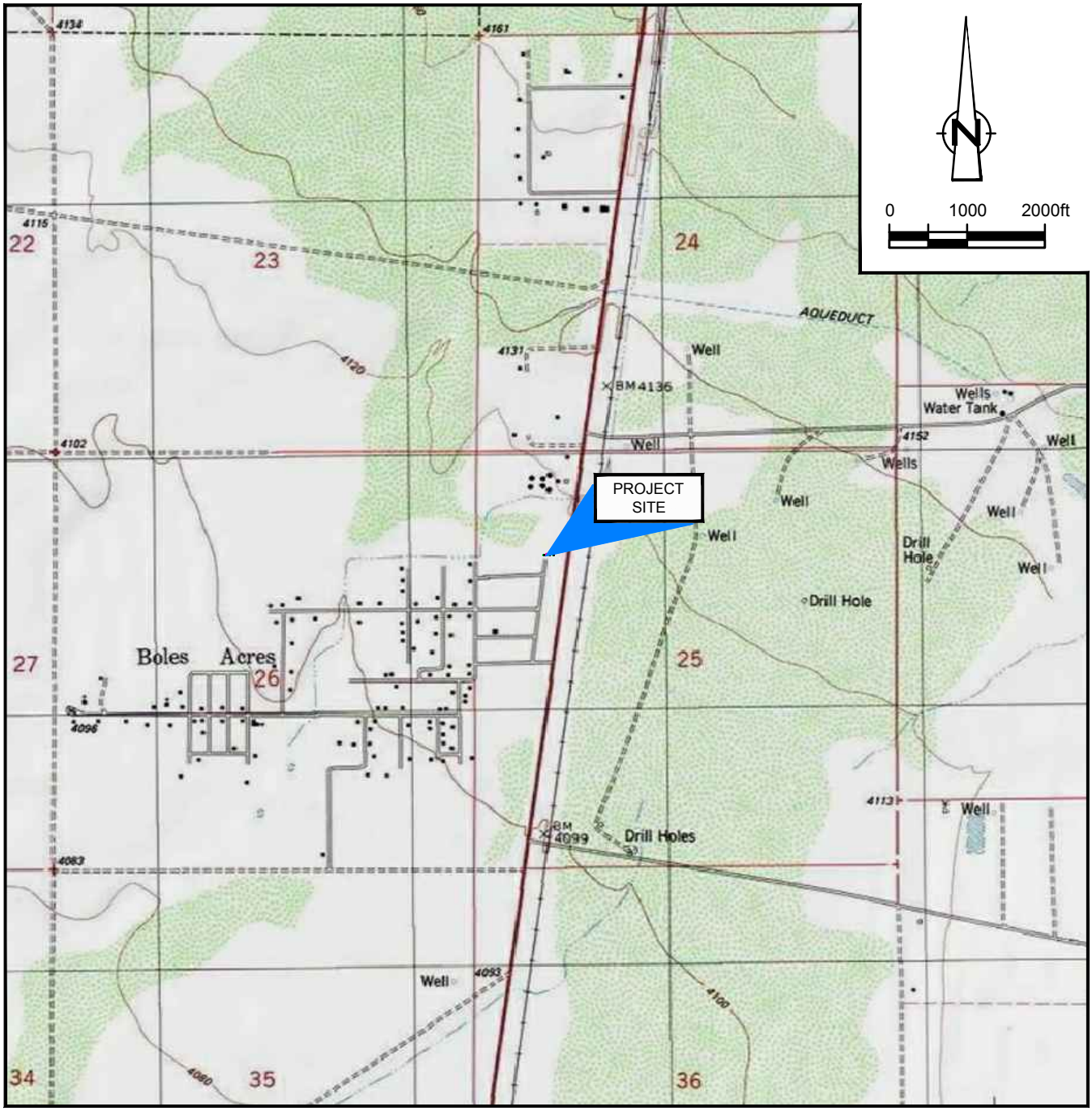
GHD

Bernard Bockisch, PMP
Senior Project Manager

Brian Kramer,
Senior Project Manager

BB/mc/02

Figures



SOURCE: USGS 7.5 MINUTE QUAD
"HOLLOMAN AND ALAMOGORDO SOUTH, NEW MEXICO"

LAT/LONG: 32.811438° NORTH, 105.977448° WEST
COORDINATE: NAD83 DATUM, U.S. FOOT
STATE PLANE ZONE - NEW MEXICO CENTRAL

Figure 1

SITE LOCATION MAP
ALAMOGORDO TERMINAL
ALAMOGORDO, NEW MEXICO
Epic Midstream, LLC.

GHD

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Figure 2

SITE DETAIL MAP
ALAMOGORDO TERMINAL
6026 HIGHWAY 54 SOUTH, ALAMOGORDO, NEW MEXICO
Epic Midstream

GHD

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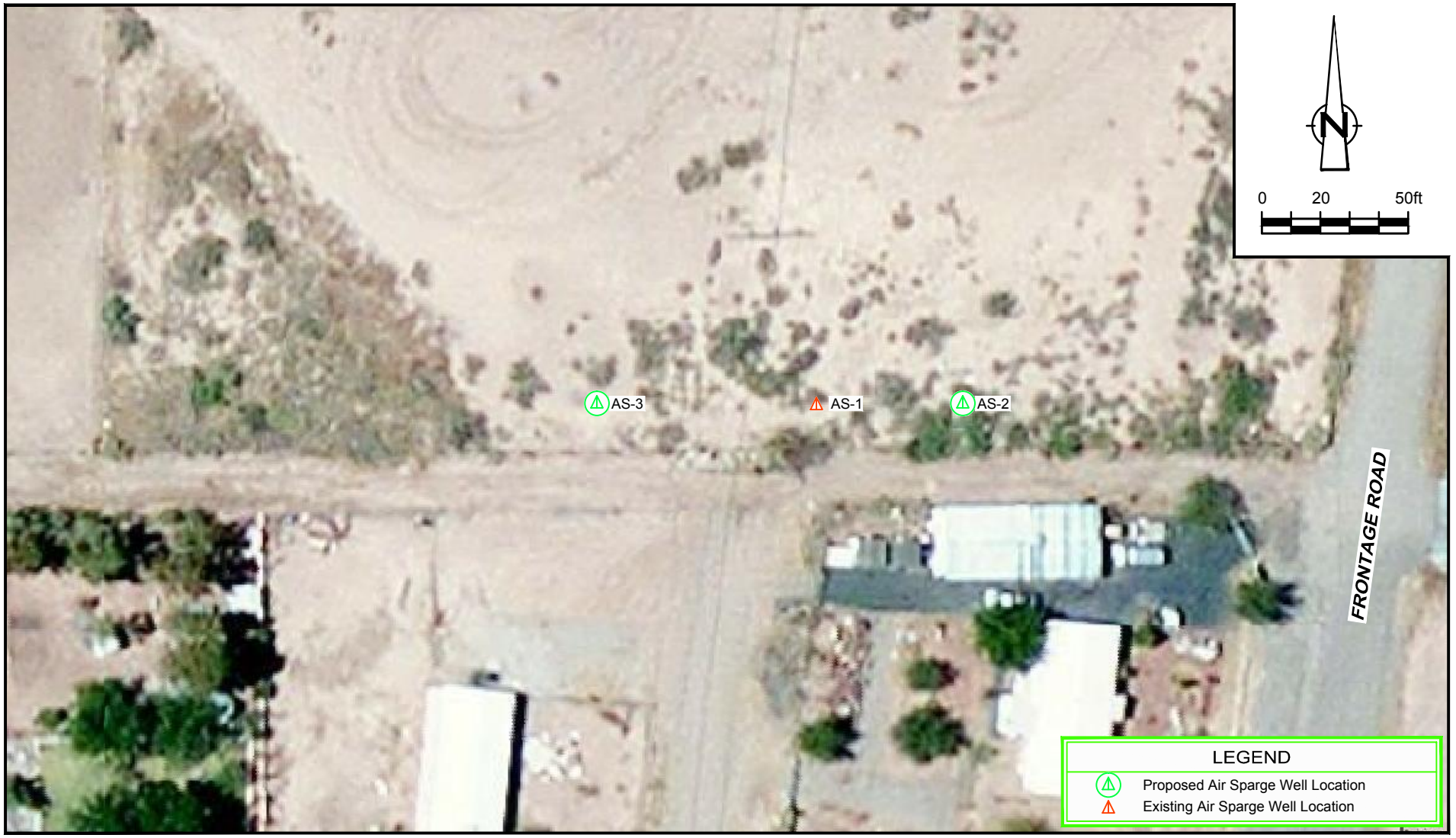


Figure 3

PROPOSED AIR SPARGE WELL LOCATION MAP
ALAMOGORDO TERMINAL
ALAMOGORDO, NEW MEXICO
Epic Midstream, LLC.

GHD

088328-00(MISC)GN-DL002 OCT 31, 2016

Attachment A
Kerfoot Technologies, Inc. C-SPARGER

MAX - 1.8 kw/hour

C-SPARGER™

- Rapid Treatment of Contaminated Soil & Groundwater
  (Typically, 3 to 18 months)
- Economical to Operate
  (Electricity Costs of ~$2.00 per day)

NEED 20 amp 110V

→ MAX RATE = 1.8 Kw/hour

- Low Profile
  (Compact Panel with No Loss of Parking Spaces)
- Typically, No Air or Water Discharge Permitting Required
- Typically, No Secondary Contaminant Produced
  (Carbon Disposal/Thermal Oxidation)
- Efficient Treatment
  (Oxidation Rather than Transport. Non-Detect is Goal)
- No Disruption to Existing Business, in Most Cases
- User-Friendly Installation
  (120V Power/Easily Programmed/Slip Connects)

For Information, Please Contact:

MEES

McCulloch Environmental Equipment Sales
785 DERRY CIRCLE • VACAVILLE, CA 95688
Ph: 707-451-7866 • Fax: 707-447-7910

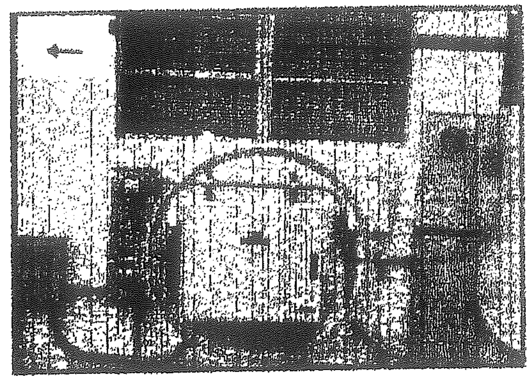
MEES

usparge@aol.com

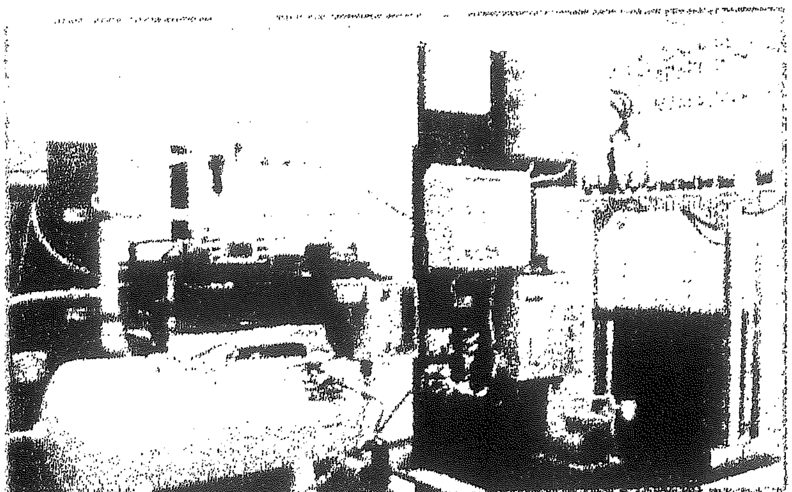
KVA C-Sparger®
OZONE OXIDATION SYSTEMS

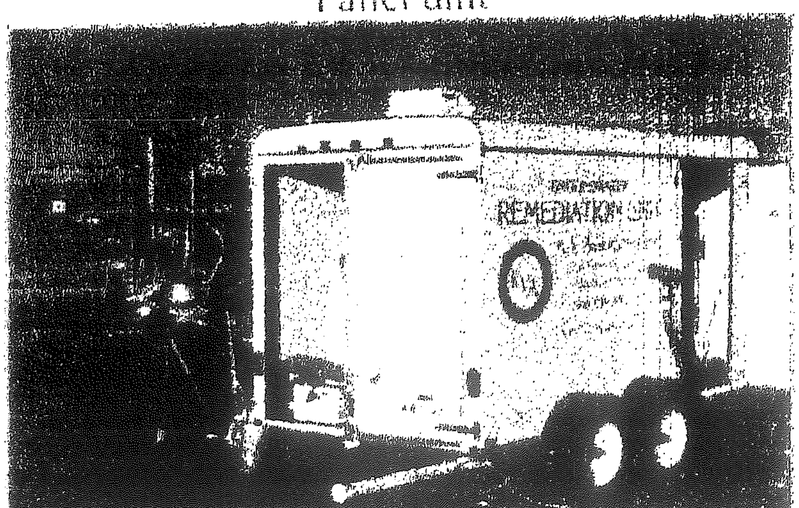
Rapid VOC removal:
MTBE + BTEX and chlorinated solvents

- Complete remediation process
- Targets both soil and groundwater
- Combination of stripping and treatment
- Minimal site disturbance
- Affordable alternative to pump and treat
- No vapor control required
- Customized systems available

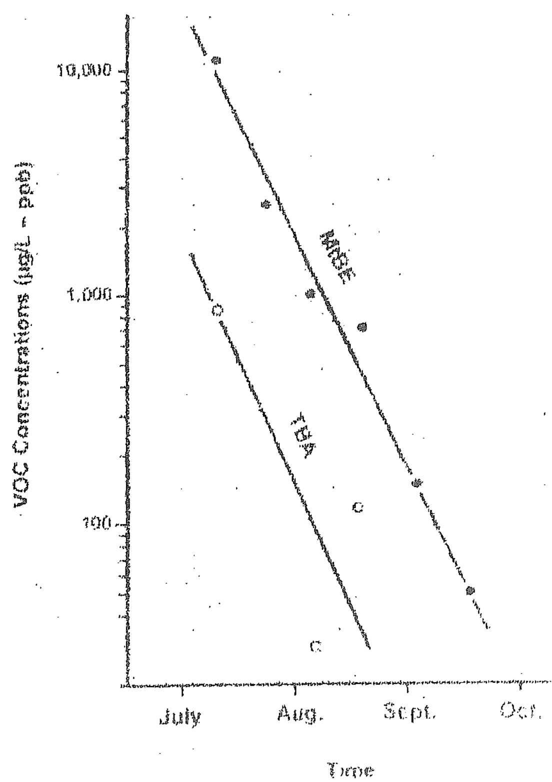

Wall-mount unit

www.kva-equipment.com


Pallet unit

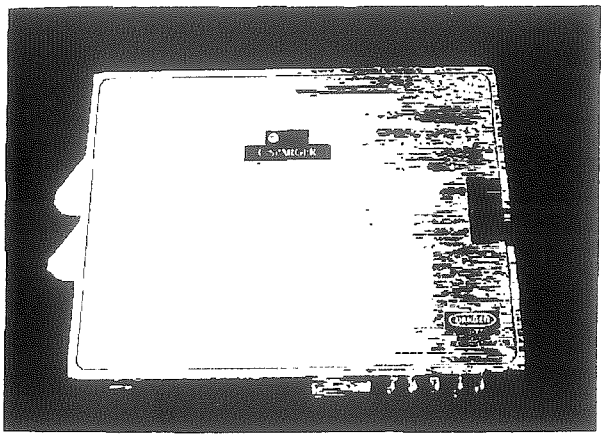


Trailer unit

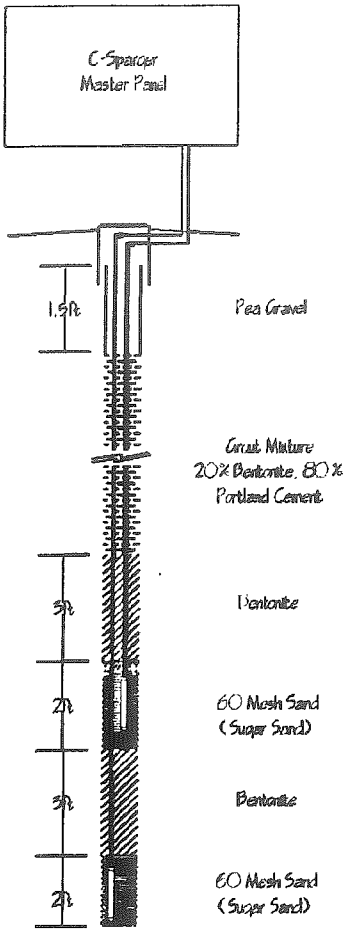


U.S. Patent numbers [illegible]
Other U.S. and foreign patents pending

MODEL 5020 C-SPARGER® SPECIFICATIONS



Example Spargepoint® Installation



CONTROL MODULE (wall-mount)

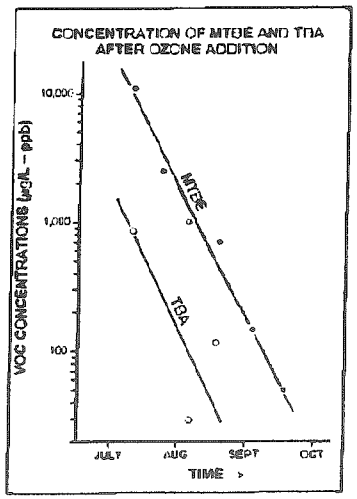
External power	120 VAC, 15 amp
Compressor	¾ hp, continuous service
Ozone generator	2 gm/hr (6 gm/hr with O_2)
Gas tubing	3/8" HDPE
Master Unit size	43"w x 29.5"h x 12"d
Master Unit weight	120 lbs

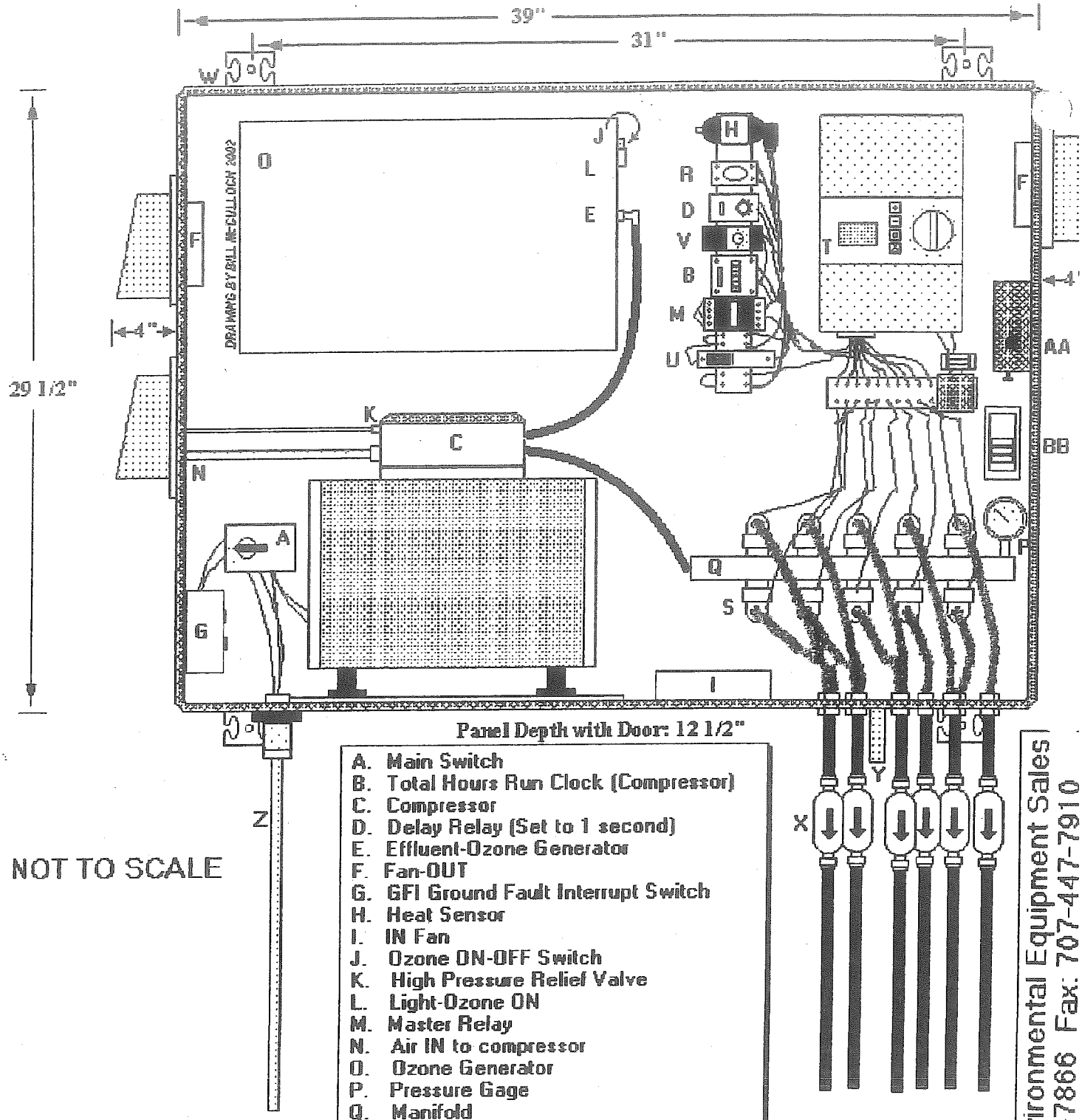
INSTALLATION

KVA recommends that the Master Unit be installed in a well-ventilated shelter for protection from the elements. Minimally, a roof must be placed over the Master Unit. Less desirably, the Master Unit may be firmly mounted on concrete-anchored 4 x 4 posts or on a building wall near the sparge wells. A dedicated power outlet is advisable.

ALSO AVAILABLE FROM KVA

- Palletized C-Sparger® systems
- Trailer-enclosed C-Sparger® systems
- Custom design to meet your site requirements
- Rental units for pilot tests
- Design assistance





Panel Depth with Door: 12 1/2"

NOT TO SCALE

A. Main Switch
B. Total Hours Run Clock (Compressor)
C. Compressor
D. Delay Relay (Set to 1 second)
E. Effluent-Ozone Generator
F. Fan-OUT
G. GFI Ground Fault Interrupt Switch
H. Heat Sensor
I. IN Fan
J. Ozone ON-OFF Switch
K. High Pressure Relief Valve
L. Light-Ozone ON
M. Master Relay
N. Air IN to compressor
O. Ozone Generator
P. Pressure Gage
Q. Manifold
R. Relay
S. Solenoid
T. Timer-Controller
U. 16 Amp Breaker
V. Current Sensing Relay
W. Mounting Bracket
X. One-Way Checkvalve (Arrow Down)
Y. Grounding Wire
Z. Power Cord Plug
AA. Ozone Sensor and Reset
BB. Ozone Sensor Relay

Note: This drawing is meant for general identification of panel components only. Design and configuration may vary.

This is NOT intended to serve as a wiring diagram.

McCulloch Enviromental Equipment Sales
Ph: 707-451-7866 Fax: 707-447-7910