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ADDENDUM NO. 2 - WORK PLAN FOR GAS CYLINDER TESTING

FIELD SAMPLING AND ANALYSIS PLAN FOR BUILDINGS 33 AND 34 NETC GOULD ISLAND, NEWPORT, RHODE ISLAND

PREPARED BY:
ENSR CONSULTING & ENGINEERING

SUBMITTED BY:
HALLIBURTON NUS
ENVIRONMENTAL CORPORATION

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION
NAVY (CLEAN) PROGRAM

CONTRACT NO. N62472-90-D-1298
CONTRACT TASK ORDER NO. (CTO) - 0036

JUNE 1992

HALLIBURTON NUS
Environmental Corporation

Donohue ENGINEERS ARCHITECTS SCIENTISTS

ENSR™

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NEWPORT, RHODE ISLAND

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) PROGRAM

Submitted to:
Northern Division
Environmental Branch, Code 18
Naval Facilities Engineering Command
Building 77-L, U.S. Naval Base
Philadelphia, PA 19112-5094

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Contract No. N62472-90-D-1298
Contract Task Order Number 0036

JUNE 1992

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ETSC SAMPLING,

HEALTH AND SAFETY PLAN

for Compressed Gas Cylinder Testing

PHASE TWO OPERATIONS

ETSC - 2584

NETC Gould Island Project
Building 33 - Powerhouse
Gould Island, Newport, RI
CTO#0036

JUNE 1992

Prepared by:

Emergency Technical Services Corporation
711 West Morse Ave.
Schaumburg IL. 60193

INTRODUCTION:

Emergency Technical Services Corporation personnel completed Phase I of this project 7 May 1992. Comprehensive evaluations of each suspect container were performed. The results of these evaluations were summarized in an after action report forwarded to the Halliburton NUS (HNUS) and dated 20 May 1992. A copy of this report is attached as Appendix A.

In summary, the following containers were evaluated for content characteristics and container integrity:

#33a " Fire Extinguisher "
#33b " Oxygen, Medical "
#33c " Acetylene "
#35a " Helium "

ETSC believes that containers #33a, #33b, and #33c can be managed without further investigation. Container #35a must be sampled before it can be managed.

Risk Assessment of 050792DA13:

Conflicting information was obtained in the process of evaluation of this container. Although this container is labeled helium, the container's DOT specification, outlet configuration and valve type are not those commonly encountered and/or required by the standards existing in the middle 1950's (last test date 2/54).

This container closely resembles the profile of a flammable compressed gas. The presence of a relief device suggests that the contents are not particularly toxic. This type of container and valve conformation is acceptable for use in the management of industrial gas mixtures such as welding mixtures of helium or argon mixed with methane.

The maximum content is expressed as the volume x the pressure in atmospheres (for compressed gases). This is less than 270 standard cubic feet.

The container is in mechanically good condition. No significant additional risk is observed.

PHASE II OPERATIONS:

Phase II operations are limited in scope to the access, sampling, and identification of the contents (if any) in a single container referenced in the original scope as Item 35A with photographs as described in the RFP Technical Proposal. This container is identified by ETSC's filed ID #050792DA13. Two tasks are required to complete this scope. These tasks --Task One, Access and Task Two, Sampling -- are described in detail in this work plan.

SITE SELECTION:

ETSC has been advised that all operations covered by this task will take place in the area described by the HNUS Team.

The HNUS Team will be responsible for furnishing the following while ETSC is on-site for Phase II activities;

Lighting
Electricity
Water

Water for the purposes of decontamination will be provided by the HNUS Team. All contaminated water, rinses, or discarded personal protective equipment will be managed as directed by the HNUS Team. Any other waste produced as a result of ETSC operations will be managed as specified in the RFP Technical Proposal, attached as Appendix B.

ORGANIZATIONAL MANAGEMENT:

The ETSC response team for this project consists of two or more members. Resumes of key personnel together with a brief ETSC corporate resume are provided as Appendix C. Each team member carries complete training and medical credentials. Typically they are as follows:

Senior Cylinder Chemist (Team Leader)	Charles Eckman
Cylinder Chemist	Dale Anderson
Cylinder Technician	Mark Arvidson

DUTIES:

ETSC team leader shall direct all aspects of the tap installation, and field sampling methodologies. ETSC Chemist and Technician shall work under the direct supervision of the team leader performing such tasks as directed.

All appropriate documentation will be provided if an unscheduled change in personnel is made.

Rick Brannon, ETSC Field Operations Manager shall be the corporate point of contact for all correspondence prior to and after the completion of this project. He may be reached at the corporate headquarters telephone number (708) 980-3872 or fax (708) 980-3057.

SITE PLAN:

Preliminary Assessment and Site Plan:

The "site" as defined by this section is the specific area of Gould Island designated by the HNUS Team as reserved for ETSC cylinder operations (see attached map).

The ETSC team will proceed as follows:

1. SPECIAL REQUIREMENTS: The "site" at which tapping is to occur should be located away from any sensitive area, including but not limited to: personnel concentrations, occupied buildings, public access areas and the like. The minimum exclusion zone for Task One and Two will be 50 yards wide by 100 yards downwind. This zone may be modified by the presence of buildings and weather conditions.

2. The ETSC team leader will designate the appropriate locations for command and control, decontamination stations (if required) and other such areas as necessary to complete the scope. These designations will be coordinated with the HNUS Field Team Leader (FTL), and HNUS Site Safety Officer (SSO).

GENERAL HEALTH AND SAFETY:

The HNUS Health and Safety Plan (HASP) dated April 1992 will be complied with as the minimum measures needed to perform Phase II operations on site.

Team Communication:

Each Field Team is furnished with a cellular telephone. This phone will be maintained for use at the Command Post.

Each team member will be equipped with portable radio communications to facilitate rapid communication between team members. Intrinsically safe radios are available and will be used for all hot zone work. All radio communications will be monitored and recorded using a programmable scanner and vox recorder located at ETSC's command post.

All access techniques will be monitored via closed circuit camera from the tap control point. All activity will be RECORDED on videotape.

Hand held air horns will be available to all team members in the hot zone. The following signals will be used to communicate information in the event of an EMERGENCY:

ONE CONTINUOUS BLAST:	A major release is imminent, or in progress do to equipment or container failure. Evacuate to prearranged areas.
THREE SHORT BLASTS:	Medical emergency, rescue required, use PPE specified for rescue.
TWO SHORT BLASTS:	Cease operations immediately. Report to command post.

Team Communications:

Hand signals will be used in the event of radio failure or the inability to communicate by radio. Note: Failure of radio communication requires operations to cease immediately.

HANDS AT THROAT:	Air supply failure, can not breath, evacuate to the decon area immediately.
THUMBS UP:	Everything OK
THUMBS DOWN:	Negative
ONE HAND OVER EAR:	Radio has failed, (proceed to decon zone).

HAZARD COMMUNICATION:

ETSC'S mobile scrubber utilizes four materials which require notification under 29CFR1910.1200. The specific contents and formulations are held by ETSC to be proprietary and confidential information. Material Safety Data Sheets are carried with the mobile scrubber's manual, and available if required for medical or emergency reasons.

Three additional hazardous materials are utilized in this Task. Nitrogen and helium are nonflammable compressed gasses. MSDS's are provided with the mobile scrubber manual. Butane in the form of a cigarette lighter is provided as a challenge substance to go/no go test some of the instruments employed. The lighter's flint and spark wheel have been removed to eliminate any spark hazard. No MSDS is provided as the quantity is small and ETSC personnel are familiar with the material.

TASK ONE: ACCESS:

ETSC has determined that the container's present outlet is not serviceable. ETSC will therefore perform a high pressure controlled access or "hot-tap" to obtain a sample of the contents:

TAP INSTALLATION:

PERSONAL PROTECTIVE EQUIPMENT:

LEVEL B ensemble as defined in Appendix D.

Hot Tapping Cylinders: General Protocol

Definition:

"Hot" work in this case, hot tapping - indicates that the vessel or container upon which the work is performed, is either pressurized or contains come product.

Background:

Hot tapping as such, has been used as a standard method for obtaining samples, creating monitor ports or for other purposes by the petroleum industry for many years.

Hot taps and tapping equipment are available from a number of companies for the installation of taps in pipelines and pressure vessels. The smallest of these, creates a port 5/16 inch, the largest (normal) creates a port on the order of four inches. These devices can manage a variety of pressure ranges, depending upon the port diameter and materials of construction. The small tappers in particular, can manage pressures in excess of 4,000 PSIG.

Technology Transfer:

One of the largest problems in the management of compressed gases, liquified compressed gases, and liquid materials contained in cylinders is the difficulty in obtaining a sample.

Sampling these containers under circumstances where an operable valve is not present, or where the valve integrity is compromised, presents a problem.

The ETSC SYSTEM has developed a method utilizing equipment that is employed by the petroleum industry to tap cylinders. A general system description can be made as follows:

1. Each container is fully evaluated by a field team to determine its suitability for sampling by this method.

2. Each suitable container is fitted with a custom built split ring collar. The collar is similar to devices employed in the pipeline industry to remediate small leaks in pressure piping. The collar provides a suitable rigid fixture to which the tapper device is connected.

3. A custom seal is installed in the collar.

4. A stem and valve are attached and pressure tested to insure integrity.

5. The tapper unit and sampling manifold are attached to the valve.

6. The container is placed in a custom designed drilling machine and secured. The normal position is horizontal with the tap in the top position.

7. The entire apparatus is subjected to a pressure integrity test.

8. Remote monitoring and drilling machine systems are tested. operator withdraws to the remote systems actuation point.

9. The drill is activated, pierces the container wall and is withdrawn through the valve port. (Events are monitored by remote camera.)

10. A sample is obtained through the manifold.

11. The valve is closed; and the manifold/tapper system is purged.

12. The tapper valve is plugged. The collar and valve assembly are left on the container.

Regulatory Impact of the Method:

The major regulatory impact of this method, involves transportation. ETSC believes that a container which has been managed by this method, no longer qualifies for shipment under the current DOT regulations.

Several scenarios exist with respect to the continued management of the tapped contained. The three most probable include:

* Analysis indicates that the contents are not considered a hazardous waste. The contents may then be vented on site without permit.

* Analysis indicates that the contents are considered to be a hazardous waste. The contents are treated on-site with the appropriate permits.

* Analysis furnishes the identity of the material. Two alternative measures are available. The contents may be transferred to a new container, or an emergency exemption is obtained from DOT to transport the container to a suitable facility for treatment.

In any event, the problems associated with the management of this waste type are resolved in an environmentally conservative and regulatory acceptable manner.

TASK TWO - SAMPLING:

SCOPE:

Obtain a sample from any container identified as an unknown and containing (or is suspected to contain) a compressed gas or liquified compressed gas.

METHOD:

Sampling of containers with accessible outlets shall be carried out using ETSC's field sampling method T-1. Note: This method is applicable to the transfer of a small quantity of gas/vapor from a cylinder containing compressed gas or liquified compressed gas. The actual method is considered as Confidential by ETSC.

HEALTH AND SAFETY:

ETSC employs a simple, yet sophisticated system of engineering controls combined with rigorous administrative and operational testing to minimize the risk of any uncontrolled release during its sampling operations.

These controls and procedures have resulted in ETSC's ability to significantly down grade the former heavy reliance on personal protective equipment to the greatest extent feasible consistent with the containers physical condition.

PERSONAL PROTECTIVE EQUIPMENT:

Selection of personal protective equipment utilized during sampling procedures is a function of the unknown container's physical stability, and hazards associated with the work environment.

Personal protective equipment for this sampling procedure is specified as Level B as defined in Appendix D. (An artificially high level is chosen to expedite on site operations.)

DECONTAMINATION PLAN:

Decontamination shall be governed by the HNUS HASP, Section 8.0 Decontamination.

These techniques, when successfully performed, results in no significant release of hazardous material. No decontamination is therefore required beyond that which may be required for entry into a restricted area as delineated by the Site's existing plan.

Equipment may be decontaminated as required using soap and water followed by water rinses. Further decon may be performed using solvent rinses as necessary or required. All solutions are to be packaged for disposal as required by the Site's plan.

EMERGENCY decontamination of personnel or equipment shall be performed using copious quantities of plain water.

At a minimum, all ETSC personnel are required to wash their face, neck, hands, and arms prior to departing the Site, or any active portion thereof, for any reason.

MONITORING REQUIRED:

Continuous monitoring of the work area shall be conducted in the area for combustible vapors/gases and oxygen level monitoring shall be carried out utilizing ETM 02, application note two. Action levels will be combustible vapor/gas greater than 50 ppm, oxygen levels less than 19.5% or greater than 23% by volume.

The HNUS Team will conduct additional monitoring for the presence of volatile gases utilizing a HNU or equivalent detector.

All pressure connections made on the manifold, transition fittings, sample container, or tap installations shall be helium leak tested using method ETM04 prior to operation.

The atmospheric conditions shall be monitored and recorded on the ALOHA release form. (Estimates of the pertinent conditions are satisfactory.)

SAMPLING OF PRESSURE VESSELS GENERAL PROTOCOL

Introduction:

Present sampling procedures dictate that the contents of the pressure vessel (cylinder tank, etc.) be accessible through the original valve on the vessel or through an outlet provided by "hot tapping" the container. Large containers are field sampled and an aliquot of the material is returned to the laboratory for analysis.

Method:

Field sampling is accomplished in the following manner:

Sampling is accomplished by matching the vessel valve, or hot tap outlet to a transition fitting on a manifold. The entire manifold up to the vessel valve, is purged with an inert gas, helium, evacuated to approximately 1 torr and flushed a second time. The manifold is then pressurized with helium and monitored for leaks by use of a sensitive detector. The manifold pressure is bled to atmospheric pressure then evacuated. All valves are closed. The vessel valve is cracked to allow sample to fill the dead volume up to the transition valve. The apparatus is inspected for any leak or other problem. Next, the transition valve is cracked to allow sample into the main manifold. Temperature and pressure in the system are recorded.

Finally, the sample valve is cracked to admit sample into the sample container. Where manifold pressure is in excess of the sample vessels rated pressure double valve technique is used to reduce the manifold pressure to acceptable limits. The sample and vessel valves are closed and the contents of the manifold purged through a generic scrubbing system. After purging, the system pressure is monitored for increase indicating that there is a leak in the vessel valve. If a leak is detected, the valve on the transition fitting is closed and the system is removed post transition valve, leaving a tight non-leaking stop in place.

The sample container is removed from the manifold, labeled and packaged for transportation. All containers are assigned a tentative shipping description and are packaged, labeled and transported in accordance with the Federal Department of Transportation regulations.

Materials:

Sample Containers:

All sample containers meet the DOT E 1800 as minimum specification. All threaded joints are taped with teflon tape to provide leak free connections and gall free breaks. Maximum pressure allowable in the system is set by the container specification as 1800 pounds per square inch. Volume of the sample container used is between 75 and 400cc and is selected based upon the unknown container characteristics and the pressure in the vessel to give the smallest volume of sample constant with the laboratories analytical protocols. This volume is usually 2-5 cubic feet at STP.

Double valve technique is used to reduce the manifold pressure to safe levels during sampling. The pressure in the sample container is monitored by observing the manifold pressure transducer output during valve manipulation. (Note: The hydrostatic test pressure for DOT E 1800 vessels is a minimum burst pressure greater than 6000 psig.)

Manifold:

The entire manifold and all wetted parts are stainless steel or inert fluorocarbon polymers (e.g., teflon, kel-f.) All parts under pressure are rated by their respective manufacturer's for use to at least 3000 lbs. per square inch. Pressure on the manifold is monitored by one or more transducers through a calibrated digital output.

Basic Safety Consideration:

1. Sampling is accomplished using the level of personal protective equipment judged necessary, based upon the expected hazards. This may include levels to Level "A". Specification of safety equipment and protocols is the responsibility of the ETSC on-scene Coordinator.

2. Normal procedures for sampling are performed on any container or other vessel which may contain pressures up to 3,000 psig. This is determined on the basis of required markings and valve types.

3. The container that have been "HOT TAPPED" must be strongly packaged to prevent accidental releases due to valve assembly damage or unintentional valve (ETSC's normal procedure is to crate each container.)

EMERGENCY PROCEDURES AND EQUIPMENT:

The following basic procedures shall be used by ETSC personnel to begin incident response operations. A list of emergency equipment available is included, together with a brief explanation of its status/use.

SCENARIO ONE: Leaking Container -

Upon discovery of a leaking container of any type, the ETSC team leader shall immediately evacuate the exclusion zone upwind and inform the Site's on duty Emergency Coordinator, and the ETSC corporate on duty emergency coordinator by the best available means.

The team leader may then direct a response as is appropriate for the type of material encountered. This includes reentry into the exclusion zone to perform emergency remediation measures. The minimum level of protective equipment shall be determined on the basis of the hazard encountered.

IA UNKNOWN LEAKING: Level A attire, Tight Level B, if no liquids present

II B KNOWN LEAKING: Minimum, SCBA (nonflammable non-toxic gas, i.e., Argon) Maximum, Level A attire with flash suit (toxic, flammable gas, i.e., hydrogen cyanide)

Remediation Procedures Include:

*Using a wrench to tighten valve stem, packing nut or other fittings as appropriate to shut off the flow through an outlet.

*Using a transition joint (an appropriate CGA adaptor equipped with a valve) to seal an outlet.

*Placing the containers vapor space upward so that only vapor is being released.

*Setting up improvised download into a treatment medium (methods described in the Matheson Gas Data Book).

FIRE/EXPLOSION:

Evacuate the operations area upwind and sound evacuation signal as appropriate.

Notify the HNUS' and ETSC's on duty Emergency Coordinator, and follow the emergency response procedures in the HNUS HASP, Section 10.0 Emergency Response.

Note: Fires involving toxic materials should not be extinguished unless the source can be controlled or it is otherwise indicated.

EMERGENCY EQUIPMENT:

Introduction: Each ETSC team conducting any access operations of any unknown container of compressed gas or liquified compressed gas shall have available the following emergency equipment.

Three lists of materials are presented. List "A" contains equipment which is reserved for emergency use only. This equipment is carried in addition to any equipment which is scheduled for use on a job. The single exemption to this rule is the breathing apparatus. When Level A or B operations are scheduled, it is permissible to use the breathing apparatus, provided a spare charged cylinder is available for emergency use.

List B contains equipment normally employed by the field team during the course of its normal operations. This equipment would be at hand during any emergency operation. List C contains a brief selection of basic references used by the field team during normal operations. A description of each reference is included.

In addition to the equipment on-site ETSC has available the most current ALOHA air release modeling software. This package can provide considerable help in incident evaluation and control. Use requires a telephone link to the corporate office. Basic weather data and chemical name / quantity are used to develop management and evacuation plans.

List A - Reserved Devices:

Personal Protective Equipment:

2 ea. Scott 2.2 air pack, SCBA with or without airline modification. This is a full face positive pressure demand device. Supplied with a minimum of one full 30 minute bottle. (A Scott SKA-PAC is an acceptable alternative)
2 ea. Tyvek, Saranex coated, with hood and feet.
4 pr. gloves, Nitrile, and Neoprene
1 roll duct tape
2 ea. Kappler, Saranex coated, totally encapsulating suit, hazmat response type.

EQUIPMENT:

Sensidyne Hazmat Detector Tube Kit, contains syringe pump and a minimum of five tubes of each type required to perform all of the tests noted on sensidyne. "Hazmat Detector Tube Logic Chart II" DN7011493-0, copyright 1988. Note: This device issued to provide a rapid characterization of a gas or vapor during a release.

Fire Extinguisher: minimum 10 lb ABC dry chemical.

Emergency Eye Wash: self contained eye wash capable of functioning without provided power or connection.

First Aid Kit

LIST B - STANDARD EQUIPMENT:

Gastech Model 1314, dual range combustible gas (0-500 PPM, 0-100% LEL) and oxygen (0-25%) direct reading instrument.

Gow Mac Model 21-250 Gas Leak Detector, a device based on difference in thermal conductivity of a sample gas vs. reference (air)

Leak Check Kit, wet chemistry kit used by ETSC field technicians and chemists to perform rapid qualitative leak checks for a variety of compounds. Very generic in character.

Tools, a variety of hand tools, both standard and non-sparking varieties used to perform numerous tasks, i.e., wrenches, screw drivers, etc..

LIST C - STANDARD REFERENCES:

The following reference works are carried by the team for their use during all phases of cylinder evaluation and access operations.

Matheson Gas Data Book, 6th ed. Matheson Gas Products Inc. 1980. This reference contains information related to basic handling and safety as well as over 100 monographs of individual gases. The monographs include physical and chemical properties, handling specifics, first aid information and emergency management of leaking containers sections.

Handbook of Compressed Gases, 3nd ed. Compressed Gas Association, 1990. This handbook contains broad references to virtually every phase of gas and container management. The ETSC system relies upon this test and CGA standards for much of its general management procedures.

Effects of Exposure to Toxic Gases-- First Aid and Medical Treatment. Matheson Gas Products Inc., 1988. This text is considered a standard in the management of toxic gas exposures.

ETSC Compressed Gas Handbook, this is a collected reference work comprised of basic information necessary to perform work under ETSC's scope of field operations. It contains CGA publications, general works and methods.

WP-2584 APPENDICES

APPENDIX A
AFTER ACTION REPORT

AFTER ACTION REPORT

ENSR/GOULD ISLAND
ETSC - 2584

INTRODUCTION:

ETSC personnel evaluated 13 gas cylinders and/or fire extinguishers at Gould Island, NY on May 5, 1992. The evaluations were conducted according to the ETSC protocols as outlined in the Preliminary Work Plan.

FINDINGS:

ETSC's evaluations discovered eight of the thirteen cylinders with their valves open and the contents gone. However, seven of the eight empty cylinders did contain water.

Two carbon dioxide fire extinguishers were found to pass ETSC's evaluation and appeared to have content.

One cylinder was evaluated and found to contain oxygen. This cylinder also passed the evaluation.

Another cylinder was evaluated and passed as acetylene.

Finally, one cylinder was evaluated and found to contain an unknown material. This cylinder appears to have an inoperable valve.

Please refer to the attached chart and evaluations for more details on our findings.

COMMENTS/RECOMMENDATIONS:

ETSC recommends that the eight empty cylinders be drained of the water, the valve assemblies removed, and the carcass scrapped.

The two carbon dioxide and one oxygen cylinders can be managed in two ways: First, they may be vented on site due to the fact that they are non-RCRA materials. After venting, they can be scrapped once their valves are removed. Second, the cylinders did pass the ETSC evaluation and are shippable under D.O.T. regulations. Therefore, they may be shipped off-site to a TSDF once they have been packaged and labeled per their protocols.

The acetylene cylinder is a RCRA regulated material and, therefore, must be shipped off site to a permitted TSDF. The cylinder did pass the ETSC evaluation and is D.O.T. shippable. However, it will need to be labeled and packaged per TSDF protocols.

The one unknown cylinder will be sampled and identified per the attached Scope of Work. Once identified, management options can be discussed.

EVALUATION TABLE

ENSR/GOULD ISLAND
ETSC - 2584

FIELD I.D. NO.	CONTENTS	SIZE	BUILDING
050792DA1	Acetylene	12.40" x 37"	33
050792DA2	Oxygen	9.20" x 52"	33
050792DA3	Carbon Dioxide	6.90" x 24"	33
050792DA4	Carbon Dioxide	6.70" x 24"	33
050792DA5	Empty	8.60" x 51"	33
050792DA6	Empty w/water	6.40" x 26"	33
050792DA7	Empty w/water	6.80" x 24"	33
050792DA8	Empty w/water	6.80" x 24"	33
050792DA9	Empty w/water	6.30" x 20"	33
050792DA10	Empty w/water	6.40" x 27"	33
050792DA11	Empty w/water	6.40" x 26"	33
050792DA12	Empty w/water	6.40" x 27"	33
050792DA13	Unknown	9.16" x 52"	35

SCOPE OF WORK
PHASE II

ENSR/GOULD ISLAND
ETSC-2584

ETSC will mobilize to the site with the assistance of ENSR.

An exclusion zone will be established, per the accepted health and safety plans direction.

ETSC personnel will "hot-tap" the unknown cylinder (ETSC field number 050792DA13) as prescribed in the health and safety plan. Once the "hot-tap" is in place, the cylinder will be sampled using the ETSC protocol outlined in the health and safety plan. The sample will be given a suspected D.O.T. hazard class under 49 CFR 172.101 and 172.203. The sample will be properly packaged, labeled, and marked. Once back on the mainland, ETSC will transport it back to EAI for analysis and identification.

EMERGENCY TECHNICAL SERVICES SYSTEM
711 W. Morse Ave.
SCHAUMBURG, IL 60193
(708) 980-3872

QUOTE# QE-2584S

FIELD ID# 050792 DA05

Empty Cylinder

CYLINDER EVALUATION FORM EA-10, REV 05/16/90

LOCATION: Bldg 33, NETC, Gould Is, Newport, RI, (USN)

PHOTO DOC(S)

ROLL#

BY DA / MA DATE 5/7/92 P# -- --

CONTENTS LABELED: Carbon Dioxide #332 OR

CONTENTS SUSPECTED: Carbon Dioxide

CYLINDER INSPECTION: ETM# 1 -- 2 -- 3 -- 8 -- -- --

RESULTS (CIRCLE 1): (P) F A (P) F A (P) F A (P) F A P F A P F A

DIMENSION:	CONTAINS:	DELIVERY:	COLORS: (STARTING AT VALVE)	LGN
DIA: 8.6"	GAS ____	GAS /	Red	All
CIR: ____	LIQ ____	LIQ ____	____	____
LGN: 51"	UNK ____	BTH /	____	____
WT: 98 lb	(Empty)	UNK ____	____	____

MARKINGS: 1CC-3A2015
192437, VK Amprosind
9 m 38
108 1/2 lbs
USN 320022 USN

SYMBOL: C H

OTHER LABELS

CGA OUTLET:	VALVE MAT:	VALVE TYPE:	PRESS RELIEF:	RELIEF TYPE:
320	BRONZE ____	PACKED ✓	ON VALVE ✓	PLUG ____
DIM: ____	S-STEEL ____	PACKLESS ____	ON CYL ____	DISK ✓
____	OTHER ✓	OTHER ____	NONE ____	VALVE ____
____	Aluminum	____	____	____

VALVE MARKINGS: Made in USA Pat. RE19087

HANDLING CODES: (FC) ____ (MC) ____ (FP) ____ (MP) ____ ( ) ____ ( ) ____

TRANSPORTATION CODE: ____ -- ____ DISPOSAL CODE: ____

REMARKS: Valve Wide Open, Cylinder is Empty
Neck Ring USE GREEN SAFETY DISC LUX - RICH
CHG 50 lbs CO2

Cylinder can be scrapped

(√) OK (NE) NOT EVALUATED (NA) NOT APPLICABLE (R#) SEE REMARK# (P) PASS (F) FAIL (A) ATTACHED

Empty Cylinder

EMERGENCY TECHNICAL SERVICES SYSTEM
711 W. Morse Ave.
SCHAUMBURG, IL 60193
(708) 980-3872

QUOTE# QE2584 S

FIELD ID# 05c792 DA 02

CYLINDER EVALUATION FORM EA-10, REV 05/16/90

LOCATION: Bldg 33, NETC Gould Is., Newport RI (USN)

PHOTO DOC(S)

ROLL# _____

BY DA / MA DATE 5/7/92 P# _____ -- _____

CONTENTS LABELED: Oxygen #336 OR

CONTENTS SUSPECTED: Oxygen

CYLINDER INSPECTION: ETM# 1 - 2 - 3 - 8 - _____ -- _____

RESULTS (CIRCLE 1): (P) F A (P) F A (P) F A (P) F A P F A P F A

DIMENSION:	CONTAINS:	DELIVERY:	COLORS: (STARTING AT VALVE)	LGN
DIA: 9.19"	GAS ✓	GAS ✓	White	0
CIR: /	LIQ ____	LIQ ____	Green	7
LGN: 52.5"	UNK ____	BTH ____		
WT: 125lb		UNK ____		

MARKINGS: ICC-3A1800
X29302I NON SHAT
USN (P)
10-44 9-72
10-31

SYMBOL: (P)

OTHER LABELS: (Stencil) Oxygen - Medical, NON SHAT

CGA OUTLET:	VALVE MAT:	VALVE TYPE:	PRESS RELIEF:	RELIEF TYPE:
540	BRONZE ✓	PACKED ✓	ON VALVE ✓	PLUG ____
DIM: ____	S-STEEL ____	PACKLESS ____	ON CYL ____	DISK ✓
____	OTHER ____	OTHER ____	NONE ____	VALVE ____

VALVE MARKINGS: Sherwood 62 BE Type TV, CGA 540-DS&2

HANDLING CODES: (FC) ____ (MC) ✓ (FP) ____ (MP) ____ ( ) ____ ( ) ____

TRANSPORTATION CODE: TX -- CX DISPOSAL CODE: _____

REMARKS: _____

(√) OK (NE) NOT EVALUATED (NA) NOT APPLICABLE (R#) SEE REMARK# (P) PASS (F) FAIL (A) ATTACHED

EMERGENCY TECHNICAL SERVICES SYSTEM
711 W. Morse Ave.
SCHAUMBURG, IL 60193
(708) 980-3872

QUOTE# QE2584 S

FIELD ID# 050792DA01

CYLINDER EVALUATION FORM EA-10, REV 05/16/90

LOCATION: Bldg 33 NETC, Goat Is, Newport, RI (USN)

PHOTO DOC(S)

ROLL#

BY DA / MA DATE 5/7/92 P# ____ - ____

CONTENTS LABELED: Acetylene #33c OR

CONTENTS SUSPECTED: Acetylene

CYLINDER INSPECTION: ETM# 1 - 2 - 3 - 8 - ____ - ____

RESULTS (CIRCLE 1): (P) F A (P) F A (P) F A (P) F A P F A P F A

DIMENSION:	CONTAINS:	DELIVERY:	COLORS: (STARTING AT VALVE)	LGN
DIA: 12.44"	GAS ____	GAS ✓	Yellow	All
CIR: ~~XXXX~~	LIQ ✓	LIQ ____		
LGN: 37"	UNK ____	BTH ____		
WT: 200 lb		UNK ____		

MARKINGS: Ice Spec
USN 1083404
1-78

SYMBOL

OTHER LABELS
(Stencil) Acetylene,
(Paper Label) Acetylene, Flammable Gas

CGA OUTLET:	VALVE MAT:	VALVE TYPE:	PRESS RELIEF:	RELIEF TYPE:
300	BRONZE ✓	PACKED ✓	ON VALVE ____	PLUG ____
DIM: ____	S-STEEL ____	PACKLESS ____	ON CYL ____	DISK ____
____	OTHER ____	OTHER ____	NONE ✓	VALVE ____

VALVE MARKINGS: Kerotest

HANDLING CODES: (FC) ____ (MC) ✓ (FP) ____ (MP) ~~XXX~~ ( ) ____ ( ) ____

TRANSPORTATION CODE: TX -- FG DISPOSAL CODE: ____

REMARKS:

(√) OK (NE) NOT EVALUATED (NA) NOT APPLICABLE (R#) SEE REMARK# (P) PASS (F) FAIL (A) ATTACHED

Unknown Cylinder Tiki needs to be Sampled — Probably Hot Tap Candidate

ENVIRONMENTAL ANALYTICS, INC.
1107 W. LUNT AVE.
SCHAUMBURG, IL 60193
(708) 980-0304

CLIENT QE-2584 QUOTE# ENSR

FIELD ID# US0792DA13

CYLINDER EVALUATION FORM EA-10, REV 12/90

LOCATION: Bldg 35, NETC Could Is Newport, R.I. (USN)

PHOTO DOC(S) _____

ROLL#(s) ____, ____ PHOTO#(s) ____, ____

BY DA/MA DATE 5/7/92 P# _____ - _____

CONTENTS LABELED: Helium #35 OR

CONTENTS SUSPECTED: ~~[illegible]~~ unknown (Something Flammable)

CYLINDER INSPECTION: EIM# 1 - 2 - 3 - 8 - ____ - ____

RESULTS (CIRCLE 1): (P) F A (P) F A (P) F A (P) F A P F A P F A

UNKNOWN Cylinder - need sampling

DIMENSION:	CONTAINS:	DELIVERY:	COLORS: (STARTING AT VALVE)	LGN
DIA: 9.16"	GAS ____	GAS ____	Green	0
CIR: /	LIQ ____	LIQ ____	Orange	2
LGN: 52"	UNK X	BTH ____	Aluminum	4
WT: 125		UNK X	Orange → Aluminum	7¼
			~~OTHER LABELS~~ Aluminum	10½

MARKINGS: ICC - 3A2015
USN 235828
5-31, 9-1-42
6-43, 5-49, 2-54

SYMBOL: (P) USN

Other labels: (stencil)
Helium ?

CGA OUTLET:	VALVE MAT:	VALVE TYPE:	PRESS RELIEF:	RELIEF TYPE:
350	BRONZE ✓	PACKED ✓	ON VALVE ✓	PLUG ✓
DIM: ____	S-STEEL ____	PACKLESS ____	ON CYL ____	DISK ✓
____	OTHER ____	OTHER ____	NONE ____	VALVE ____

VALVE MARKINGS: REGO CC2 NB

HANDLING CODES: (FC) ____ (MC) ____ (FP) ____ (MP) ____ ( ) ____ ( ) ____

TRANSPORTATION CODE: _____ - _____ DISPOSAL CODE: _____

IF NO EAI SAMPLE, REASON: (1) NEED CGA ADAPTER ____, (2) SUSPECT STRONG OXIDIZER ____,
3) TWO OR MORE UNMARKED VALVES ____, (4) INOPERABLE VALVE ____,
(5) OTHER _____

EAI SAMPLE STATUS: TO EAI AS ____ TRANSFER ____ ORIGINAL CONTAINER

IF A TRANSFER, ANY EVIDENCE OF LIQUID IN ORIGINAL CONTAINER? ____ YES ____ NO

(✓) OK; (NE) NOT EVALUATED; (NA) NOT APPLICABLE; (R#) SEE REMARK#; (P) PASS; (F) FAIL; (A) ATTACHED

Red Neck Ring; 2 in Green, etc

APPENDIX B
RFP TECHNICAL PROPOSAL

TECHNICAL SCOPE:

(i) Provide a site-specific Work Plan to investigate, sample, and analyze content samples from each of the cylinders based on the information provided herein; (ii) implement (upon the Navy's approval) the site-specific Plan for all cylinders with support from a HALLIBURTON NUS Field Team; (iii) collect and analyze content samples from all cylinders for disposal purposes; (iv) cut into scrap any empty cylinders based on confirming investigations; (v) and provide cylinders sample data and disposal recommendations to the HALLIBURTON NUS Team.

SPECIFICATIONS:

The Gas Cylinder Subcontractor (GCS) shall provide all personnel, equipment, and materials to accomplish the stated scope. At a minimum, the GCS shall follow the basic health and safety procedures developed by the HALLIBURTON NUS Team, and any operations-specific health and safety measures established under the Work Plan to be developed by the GCS. Specifically, the GCS shall provide and comply with the following:

- The GCS shall prepare a Work Plan to document the procedures, methods, equipment, and technical references/guidance to be utilized to implement its compressed gas cylinder field investigation and sampling program. This Plan shall at a minimum include sections for:
  - Introduction
  - Project Team Organization
  - Mobilization and Site Preparation
  - Cylinder Type and Use Identification
  - Cylinder Sampling and Analysis
  - Demobilization
  - Appendices (e.g. HASP, Forms, References).

  The Work Plan will be provided to the HALLIBURTON NUS Team unbound with single-side printed pages suitable for inclusion into the project Field Sampling and Analysis Plan (FSAP). The word processing shall be or be compatible with "Word Perfect", Version 5.1 software, and a diskette of the Work Plan file shall be provided to the HALLIBURTON NUS Team.

- The GCS shall be responsible for the handling and testing of each cylinder; and identification of the contents of each cylinder by means and measures which are proven safest and effective for the identification and removal of contents from compressed gas cylinders. The GCS shall not employ destructive testing or sampling methods which involve dropping, crushing, shooting, etc. of any cylinder to access the contents. The sampling shall be done in such a manner as to prevent any releases of compressed gases to the environment.

The GCS shall provide the appropriate gas sampler devices to collect and transport any content samples to an analytical laboratory for identification and quantification. The selected analytical laboratory must be capable of conducting gas sample analyses of industrial gases, medical gases, and laboratory and research gases; and perform such testing in accordance with the applicable standards, codes, and procedures established by the industry.

- The GCS field staff must be qualified to perform site work on hazardous waste sites as required under OSHA 1910.120. The work will be carried out, at a minimum, under level C protection, including monitoring of gas sampling and ambient air during operations with an HNu or equivalent detector. Monitoring will be performed by the HALLIBURTON NUS Field Team. The GCS will be required at a minimum to adhere to the HALLIBURTON NUS Team Health and Safety Plan (HASP) which will be provided to the selected GCS prior to any site work taking place.

- Any cylinder content samples shall be handled, labelled, and shipped to a pre-determined analytical laboratory for identification and disposal testing by the GCS. The GCS will identify the type of or suite of analytical testing to be performed on each cylinder content sample based on its field investigation and/or other appropriate references used to initially identify the sampled contents.

  The GCS shall maintain a field logbook to document all investigations, sampling, and analyses to be performed, also any potential health and safety or emergency/hazardous situations must be entered into the logbook prior to performing or not performing intended work. The GCS field logbook will be turned-over to the HALLIBURTON NUS Field Team at the completion of all field work.

- The GCS shall be responsible for the presentation of data and laboratory results for each cylinder content sample sent to the analytical laboratory for analysis. The data for each sample shall identify: Site name; sample number and location (e.g. building); dates sampled, received, and reported; sample type (matrix); quantification (in standard units) for each test parameter; any testing qualifications; testing methods identified; detection limits; and data on any quality assurance tests (e.g. method blanks, calibrations, etc.).

  The GCS shall provide these lab results in a summary report to HALLIBURTON NUS Team within five (5) weeks from the date of sample collection. This summary report shall include the GCS explanation of the lab results compared to the field identification of each content sample, and a GCS recommendation on the proper method to contain, transport, and dispose of each cylinder that contains a hazardous and/or toxic material.

The GCS shall identify any compressed gas cylinders that are considered empty during the field investigations, and document this finding in the GCS field logbook. This determination shall be discussed with the HALLIBURTON NUS Team project manager prior to proceeding to "render harmless" the compressed gas cylinder. Upon an agreement that any cylinder is empty, the GCS shall transport all empty cylinders to one location outside the buildings, but on Navy property, and destroy the cylinders as gas containers (i.e. "render harmless") by cutting them into sections for scrap metal disposal.

Similarly, if it is determined by the GCS that any cylinder actually contains an inert or non-toxic gas (e.g. oxygen, carbon dioxide), then the HALLIBURTON NUS project manager will be contacted prior to making a decision to release such contents into another container or to the atmosphere, and "render harmless" the container(s).

- The GCS shall demobilize from the site by removing all equipment, materials, and temporary work areas from the Navy property. Any personal protective equipment (PPE) and decontamination fluids shall be properly labelled, contained, and left on site for Navy disposal.

BIDDING INFORMATION:

- The GCS shall submit its bid for the project cost items including lump sum and unit prices/rates, and total bid cost on the Cost Estimating Table provided as Attachment C; and include a summary of the proposed technical approach to the collection and testing of gas samples specific to the site.

- All bids are due from each prospective GCS by April 15, 1992.

- It shall not be assumed that any compressed gas cylinder contains the contents that are labelled on the cylinder body unless a thorough field investigation provides that conclusion.

- There is no information available from the Navy concerning the prior use and disposition of the cylinders to be investigated.

- The HALLIBURTON NUS Field Team will monitor the ambient air using a PID device for health and safety purposes, and assist in mobilization and demobilization. However, the HALLIBURTON NUS Field Team will not be involved in the transport, handling, sampling, and/or "rendering harmless" of compressed gas cylinders.

- The GCS shall assume the only access available to the island is by boat; and that such vessel transport to and from the site for staff, equipment, and materials will be provided by the Navy. However, the GCS must be available for transport to and from the Site based on the

naval vessel's schedule. No standby time will be paid for delays caused by the GCS not being available for scheduled vessel transport.

- The GCS shall be responsible for providing any temporary utilities including electric, lighting, fuel for equipment, and potable water.

- The technical discussions to follow after submission of the summary report shall not be billed as extras or out-of-scope work.

- For organizational purposes:

  - ENSR is the technical and logistical entity on site and represents the HALLIBURTON NUS Field Team;

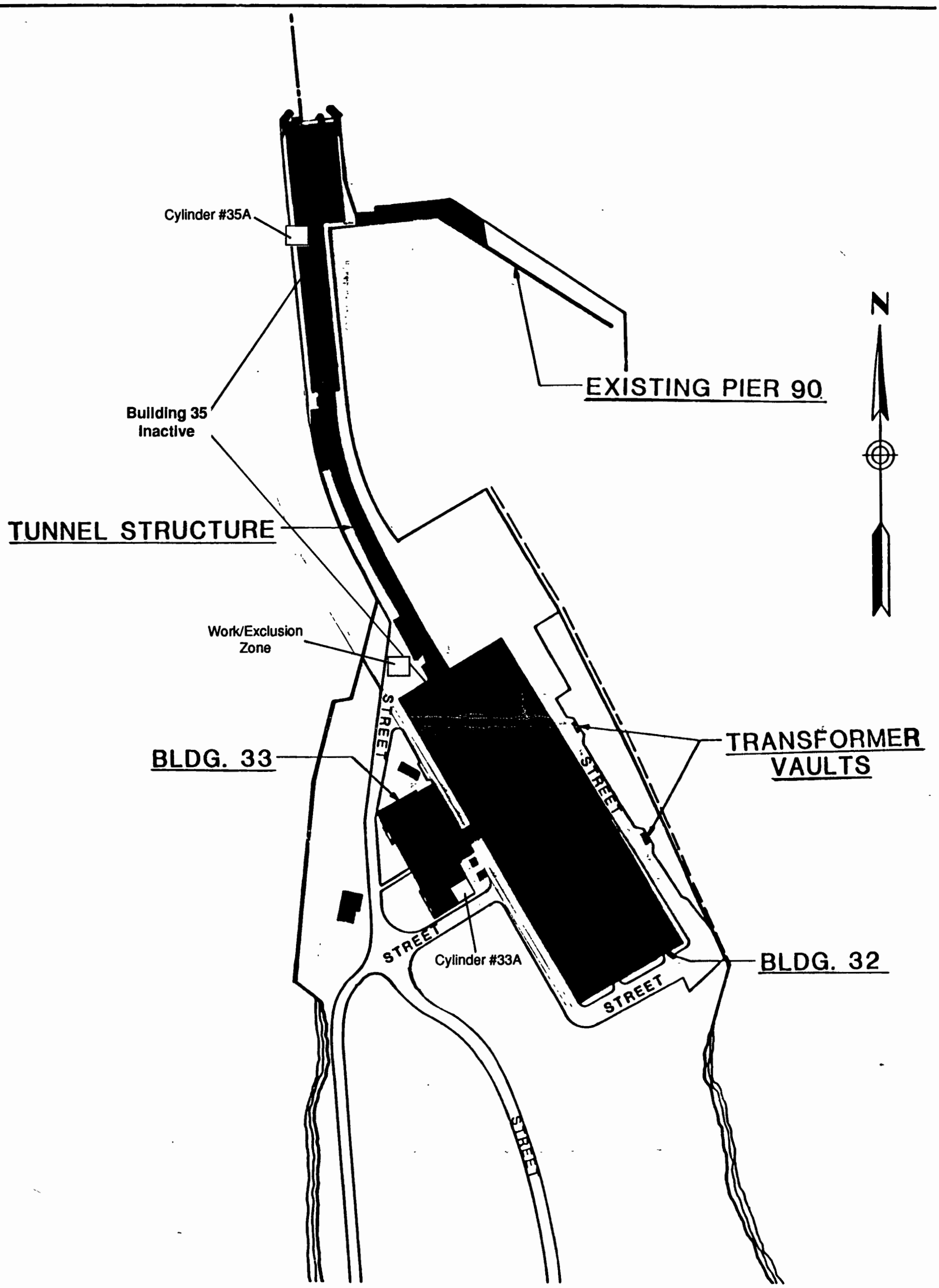
  - ENSR and HALLIBURTON NUS make up the HALLIBURTON NUS Team;

  - The GCS will contract directly with HALLIBURTON NUS;

  - The GCS shall take direction from both the HALLIBURTON NUS Field Team and project manager on the HALLIBURTON NUS Team.

- No compensation shall be provided for inconclusive field work, especially if the contents of any cylinder still remain as "unknown" at the completion of the field investigations, and/or upon receipt of lab data. A prorata portion of the contract amount will be paid based on the number of cylinders successfully sampled and tested compared to those still remaining as unknowns.

SITE PLAN



No Scale

FIGURE 1-1
NUSC Gould Island Annex
Site Plan

APPENDIX C
PERSONNEL CREDENTIALS

ETSC Comprehensive Waste Management Service
EMERGENCY TECHNICAL SERVICES CORPORATION

Emergency Technical Services Corporation of Illinois
(hereinafter referred to as ETSC of Illinois)
711 West Morse Avenue
Schaumburg, IL 60193

May 26, 1992

Kathleen Harvey
ENSR Consulting and Engineering
Halliburton NUS Team
35 Nagog Park
Acton, MA 01720

Subject: Medical Surveillance NETC Newport, Rhode Island, Gould Island, Buildings 33 and 34

Dear Kathleen,

As an officer of ETSC of Illinois, I hereby state that the persons listed below participate in a medical surveillance program meeting the requirements of paragraph (f) of 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response Standard." I further state that the persons listed below have had physical examinations under this program within the past 12 months and that they have been cleared, by a licensed physician, to perform hazardous waste site work and to wear positive and negative pressure respiratory protection. I also state that, to my knowledge, no person listed below has any medical restriction that would preclude him/her from working at Gould Island.

Charles Eckman	484 68 5722	January 7, 1992
Dale R. Anderson	353 50 0454	February 17, 1992
Mark D. Arvidson	346 60 9218	January 2, 1992

Should you have any questions, please contact me at 708/980-3872.

Sincerely,

Frank D. Grossman,
President

FDG/del

ETSC ▶ Comprehensive Waste Management Service
EMERGENCY TECHNICAL
SERVICES CORPORATION

Emergency Technical Services Corporation of Illinois
(hereinafter referred to as ETSC of Illinois)
711 West Morse Avenue
Schaumburg, IL 60193

May 26, 1992

Kathleen Harvey
ENSR Consulting and Engineering
Halliburton NUS Team
35 Nagog Park
Acton, MA 01720

Subject: Hazardous Waste Training NETC Newport, Rhode Island,
Gould Island, Buildings 33 and 34

Dear Kathleen,

The employees listed below have had initial 40 hour hazardous waste operation training as required by 29 CFR 1910.120(e)(3). In addition, those employees below who have received their initial training more than 12 months ago have also received 8 hours of refresher training in accordance with 29 CFR 1910.120 (e)(8).

Charles Eckman refresher	484 68 5722	January 27, 1989 April 30, 1992
Dale R. Anderson refresher	353 50 0454	May 26, 1989 April 30, 1992
Mark D. Arvidson	346 60 9218	January 24, 1992

Should you have any questions, please call me at 708/980-3872.

Sincerely,

Frank D. Grossman,
President

FDG/del

CHARLES K. ECKMAN
Technical Director
Emergency Technical Services Corporation

EDUCATION

B.S., Biology, Northeast Missouri State University,
Kirksville, MO 1975

Non-degree, Northeast Missouri State University,
Kirksville, MO 1976

PROFESSIONAL EMPLOYMENT

1/91 - Present	Technical Director, Emergency Technical Services, Schaumburg, IL
9/89 - 1/91	Director, Environmental Analytics Inc., Schaumburg, IL
12/88 - 9/89	Senior Chemist, Emergency Technical Services, Schaumburg, IL
10/87 - 11/88	Technical Director, PSC Environmental Mgmt., Pecatonica, IL
11/82 - 10/87	Chemist, Health Protection Office, University of Iowa, Iowa City, IA
10/79 - 10/82	Chemist, Special Chemistry Section, University Hygienic Lab, Iowa City, IA
7/78 - 10/79	Lab Technician III, Pesticides Section, University Hygienic Lab, Iowa City, IA
1/77 - 5/78	Research Assistant, Department of Psychiatry, U. of Iowa, Iowa City, IA
8/75 - 5/76	Research Assistant, Science Division, NMSU, Kirksville, MO

CURRENT RESPONSIBILITIES

Provide consultative services through the corporate infrastructure on regulatory aspects of waste management, health and safety issues, transportation of hazardous materials:

Act as technical liaison in the investigation and adoption of new technologies to manage hazardous materials and waste.

Health and safety liaison and consultant for Emergency Technical Services, its subsidiaries and branches.

Principle author and instructor for ETSC cylinder management program.

CHARLES K. ECKMAN

ACCOMPLISHMENTS

Prepared, reviewed, or modified, most of the company's basic document groups including health and safety program, field sampling methods and other general operations procedures.

Developed and refined the major equipment and methodologies employed by ETSC to obtain samples of gases and liquified compressed gases from pressure vessels.

Designed and developed the "Hot Tap" system currently used to access pressure containers with inoperable or missing valves (patent applied for June, 1991).

Successfully managed a wide variety of difficult field service projects related to the management of pressurized containers.

TECHNICAL EXPERIENCE SUMMARY

INSTRUCTIONAL:

Instructing in the undergraduate laboratory, proctoring and grading examinations for several chemistry courses. Tutorial assignments were performed in the areas of history, chemistry and biology.

Assisted in the development of, and taught basic training programs aimed at fulfillment of RCRA and OSHA objectives to students and staff.

Develop and present information to the university community regarding chemical safety and waste management.

Develop and present information to company employees regarding regulatory aspects of waste management.

INSTRUMENTAL

Gas chromatography: Develop specific methods for light petroleum hydrocarbons for spill characterization. Perform analysis of industrial hygiene survey samples for aromatics, chlorinated aromatics and aliphatics using NIOSH methods. Water monitoring studies using EPA methods, including most methods specified under NPDES permitting procedures. Techniques used include packed,column and capillary chromatography analysis of permanent gases including natural gas and helium (in blood).

TECHNICAL EXPERIENCE SUMMARY

INSTRUMENTAL, continued

High Performance Liquid Chromatography: Methods development including post column derivatization techniques. Analysis of a variety of air samples for pesticides, anhydrides, peroxides and related substances for the Iowa Bureau of Labor in their compliance and consulting programs. Methods development, preparative and analytical procedures for qualitative and quantitative analysis of polynuclear aromatic hydrocarbons from bulk, air, liquid and solid matrices collected from coal liquefaction, coal gasification and petroleum refinery plants as part of NIOSH contract.

Ultraviolet/Visible Spectrophotometry: Used in conjunction with other systems to characterize unknown substances. Performed quantitative and qualitative analysis on sample extracts from most major matrices.

Infrared Spectrophotometry: Performed both screening and/or characterization of solvents, extracts, and biological specimens.

Thin layer chromatography: Methods development on biological samples, both qualitative and quantitative analysis on samples from biological matrices. Familiar with normal phase, reverse phase and high performance TLC.

Direct reading instruments: Familiar with most types of instruments used to survey air, including thermal anemometers, Foxboro OVA 128, photoionization detector based survey equipment, MSA, Drager, and Sensidyne direct reading tubes and permeation devices, Miran portable infrared spectrophotometer, combustible gas indicators, oxygen meters and hazardous gas indicators.

PREPARATIVE TECHNIQUE

Familiar with use of liquid/liquid, liquid/solid, soxhlet extraction schemes as used in the fractionation and isolation of specific analytes from complex matrices such as process streams, soil, water, chemical waste and biological specimens. Performed various methods of sample cleanup/concentration using selective extraction, preparative chromatography, and Tekmar LSC instruments. Familiar with a majority of NIOSH and EPA organic analytical methods. Extensive experience in the calibration, operation, maintenance, and use of instruments and media for environmental sampling.

CHARLES K. ECKMAN

PROFESSIONAL CERTIFICATIONS

Regulatory Compliance Manager, OSHA Hazard Communications, EPA/DOT Hazardous Materials and Waste Regulations by Institute of Regulatory Compliance. Certified by examination in 1986

PROFESSIONAL ACTIVITIES

Member, Chicago section of American Industrial Hygiene Assoc.

Member, Chicago Chapter of Certified Hazardous Materials Managers

WORKSHOPS ATTENDED

"Maintenance of High Performance Liquid Chromatograph," Waters Association

"Chemistry of Resolution in Liquid Chromatography," Waters Association

"Basic Gas Chromatography," Varian

"Hazardous Materials Emergency Planning," AIHA-St. Louis Section

"Hazardous Materials & Waste Train-The-Trainer Workshop," Transportation Skills Programs, Inc.

"Air Surveillance for Hazardous Materials," EPA Course 165.4

"Advanced Emergency Response, Rail Cars, Tank Trailers and Incident Command", University of Findlay, Findley Ohio.

DALE R. ANDERSON

Hazardous Material Chemist
Emergency Technical Services Corporation of Illinois

CURRENT RESPONSIBILITIES

Field team leader responsible for preparation of hazardous waste (solid, liquid, gas) for transportation and disposal at many different receiving facilities around the U.S.

Management of reactive/explosive materials for transportation and disposal including remote openings.

Management of mixed waste (radioactive) for transportation and disposal.

Emergency response team member. Responses including chemical spills and cylinder management scenarios.

Gas cylinder evaluations and field sampling of unknown gas cylinders.

PROFESSIONAL EMPLOYMENT

5/89 - Present	Hazardous Material Chemist, Emergency Technical Services Corp., Schaumburg, IL
3/88 - 6/91	Fire Fighter/Emergency Medical Technician Byron Fire Protection District, Byron, IL
3/88 - 5/89	Field Service Technician PSC Environmental Management, Inc., Pecatonica, IL
1/85 - 3/88	Production Supervisor/Food Formulations Tech. Pillsbury - Green Giant Company, Belvidere, IL
7/82 - 1/85	Deputy Sheriff/Patrol Division Ogle County Sheriffs Police, Oregon, IL
5/82 - 7/82	Laboratory Technician/Q.A. Lab Warner Lambert Company, Rockford, IL
1/80 - 5/82	Lab Supervisor/Ingredient Specialist Quaker Oats Company, Rockford, IL
6/78 - 5/80	Laboratory Technician Quality Metal Finishing Company, Byron, IL

TECHNICAL EXPERIENCE SUMMARY

INSTRUMENTAL

Experienced in use of Technicon 400+ Infralyzer (near-infrared analyzer) including set-up, programming and on-line usage.

Performed FDA lab procedures for analysis of raw materials and finished consumer products.

Familiar with IBM PC and Macintosh micro computer systems and peripheral hardware.

Familiar with the operation and interpretation of results gathered from a wide variety of personal monitoring devices.

Wet Lab and Instrumentation Analysis experience includes Gas Chromatography, Spectrophotometer, Kjel-Foss automatic Protein Analyzer, Foss-Let fat analyzer, microwave moisture analysis, Brookfield and Bostwick viscosity apparatus, Dichromate salt analyzer and set-up and programming of Techicon 400+ Infralyzer (near-infrared analyzer).

SUPERVISORY

Supervised a seasonal vegetable operation pack. Responsible for 55 employees, promoting a safe, productive work environment, quality control, mechanical problems and cleaning procedures.

Supervised a near-infrared laboratory with responsibilities including start-up, defining and streamlining. Commendation from Quality Assurance Manager.

Assistant ESDA Coordinator (Emergency Services Disaster Agency), Ogle County, Illinois. Included duties as the Hazardous Materials Officer.

PROFESSIONAL CERTIFICATIONS

DOT Driver Certification
Class C Drivers License (Illinois)
Emergency Medical Technician - A
Fire Fighter II, (Illinois)
Fire Fighter Apparatus Operator (Illinois)
Gas Chromatography, Technicon, Inc.
Near-Infrared Analysis, Technicon, Inc.

SPECIALIZED EDUCATION

Illinois State Policy Academy -Springfield, IL

Radiological/Nuclear Accident Response School - Nevada Test Site, Las Vegas, Nevada

Special Weapons and Tactics Training - Chanute Air Force Base Rantoul, IL

EDUCATION

Majors in Biology and Chemistry
Three years credit in Biology and Chemistry;
Supplemental credit in Mathematics, Physics, English, Sociology and Spanish.

January 1976 - December 1978	University of Wisconsin Superior, WI 54880
June 1973 - December 1973	Rock Valley College Rockford, IL 61111

MARK D. ARVIDSON
Chemist
Emergency Technical Services Corporation of Illinois

EDUCATION

Northern Illinois University, DeKalb, Illinois
Bachelor of Science in Biology, May 1985
Concentration in Chemistry, Ecology

PROFESSIONAL EMPLOYMENT

Present — CHEMIST -
Emergency Technical Services Corporation of Illinois, Schaumburg, IL

Duties include: Determining various compatible groupings of hazardous chemicals; packaging in accordance with government regulations; manifesting; securing disposal at licensed facilities; evaluation and packaging of gas cylinders; supervising field staff and customers in the above.

Active member, Wisconsin Army National Guard - Battalion Chemical Officer.

8/86 - 9/90 — **United States Army; Fort Lewis, Washington**
Headquarters and Service Company, 1st Battalion, 9th Aviation Regiment

4/90 - 9/90 — BATTALION TRANSPORTATION OFFICER/ASSISTANT LOGISTICS OFFICER -

Duties included: Coordinating all transport assets during a critical four month battalion inactivation; supervising the maintenance and turn-in of $500,000 of Nuclear and Chemical defense equipment.

4/89 - 4/90 — PETROLEUM, TRANSPORTATION AND AMMUNITION PLATOON LEADER -

Duties included: Executive manager of 26 soldiers and non-commissioned officers; responsible for over $5 million in government property, including eight tankers and nine cargo vehicles; supervised airfield refueling operations at both battalion and brigade level; managed and handled attack helicopter ammunition in excess of $400,000 annually; planned and deployed all forward area arming and refueling assets during four major military deployment exercises.

8/86 - 4/89	BATTALION CHEMICAL OFFICER/ASSISTANT OPERATIONS OFFICER -

Duties included: Advising Commander on all aspects of Nuclear and Chemical defense readiness and training; compiled the battalion's monthly unit statistical analysis for personnel, training, and logistics; managed unit ammunition accounts in excess of $400,000 annually; supervised the maintenance and operation of over $500,000 of Nuclear and Chemical defense equipment; designed and implemented an aircraft decontamination device.

MILITARY EDUCATION

1986	**Chemical Officer Basic Course**, Fort McClellan, AL: Qualified as Platoon Leader and Battalion Staff Officer.
1986 - 1987	**Airborne School**, Fort Benning, GA **Grid Computer Systems Administrator Course**, Fort Lewis, WA **Ammunition Management Course**, Fort Lewis, WA
1991	**Chemical Officer Advanced Course**, Fort McClellan, AL: Qualified as Company Commander and Brigade/Division Staff Officer.
1991	**Radiological Safety Course**, Fort McClellan, AL: Qualified as Radiation Protection or Radiation Safety Officer for a government installation.

PROFESSIONAL CERTIFICATES & AWARDS

40-Hour OSHA HAZWOPER
Toxic Agent Training Certificate from the Chemical Decontamination Training Facility (CDTF), Ft. McClellan, AL
Honor Graduate, Radiological Safety Course
The Army Commendation Medal for Meritorious Service
Three Army Achievement medals for distinguished service

APPENDIX D

Personal Protective Equipment Specifications

APPENDIX D

Personal Protective Equipment Specifications

RESPONSE / RESCUE (LEVEL A)

SUIT: Encapsulating; Saranex Coated Tyvek

GLOVES: Outer Glove; Latex/Nitrile
Inner Glove; Silvershield

BOOTS: Chemical Resistant PVC or Neoprene, Ansi Toe

PRPE: Scott Airpack Model 2.2 equipped with a standard 30 minute charge, or Scott SKA-PAC with 5 minute escape bottle and airline. (All ETSC units may be equipped with airline accessory.)
Gloves to be taped at wrists. All other seams to be taped as appropriate.

LEVEL B

SUIT: Saranex Coated Tyvek with Hood and Feet

GLOVES: Outer: Latex/Nitrile
Inner: Silvershield

FOOTWEAR: Chemical Resistant PVC or Neoprene, Ansi Toe

PRPE: Scott Airpack Model 2.2, equipped with a standard 30 minute charge. Individuals may employ airline accessory as necessary or convenient

LEVEL C:

HARD HAT: May be equipped with face shield, safety glasses.

GLOVES: As appropriate for the task.

FOOTWEAR: Chemically resistant, PVC or Neoprene boot with Ansi Toe.

OUTER WEAR: As appropriate for the site conditions. This may and frequently will include a standard Tyvek suit.

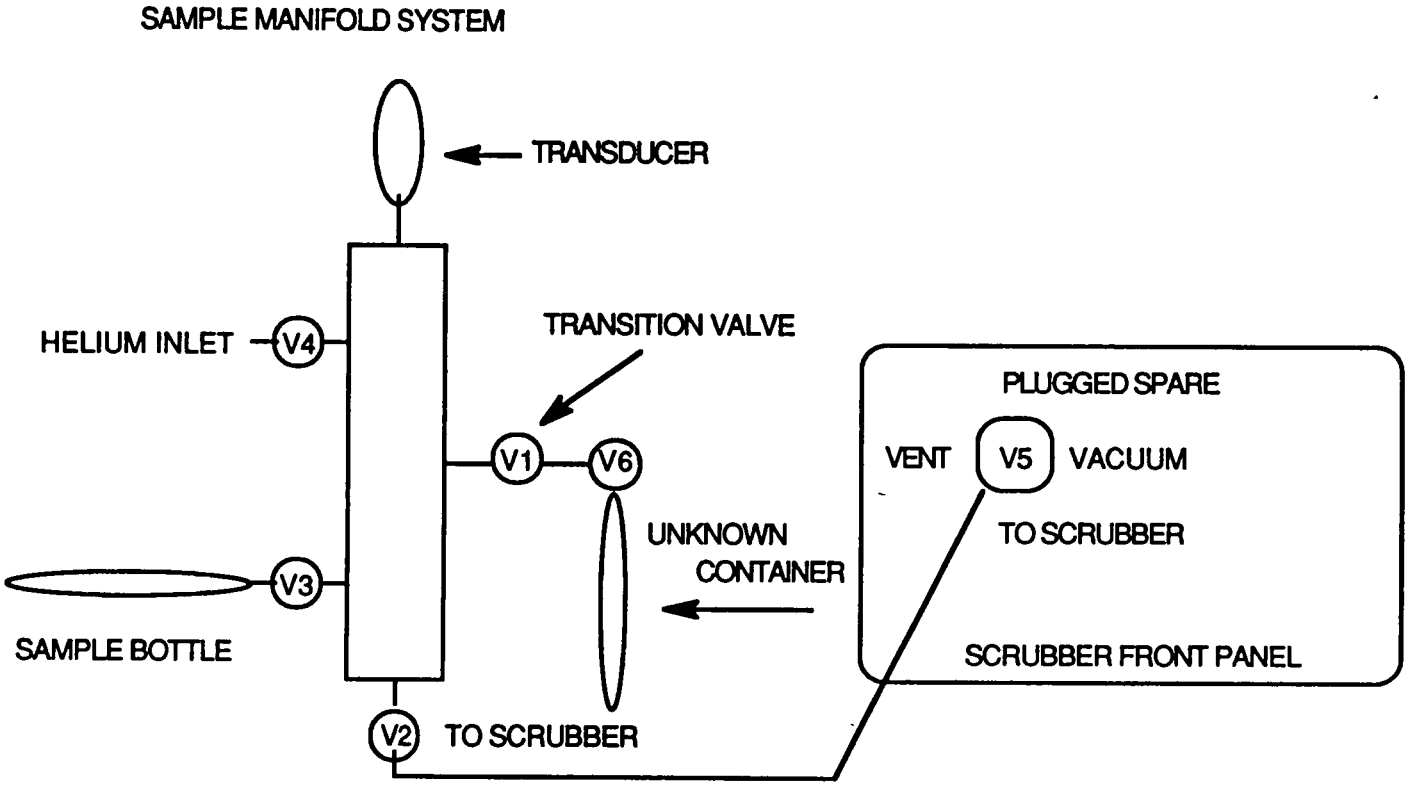
PRPE: Full face cartrage air purifying respirator (CAPR), have at hand a 30 minute SCBA

APPENDIX E
FIELD SAMPLING METHOD T-1

This method is held as confidential.

A line drawing Method T-1, Appendix One is included

EAI - 3 APPENDIX ONE



LINE SCHEMATIC AND VALVE
DESIGNATIONS FOR SAMPLING GASES

DRN BY C. ECKMAN rev 1/2/92

APPENDIX F

ETM-02 LEAK CHECK, IGNITABLES,GASTECH MODEL 1314

********** ********** **********

ETM 02 LEAK CHECK, IGNITABLES, GAS TECH MODEL 1314

****

1.0 INTRODUCTION

This method utilizes a Gas Tech Model 1314 hydrocarbon super surveyor ppm/LEL gas indicator with oxygen section to perform a variety of leak tests. This is normally the first instrument to be used in the field evaluation of compressed gases.

2.0 MATERIALS REQUIRED

2.1 Gas Tech model 1314 surveyor with six foot remote probe. Instrument must be fully charged.

2.2 Instruction manual. (Operators are expected to be familiar with all precautions and indications).

3.0 OPERATION

Normal operation of the instrument is noted in the Gas Tech manual beginning on page 15.

3.1 Allow the instrument to warm up for 15 minutes before attempting to set zero in the ppm range. This will minimize drift.

3.2 Set the instrument to the ppm range. Adjust the ppm/LEL zero dot to give a reading of 50 ppm.

3.3 Proceed into the work area. Scan the work area, preferably from the upwind side. Take three readings at each location, above the head, in the breathing zone and 2-4 inches over the floor. Observe for changes EITHER INCREASE OR DECREASE in the meter reading.

3.4 After scanning area, rapidly scan each container or other special feature in the work area. (See application note two for specific instructions.)

3.5 Action levels: Action levels (when the operator must take immediate steps to mitigate a circumstance:

3.5.1 Any oxygen alarm, O_2 less than 19.5% or greater than 23%.

3.5.2 Any deviation in the meter reading greater than 25 ppm in the ppm mode.

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APPLICATION NOTES:

Note One:

Remember to initialize all parameters in a "clean", uncontaminated area. Vehicle exhaust can result in erroneous settings.

Note Two:

Application to cylinder leak testing: The remote probe should be applied to the container valve assembly as closely as possible. Trace all connections slowly, 5 to 10 cm per minute yields good results. Remember to allow time for traces of gas to disperse when checking plugged or capped outlets. Recheck all positive areas to insure against false positives.

APPENDIX G

ETM 04; LEAK CHECK, HELIUM

EMERGENCY TECHNICAL SERVICES SYSTEM
711 W. Morse Ave.
Schaumburg, IL 60193

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ETM-04 LEAK CHECK, HELIUM

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INTRODUCTION

This protocol specifies the steps to be taken to insure the integrity of a wide variety of equipment used to obtain samples of compressed gases, process residuals, or manifold wastes to treatment processes.

APPLICABILITY

This test is applicable to any system which may be pressurized with helium. Please note, that the maximum pressure of helium applied must not exceed the system's (to be tested) design requirements.

ADVANTAGES OF THE METHOD:

* The equipment required to perform this test is available, small, field useable and requires no external power source.
* The test is rapid and sensitive. Leak rates on the order of cubic centimeters per year may be detected.
* The method does not produce hazardous waste, and consumes only helium. Atmospheres hazardous to the operator are not encountered except in confined spaces.

DISADVANTAGES OF THE METHOD:

* The instrument employed to detect helium is not explosion safe and may not be used in hazardous atmospheres.
* The best resolution of leaks is obtained in an area free from drafts. It may be necessary to provide draft shielding when the technique is employed out of doors.
* The technique requires practice to obtain reproduceable results at very low leak rates, eg., rates less than 100 cubic centimeters per year.

PRINCIPAL OF OPERATION:

This method and its results are based upon the difference in thermal conductivity between a reference (air) and a test substance (helium). The instrument employed to conduct this test is a model 21-250 "Gas Leak Detector" manufactured by Gow-Mac Instrument Co., Bridgewater, NJ.

MATERIALS REQUIRED:

Model 21-250 gas leak detector (Gow-Mac) Instrument Co., Bridgewater, NJ
Instrument Operating Manual (an abbreviated copy is attached as Appendix One).
Helium, Compressed, Cylinder
Regulator, delivery pressure to be adequate for the system with supply line and appropriate fittings to connect to "system".
Tool Kit, as necessary to make all required connections to the system. At a minimum, a 12 inch and six inch adjustable wrenches are required.

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PRECAUTIONS AND RECITALS:

* Prior to making any connections to a "system", the operator must determine by the appropriate means that the "system" contains no hazardous material that would result in operator exposure if released.
* The operator must determine the correct "system" test pressure. See Appendix Two for examples.
* The operator shall determine that the area in which the "system" is located does not contain hazardous levels of flammable gases or vapors. If necessary, continuous monitoring with alarm set at 25% LEL should be conducted.
* Certain gases and vapors cause interferences. The operator must determine that the "system" is free from interferences prior to testing. These include carbon dioxide (see Instrument Manual Section 6.3) and Water Vapor (Section 6.5).

HELIUM LEAK TEST PROCEDURE:
Preliminary Steps:

1.) Determine the test pressure for the system.

2.) Set-up the helium cylinder, (secure cylinder consistent with ETSC/EAI SOP's), connect regulator.

3.) Close regulator needle valve. Open tank supply valve. Adjust regulator delivery pressure to the "system" test pressure.

4.) Connect the supply line to the "system" inlet.

5.) Purge the entire system with helium. Normally, this is accomplished by cracking then opening a valve or other port located tat the remote end of the "system". Then cracking the regulator needle valve to allow a low to moderator flow of helium through the system. AN alternative procedure is to evacuate the system via a pump or water aspirator then backfill with helium.

6.) Close the system purge port. Allow the system to slowly come to full test pressure. Allow the "system" to equilibrate while performing the next step.

7.) Turn the 21-250 on utilizing either line mode or battery mode, see Instrument Manual Sections 5.1 or 5.2 respectively. Allow the instrument to stabilize.

8.) Zero the instrument. Depress the audio button to activate the audio signal. Set threshold at 30 divisions. (manual Section 5-2-2). Set instrument to high sensitivity.

9.) Position the probe near any accessible system outlet. Rapidly purge a small amount of gas over the probe tip. Observe a positive response, needle deflection to the right with accompanying audio signal. Allow the instrument to return to zero. Re zero if necessary

10.) The instrument is ready for leak testing.

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LEAK CHECKING PROCEDURE:

Note: It is imperative that fittings or suspected leak areas are dry. See manual section 6-4. Avoid exhaling of breath near probe tip or instrument case to prevent negative interferences from water vapor and carbon dioxide. See section 6-3.

1.) Using the probe, carefully move the tip around and over suspected joints, seals, seams, or other areas where leaks may occur. The probe must be moved slowly to detect small leaks. The tip speed should not exceed two seconds per centimeter. This is five seconds per inch. The tip must be held as close to the potential source as possible to assure the maximum sample contact. Detection of a leak will be visualized as a rapid deflection of the needle to the right. Withdraw the probe and allow the meter to return to zero and ex-probe the area to eliminate extraneous results.

2.) In the event that a leak is detected, consider the source and its location. An attempt should be made to repair the leak before continuing as to eliminate the presence of helium in the test area. Recheck all repairs to insure they are tight before proceeding. If it is not possible to effect a repair (eg., a blown diaphragm on a waste container) indicate a failure to the appropriate document. The detection of leaks requires careful probing and rechecking of the affected area when deflections are noted.

3.) At the termination of leak checking the operator should repeat the step P-9 to confirm instrument response.

4.) The instrument's battery level should be checked. (Section 5-2-1) and charging initiated as necessary after shutdown.

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Application note one; gas sampling manifold, mobile unit.

APPLICABILITY

ETM-04 is applicable to each use of the gas transfer manifold as employed during unknown gas sampling.

TEST PRESSURE

Set the helium supply regulator on the mobile scrubber unit to 150 PSIG.

PROCEDURE:

1.) Attach manifold to cylinder to be sampled.

2.) Attach sample container to manifold.

3.) Open sample container valve and manifold transition valve, and manifold waste valves.

4.) Select "vacuum" on manifold director valve. Evacuate entire manifold. Transition and waste lines to 28 inches mercury vacuum. Select "plugged spare" on manifold director valve.

5.) Rotate helium supply valve on manifold slowly to fully open. Pressurize manifold to 150 PSIG. Close supply valve. Observe digital readout for 30 seconds. Pressure should stabilize and not decrease, indicating that no large leak exists.

6.) Perform leak check procedure on unknown valve paying great attention to the containers valve stem/packing nut interface and the CGA fitting. Application Note 1 gas sampling manifold, mobile unit.

7.) Test the sample container to manifold connection.

8.) Test the transition fitting to manifold connection.

9.) If no leaks are detected, proceed with sampling.

10.) If leaks are detected anywhere except at the unknown container's valve, proceed by depressurizing the manifold and remaking the connections or tightening the packing gland.

11.) If a leak is detected at the unknown containers outlet, depressurize the manifold and remove at the CGA connection. Inspect all surfaces for dirt, scratches, or other irregularities that might prevent a good seal. Polish the sealing areas with 3M abrasive sponge. Remake and retest the connection .

12.) If a leak is detected at the valve stem, attempt to tighten the valve packing nut. Use two wrenches if at all possible. Retest the stem interface. If it is still leaking, fail the container and stage it for a tapping procedure.