ENVIRONMENTAL SOLUTIONS, INC.

December 4, 2017

Mr. Brian Jankauskas, P.E.
NYS Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, NY 12233-7015

Re: REVISED PFC Investigation Work Plan – 69 West Montauk Highway, Hampton Bays, NY
Hampton Bays Fire District

Dear Mr. Jankauskas:

ZEB Environmental Solutions, Inc. has prepared the following work plan, which describes the procedures for a subsurface investigation that will determine if the subject site is a source of perflourinated compounds (PFCs) identified in down gradient water supply wells.

BACKGROUND

The subject site is located on the south side of Montauk Highway and is hydraulically upgradient of public supply wells owned by Hampton Bays Water District. Sampling of these wells has detected concentrations of PFCs in excess of guidance values. As a result the SCDHS has performed a groundwater investigation in the vicinity of the supply well field and identified the highest concentrations of PFC in an upgradient test well. Therefore, NYSDEC is suggesting that the source of this impact may be the Hampton Bays Fire District property, which is located to the north of the Hampton Bays Water District Property. In a letter dated July 25, 2017 the NYSDEC provided the results of this groundwater investigation and is requiring that an investigation be performed in order to determine if the Fire District property is a source of the PFC contamination. A copy of this letter is contained in **Appendix A**.

The Hampton Bays Fire District property is 2.29 acres in size and is located on the south side of Montauk Highway, east of Springville Road. A vicinity map showing the location of the Fire District property is contained as **Figure 1.** The property contains three main buildings, two of which are used by the Fire Department and a third that is leased by two office tenants. A site plan is included as **Figure 2**.

The two-story firehouse building was constructed in 1930 and additions to the east and west sides were completed in 1967 and 1983. The first floor of this building is used to store fire trucks and fire equipment, and also contains a laundry room. The second floor is used as office and recreational space. No aqueous film forming foam (AFFF) is stored in this building. However, the truck in the western most bay holds approximately 25 gallons of AFFF. There is also one floor drain in this building, which appears to discharge to the subsurface. This building is connected to a sanitary system, comprised of septic tank(s) and multiple leaching cesspools located on the south side of the building.

The one-story steel framed building was constructed in 1993 and is utilized as a maintenance building. This building is used to store ancillary fire equipment and vehicles along with AFFF. Currently, 16 5-gallon containers of AFFF are stored on a pallet in the northwestern portion of the building. These containers are full and unopened. Most containers have a date of 2008. This building contains a sanitary system consisting of a septic tank and a leaching cesspool located on the west side of the building.

Small wooden structures exist on the western property boundary. These structures do not have permanent foundations and are utilized as concession stands during community events. These structures contain sinks that are connected to the sanitary system associated with the main firehouse building.

Finally, a one-story office building exists on the northeast corner of the Fire District property. This building was acquired by the Fire District in 1997 and has been occupied by office tenants since this time. All buildings, on the Fire District property are supplied with potable water by the Hampton Bays Water District, including the real estate office, located at 65 West Montauk Highway.

The Fire District has indicated that they have never used AFFF on the subject site for training or any other purpose. Training activities are performed at the Town of Southampton Fire Training Facility on Jackson Avenue. Available documentation obtained from the Fire District regarding the use of AFFF, including completed questionnaires, are included as **Appendix B**.

SCOPE OF WORK

The main objective of this investigation is to determine whether the Hampton Bays Fire District Property is a source of PFC identified in the groundwater on the Water District Property. Therefore, this investigation will be performed using a phased approach. Phase I will initially include an inspection to identify additional areas of concern. It will also include a survey of Fire Department staff to better understand the use and handling of AFFF at the site. Phase I will include the collection of groundwater samples on the Fire District Property, as wells as hydraulically upgradient. In addition, Phase I will include the collection of sediment samples from the bases of on-site storm drains and sanitary structures. Ultimately, all areas of concern identified in the initial inspection will be investigated. Should laboratory analytical results indicate that the Fire District Property is a likely source of PFC impact, Phase II of the investigation will be implemented. Phase II will include the collection of additional groundwater samples from temporary wells, the completion of a geophysical survey to identify subsurface anomalies, which may indicate the presence of underground tanks or drums, and the installation and sampling of permanent groundwater monitoring wells.

Phase I – Soil and Groundwater Sampling

In order to determine groundwater quality beneath the site and hydraulically upgradient, 6 vertical profile wells will be installed using a Geoprobe. The proposed well locations are shown on **Figure 2**. Two temporary vertical profile wells will be installed north of the site at two parcels owned by the Fire District, while four temporary vertical profile wells will be installed onsite.

Temporary vertical profile wells will be constructed of decontaminated stainless steel Geoprobe rods with a screened section at the base. Samples will be collected in the 91-95' bgs interval and then the rods will be withdrawn until the screened interval is located at the 71-75' bgs range and sampled again. Finally, a sample from the 51-55' interval will be collected form each vertical profile location.

These depths were selected to most closely replicate the depths where the SCDHS investigation identified the highest concentrations of perflourinated compounds.

Samples from temporary vertical profile wells will be collected using HDPE tubing and a stainless steel check valve or a peristaltic pump with silicon tubing. Prior to sampling, each interval will be purged a minimum of 3-5 casing volumes. Additionally groundwater parameters, including temperature, conductivity, and pH will be collected. Groundwater parameters will be included on sample logs. Standard Operating Procedures for Geoprobe groundwater sampling is contained in **Appendix C**. Screen point SP-15 method using the 4' dropout screen will be used at each location.

Samples collected from the vertical profile wells will be contained in pre-cleaned laboratory supplied glassware and submitted to a NYSDOH approved analytical laboratory for analysis for Modified EPA 537 – Full List. Analytical results will be compared to the USEPA Health Advisory Level (HAL) of 70 ng/L combined, or 70 ng/L Individual PFOA, PFOS. It should be noted that if olfactory odor or visual evidence of impact (sheen, staining, etc) is observed, samples will be analyzed for the full list of contaminants (VOCs, SVOCs, pesticides, PCBs, and metals). **Appendix D** contains details regarding compounds to be analyzed, analytical methods, holding times, glassware, and QA/QC information.

Information regarding groundwater table elevations will be obtained for the Suffolk County Department of Health Services and the United States Geological Survey. However, if these agencies are not able to provide this information, permanent piezometers may need to be installed to obtain groundwater flow direction.

After the conclusion of groundwater sampling, soil samples will be collected from three (3) of the onsite sanitary structures that have the greatest potential for impact along with the three storm/floor drains that have the greatest potential for impact. Soil samples will be collected from the base of each structure using a properly decontaminated stainless steel hand auger or the Geoprobe, if necessary. Soil samples will also be analyzed for PFCs by Modified EPA 537 – Full List. Additionally, quality control samples, including an equipment blank and a trip blank will be collected and analyzed. It should be noted that if olfactory odor or visual evidence of impact (sheen, staining, etc) is observed, samples will be analyzed for the full list of contaminants (VOCs, SVOCs, pesticides, PCBs, and metals). **Appendix D** contains details regarding compounds to be analyzed, analytical methods, holding times, glassware, and QA/QC information.

Phase II – Geophysical Survey, Additional Groundwater Sampling, and Monitoring Well Installation

If the initial soil and groundwater sampling indicates that the Fire District property is the likely source of PFC impacts, further investigation will be performed. This will include a geophysical survey to identify the absence/presence of subsurface anomalies, which may be indicative of underground tanks or drums. Additional temporary groundwater samples and vertical profile wells will be installed to further delineate the vertical and horizontal extent of impact and permanent groundwater monitoring wells will be installed to monitoring groundwater on a periodic basis. If the results of the Phase I sampling effort indicate that Phase II is required, a Remedial Investigation Work Plan will be prepared to detail the proposed activities, sampling locations, well construction details, etc.

SAMPLING PROCEDURES

Perflourinated chemicals have an extremely low reporting limit and as result, magnify the importance of avoiding cross contamination. Trace background levels of perflourinated chemicals can be detected and levels from cross contamination cannot be quantified.

As result, special sampling protocols have been developed for the sampling of perflourinated chemicals.

FIELD PERSONNEL	
AVOID	**ACCEPTABLE ALTERNATIVES**
wearing/using personal hygiene items (cosmetics, lotions, moisturizers)	Do Not Wear
Sunscreen, Insect Repellants	Wear long sleeve, light colored 100% cotton shirts, wide brimmed hats. Tuck pant legs into socks/boots. Use products that are made from 100% natural ingredients.
New or Unwashed clothing	Well laundered Clothing (washed >6 times)
Clothing Washed in Fabric Softeners	Clothing not washed in fabric softeners
Treated Clothing (waterproof, water-resistant, or stain resistant)	Clothing made of natural or synthetic or natural fibers
Treated Boots (waterproof, water resistant, stain-resistant)	Steel toed boots made with polyurethane and polyvinyl chloride (PVC)
Coated Tyvek suits	Tyvek suits
Handling of prepackaged food products	Do not have at sampling location, wash hands well after handling, wear powderless gloves

SAMPLING EQUIPMENT	
AVOID	**ACCEPTABLE ALTERNATIVES**
Fluoropolymer bailers or pump bladders	Disposable equipment, dedicated equipment (no PTFE parts)
Fluoropolymer tubing, valves, and other parts in pumps	High Density Polyethylene (HDPE) and silicon materials (i.e. tubing)
LDPE Hydra Sleeves	HDPE Hydra Sleeves
Decon 90	Alconox and Liquinox soap for decontamination, if needed
Decontamination water from the site	Water used for the decontamination of sampling equipment will be laboratory certified "PFAS Free Water"
Glass containers (due to potential loss of analyte through adsorption)	Polypropylene or HDPE bottles fitted with an unlined (no PTFE), polypropylene or HDPE Screw cap.
Waterproof Field books	Loose Paper on Aluminum Clipboards
Sharpie Markers	Ball Point Pens
Post-It Notes	Do Not Use
Blue (Chemical) Ice	Ice Contained in plastic (polyethylene) bags (double-bagged), secured to avoid meltwater from contacting sample containers (overnight shipping)
Aluminum Foil	Thin HDPE Sheeting can be used

Overall sampling strategy will Involve the sampling of up-gradient wells first, followed by sampling of the wells furthest down gradient of suspected source, followed by wells closest to the suspected source. Finally, samples will be collected from the onsite areas of concern. Purge water with no petroleum odor or sheen will be discharged to an unpaved area of the site.

In addition to these strict field sampling procedures, quality assurance/quality control measures will be in place. One equipment blank, one trip blank, a matrix-spike/matrix-spike duplicate, and a blind duplicate will be collected for each media and a frequency of 1 per 20 samples. Additionally, the NYSDEC Category B deliverables will undergo independent third-party validation and a DUSR will be prepared. The resume of the Data Validator is included as **Appendix E**.

REPORTING

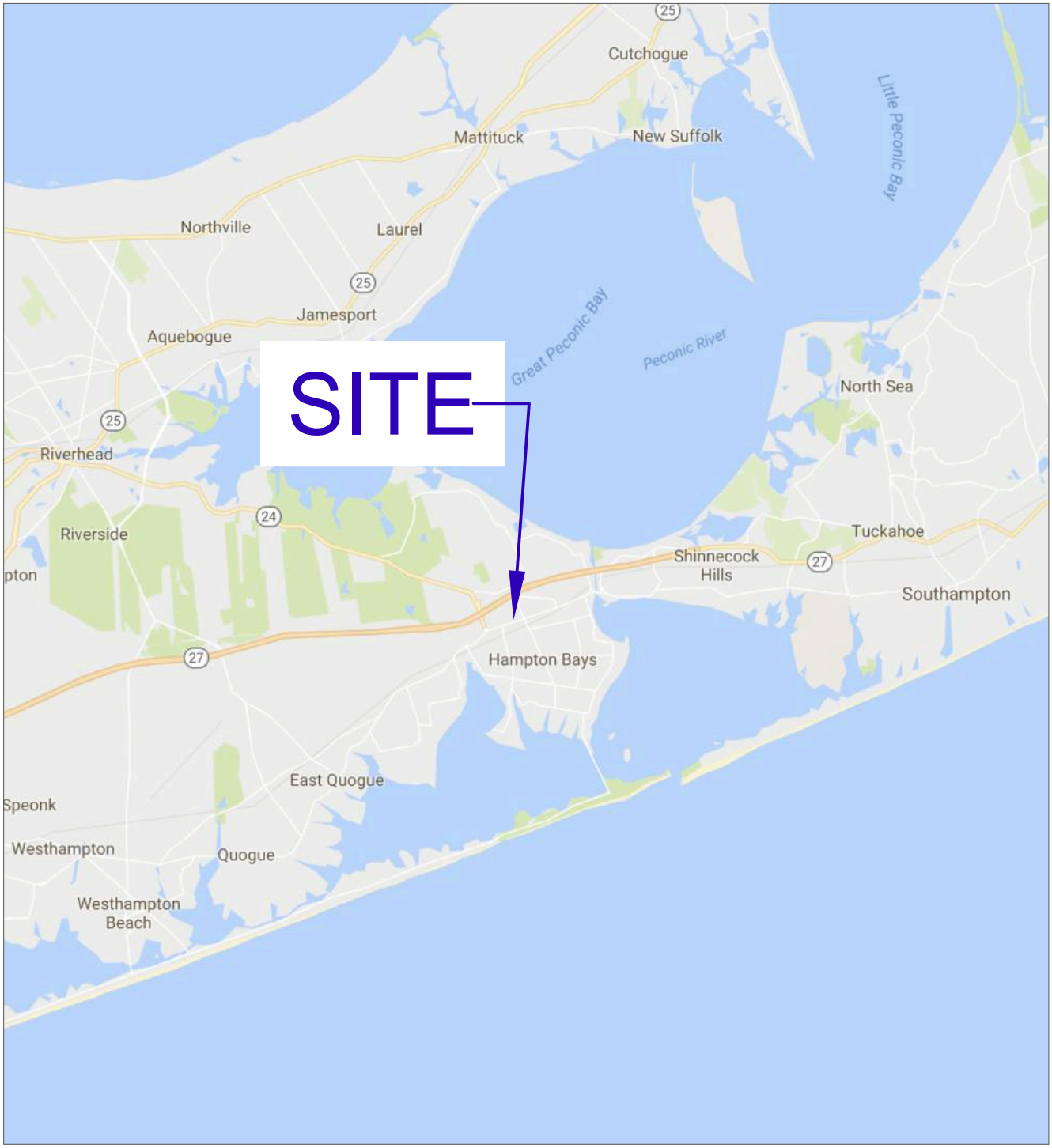
Following the receipt of laboratory analytical results, ZEB will prepare a report, which will detail the results of the soil and groundwater investigation (Phase I). This report will include laboratory data summary tables, figures showing sample locations, and recommendations and will be prepared in accordance with Section 3.13 of DER-10. Should it be determined that the Fire District property is the likely source of PFC impacts, ZEB will prepare a Remedial Investigation Work Plan to further delineate the vertical and horizontal extent of impact.

If you have any questions or require additional information please do not hesitate to contact me.

Very truly yours,
ZEB Environmental Solutions, Inc.

Zeb Youngman
President

Figures



/Volumes/Shared/Projects/HBF/Figures/Fig 1- Proposed Well Locations 17.11.20..dwg

SITE VICINITY MAP

0.0 3.0 6.0

SCALE MILES

BASEMAP PROVIDED BY: GOOGLE EARTH

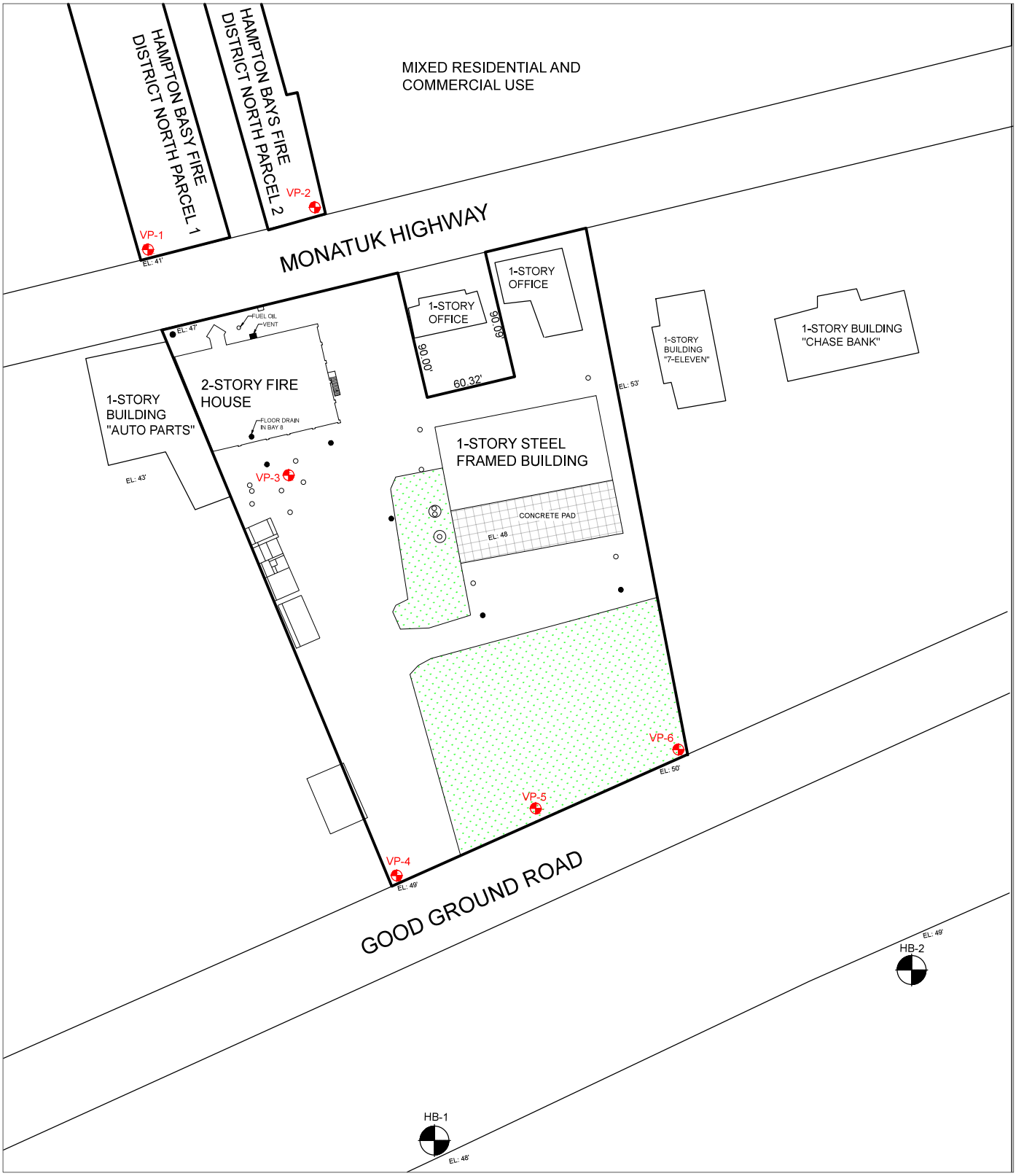
REVISION	DATE	INITIALS	COMMENTS

HAMPTON BAYS FIRE DISTRICT
69 W. MONTAUK HWY,
HAMPTON BAYS, NY 11946

ZEB ENVIRONMENTAL SOLUTIONS, INC.
188 WEST MONTAUK HIGHWAY, SUITE E6
HAMPTON BAYS, NY 11946
PH: (631) 594-5300
E-MAIL: Zyoungman@ZEBenvironmental.com

DATE:	JOB No.:	FIGURE No.:
11/20/17	HBF-1701	1

APPROVED BY:	DESIGNED BY:	DRAWN BY:	SCALE:	SHEET
ZY	DD	DD	AS SHOWN	1 OF 2



PROPOSED SAMPLE LOCATIONS

= STORMWATER DRYWELL

= MANHOLE LOCATION

= PROPOSED VERTICAL PROFILE WELL LOCATION

= DEC WELL LOCATION

0' 100' 200'

ZEB ENVIRONMENTAL SOLUTIONS, INC.

188 WEST MONTAUK HIGHWAY, SUITE E6
HAMPTON BAYS, NY 11946
PH: (631) 594-5300
E-MAIL: Zyoungman@ZEBenvironmental.com

REVISION	DATE	INITIAL	COMMENTS

DATE:	JOB No.:	APPROVED BY:	
11/20/17	17LP040	ZY	
DESIGNED BY: DR	DRAWN BY: DR	SCALE: AS SHOWN	SHEET: 2 OF 2

HAMPTON BAYS FIRE DISTRICT
69 W. MONTAUK HWY,
HAMPTON BAYS, NY 11946

FIGURE: 2

Appendix A

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau A
625 Broadway, 12th Floor, Albany, NY 12233-7015
P: (518) 402-9625 I F: (518) 402-9627
www.dec.ny.gov

HBFDIST1@optonline.net

DNS

JUL 25 2017

Chief Tom Gorman
Hampton Bays Fire Company
69 West Montauk Highway
Hampton Bays, New York 11946

Re: Potential Hazardous Waste Disposal Site

Dear Chief Gorman:

As required by subdivision 27-1305(2)(a) of the Environmental Conservation Law (ECL, quoted below), the New York State Department of Environmental Conservation (DEC) must investigate all suspected or known inactive hazardous waste disposal sites. We have received information from the Suffolk County Department of Health Services which leads us to suspect that hazardous waste has been disposed of at the following location:

Site Name: Hampton Bays Fire Department
Site Address: 69 West Montauk Highway, Hampton Bays, NY 11946
DEC Site No.: 152249
Tax Map Identifier: 224-1-19.1

Therefore, this letter constitutes DEC's notification to you as the identified property owner that this property is considered a potential inactive hazardous waste disposal site. If DEC determines that hazardous waste has been disposed of on the property and that the hazardous waste poses a significant threat to public health or the environment, the property will be listed on the Registry of Inactive Hazardous Waste Disposal Sites (Registry).

If you have any information that may be relevant to our investigation and pending determination, please forward it to me as soon as possible. DEC intends to carry out a field investigation referred to as a Site Characterization in the near future and will be contacting you to obtain access. If the site is determined to be an inactive hazardous waste disposal site and DEC incurs costs to investigate or remediate the site, DEC may seek to recover all costs from any responsible person.

A brief summary of the information currently available about the site is enclosed for your reference. This information is also available on our public website by using our "Environmental Site Remediation Database Search" tool at:
http://www.dec.ny.gov/cfmx/extapps/derexternal/index.cfm?pageid=3.

If you have any questions or would like to discuss the possibility of undertaking the investigation of the site yourself, please feel free to contact Mr. John Swartwout at the address given above or at john.swartwout@dec.ny.gov.

Sincerely,

Eric R Obrecht

Eric Obrecht, P.E.
Director, Remedial Bureau A
Division of Environmental Remediation

Enclosure

cc: w/ enc. Jay Schneiderman, Southampton Town Supervisor

ec: w/o enc. J. Swartwout, NYSDEC
W. Parish, NYSDEC
C. Bethoney, NYSDOH

Environmental Conservation Law

Section 27-1305(2)(a)

"The department shall conduct investigations of the sites listed in the registry and shall investigate areas or sites which it has reason to believe should be included in the registry. The purpose of these investigations shall be to develop the information required by subdivision one of this section to be included in the registry."

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION

July 12, 2017

SITE INVESTIGATION INFORMATION

1. SITE NAME	2. SITE NUMBER	3. a. TOWNSHIP b. CITY/VILLAGE	4. COUNTY
Hampton Bays Fire Department	152249	Southampton	Suffolk

5. REGION 1

6. BCP ☐ ERP ☐ SPILL ☐ SUPERFUND ☑ If Superfund. Current: None Proposed: P

7. LOCATION OF SITE (Attach U.S.G.S. Topographic Map showing site location)

a. Quadrangle Mattituck b. Site Latitude 40° 52' 37" Site Longitude -72° 31' 36"

c. Tax Map Numbers 224-1-19.1 d. Site Street Address 69 W Montauk Hwy, Hampton Bays, NY 11946

8. BRIEFLY DESCRIBE THE SITE (Attach site plan showing disposal/sampling locations)

The site is a 2.07 acre parcel in Southampton, Suffolk County, New York and contains the Hampton Bays Fire Department's Headquarters and 5-bay firehouse. The site lies in a populated residential and commercial area. The Ponquogue Avenue Wellfield has 3 public supply wells that lie approximately 630 feet from the site boundary to the Southeast, in the direction of the groundwater flow. Fire houses likely use or handle aqueous film forming foams (AFFF) for fire suppression, which frequently contain perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS).

a. Area 2.07 acres b. Completed: ( ) Financial Assessment ( ) PSA ( ) IRM ( )RI/FS ( ) Construction ( ) O&M (X)Other: Downgradient groundwater sampling

9. HAZARDOUS WASTE DISPOSED (Include EPA Hazardous Waste Numbers)

perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS)

10. ANALYTICAL DATA AVAILABLE ( )Air (X)Groundwater ( )Surface Water ( )Sediment ( )Soil ( )Waste ( )Leachate ( )EPTox ( )TCLP

Contravention of Standards or Guidance Values

The site plan shows the locations of 6 vertical profile points that surround the public supply wellfield, 5 of which have been sampled for perfluorinated compounds (PFC) (Figure 1). Results indicated all locations contained PFCs, and 1 of the locations, HB-2, exceeded the EPA Health Advisory Level (HAL) for PFOA/PFOS at 2 depths (Table 1). The maximum concentration at HB-2 was found to be 90 nanograms per liter (ng/l) of PFOS with 20 ng/l of PFOA, exceeding the HAL set at 70 ng/l for combined levels of PFOA and PFOS. The Ponquogue Avenue wells, downgradient from the site and set within the glacial aquifer, were also tested. One of the public supply wells, Hampton Bays Water District Well #1-1, exceeded the HAL (Table 2). The supply well was found to have concentrations of PFOS at 86 ng/l and PFOA at 8 ng/l, and was subsequently taken out of service on May 27, 2016. Since the closure of this well, the PFOS levels in the remaining 2 operating wells have nearly doubled to 55 and 62 ng/l (Table 3). Hampton Bays is now continuing to monitor and is evaluating a potential full scale GAC system. The Suffolk County Department of Health Services identified 5 residential properties that are potentially served with private wells within the survey area, but have currently only received access to sample 1 of the 5. The sampled well was upgradient of the site and found to be non-detect. There is also a private well on the site, as well as one adjacent to the site on a commercial property.

11. CONCLUSION

The sampling location that showed elevated levels of PFOA/PFOS is situated between the contaminated supply well and the Fire Department, indicating that the Fire Department is the probable source due to likely use of AFFF at the facility. It is recommended that the property is designated as a potential Registry site and a site characterization is conducted.

If Institutional Controls are Required: describe: ***If so, are they documented? Y ( ) N ( )***

12. SITE DATA

a Nearest Surface Water: Distance 5080 ft.	Direction SW	ID & Classification Tiana Creek (SA)	
b. Nearest Groundwater: Depth 50 ft.	Flow Direction SE	(X)Sole Source ( )Primary ( )High Yield ( ) Low Yield ( ) Non Yield	
c. Nearest Water Supply: Distance 620 ft.	Direction SE	Active (X) Yes ( ) No Character.	
d. Nearest Building. Distance 20 ft.	Direction W	Use Commercial	
e. Documented fish or wildlife mortality?	( )Y (X)N	h. Exposed hazardous waste?	( )Y (X)N
f. Impact on special status fish or wildlife resource?	( )Y (X)N	i. EPA ID #	HRS Score
g. Controlled Site Access?	( )Y (X)N	j. WEB site address.	

13. SITE OWNER'S NAME	14. ADDRESS	15. TELEPHONE NUMBER
Hampton Bays Fire Company	69 West Montauk Hwy, Hampton Bays, NY 11946	(631) 728-9191

16. PREPARER	17. APPROVED
Hayley Frank 7/12/17	Brian Jankauskas 7/12/17
Signature Date	Signature Date
Hayley Frank, Environmental Engineering Technician I, NYSDEC	Brian Jankauskas, P.E., Project Manager, NYSDEC

NEW YORK STATE OF OPPORTUNITY
Department of Environmental Conservation

Figure 1: Site Plan
Hampton Bays Fire Department
Southhampton, Suffolk County, New York

N

Table 1: Suffolk County PFC Sampling Location Results

Hampton Bays Ponquogue Road Wellfield Investigation Profile Well Results for Perfluorinated Compounds								
Drinking Water Standard Subpart 5-1 (MCL) ug/l			50	50	50	50	50	50
Sample Information			Perfluorinated Compounds					
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	PFBS ng/l	PFHxS ng/l	PFHpA ng/l	PFOA ng/l	PFOS ng/l	PFNA ng/l
USEPA Health Advisory Level (HAL) 70 ng/l Combined or 70 ng/l Individual PFOA, PFOS			-	-	-	70	70	-
HB-1	50-55	8/4/2016	12.40	627.00	88.10	29.30	1.91	48.00
	60-65	8/3/2016	4.56	8.66	26.90	19.20	14.80	8.20
	70-75	8/3/2016	<1.77	4.36	2.29	3.97	2.35	<2
	80-85	8/3/2016	3.34	4.01	2.81	4.86	12.60	<2
	90-95	8/3/2016	2.97	3.75	3.30	3.72	2.97	<2
	100-105	8/1/2016	2.36	5.04	3.02	3.85	1.98	<2
	110-115	8/1/2016	<1.77	3.64	<2	2.09	<1.91	<2
HB-2	50-55	8/11/2016	2.73	19.10	8.54	20.20	13.10	2.16
	60-65	Broken in Transit	-	-	-	-	-	-
	70-75	8/10/2016	3.81	7.36	2.09	4.62	37.40	7.60
	80-85	8/9/2016	2.03	12.30	8.03	11.60	65.60	27.80
	90-95	8/9/2016	2.11	16.90	13.60	19.60	90.00	44.00
	100-105	8/8/2016	<1.77	15.10	10.90	13.00	44.00	24.90
	110-115	8/8/2016	<1.77	17.80	6.02	6.56	37.50	18.70
	120-125	8/4/2016	<1.77	6.09	2.77	4.19	33.20	13.90
	130-135	8/2/2016	<1.77	5.76	4.18	5.90	35.40	16.50
HB-3	50-55	8/22/2016	1.91	5.01	3.50	7.15	6.49	<2
	60-65	8/22/2016	2.75	9.33	6.46	13.60	39.80	2.10
	70-75	8/18/2016	2.91	5.88	4.19	8.43	32.5*	2.14
	80-85	8/18/2016	1.82	3.91	2.49	6.79	34.5*	5.60
	90-95	8/18/2016	2.03	3.10	2.41	5.94	20.6*	<2
	100-105	8/17/2016	2.13	2.85	2.98	7.39	22.50	2.81
	110-115	8/16/2016	<1.77	<1.89	<2	5.19	14.8*	<2
SV-2	40-45	8/25/2016	<1.77	6.00	<2	3.68	<1.91	<2
	50-55	8/25/2016	1.85	2.70	<2	<2	<1.91	<2
	60-65	8/25/2016	<1.77	5.17	<2	2.35	<1.91	<2
	70-75	8/24/2016	2.35	5.16	3.24	8.59	3.84	<2
	80-85	8/23/2016	2.60	9.30	4.62	16.60	7.84	<2
	90-95	8/23/2016	2.64	19.00	4.81	18.10	7.94	<2
HB-4	120	To Be Sampled						
HB-5	40-45	9/7/2016	2.39	2.28	<2	<2	2.09	<2
	50-55	9/7/2016	<1.77	<1.89	<2	<2	<1.91	<2
	60-65	9/7/2016	3.07	3.61	<2	2.37	<1.91	<2
	70-75	8/30/2016	<1.77	3.42	2.45	5.18	2.18	<2
	80-85	8/30/2016	<1.77	4.23	<2	2.93	2.50	<2
	90-95	8/30/2016	<1.77	5.03	<2	3.09	1.99	<2
	100-105	8/29/2016	<1.77	6.54	<2	5.43	3.40	<2
	110-115	8/29/2016	4.00	9.45	3.86	4.46	2.43	<2

Concentration Exeeds HAL

Above is the standard battery of testing for PFOA and PFOS, as per U.S. EPA Method 537, which includes four additional Perfluorinated Chemicals (PFCs). EPA has not established health advisories for these chemicals.

*Analyte found in an associated trip blank: result in doubt

Table 2: Suffolk County PFC Supply Well Results

Well	NYSDEC Well #	Depth (ft)	PFOS Concentration (ng/l)	PFOA Concentration (ng/l)	Date of Sample	Action
#1-1	S-15687	107	86.10	7.87	5/23/2016	Out of service
#1-2	S-24848	123	28.00	5.40	7/27/2016	Monitor
#1-3	S-31636	120	32.00	6.30	7/27/2016	Monitor

Concentration Exeeds HAL

Table 3: Updated Well PFOS Levels

Well	NYSDEC Well #	Depth (ft)	July 2016 PFOS Concentration (ng/l)	Most Recent PFOS Concentration (ng/l)	Date of Most Recent Sample	Action
#1-2	S-24848	123	28	55	10/5/2016	Continue to monitor, evaluating a potential full scale GAC system
#1-3	S-31636	120	32	62	5/3/2017	Continue to monitor, evaluating a potential full scale GAC system

00-00-30

New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7015

RETURN SERVICE REQUESTED

neopost FIRST-CLASS MAIL
US POSTAGE $000.46[0]
ZIP 12207

New York State Dept. Env. Conservation
Brian Jankauskas
625 Broadway, 12th Floor
Albany, NY 12233-7015

Appendix B

AFFF QUESTIONAIRRE

1. How often is Aqueous Film Forming Foam (AFFF) used? 1 or 2 - sometime not at All	1-2 times per year
a. How much AFFF is used at a time? Depends on incident 5-10 gals possible	5-10 gallons
2. How Much AFFF is typically kept at the Fire-House? Now Approx. 50 gal has been here for years	50 gallons
a. How is the AFFF stored at the Fire-House? (container type, spill prevention measures) on pallet in rear of maintenance building - 5 gal plastic cans	
3. How much AFFF is typically stored on the trucks? 5-gallons	5 gallons
a. How is the AFFF stored on the trucks? (container type, spill prevention measures) Side compartment of truck Plastic 5 gal can	
4. Is any equipment cleaned/rinsed after AFFF use? yes	
a. If so, does this cleaning/rinsing take place at the Fire-House? No -	

The above information is true and complete to the best of my knowledge and belief:

Richard A. Durand — 2/1/17

Name — Signature — Date

Site Questionnaire

1. Do you have any records regarding AFFF?

   yes

2. Do you know the supplier of AFFF?

   yes - fuomatic supply

3. Did you or currently store AFFF or any foam at the site? If so, where?

   yes - maintenance building

4. Did you use or dispose of AFFF at the site? If so, where?

   NO

5. Did you flush storage containers or equipment that contained AFFF? If so where?

   yes at scene of incident

6. Did you accidently spill AFFF during maintenance or any other activity? If so where?

   NO

7. Did you clean the truck with AFFF?

   NO

8. Was AFFF ever used at public events?

9. Where did you conduct training with AFFF?

   S.H Town training ground

10. Do you know of a fire or call located near the fire house where AFFF was used?

    NO

11. Do you have a private well on site?

    NO

12. Do you have a septic system?

    yes

13. Do you have any dry wells?

    yes

14. Do you have any floor drains?

    yes

15. Do you have any storm drains?

    yes

Preliminary findings are that there are two types of firefighting foam being used:
1. Silv-Ex "Class A" Fire Control Concentrate 2. Ansulite ARC 3or 6 percent AR-AFFF Concentrate
Both products are manufactured by:
Ansul Inc.
One Stanton Street
Marinene, WI 54143
715-735-7411
Attached are the Data Sheets and Safety Data Sheets that were obtained from the manufacturer. Both of these products were supplied by Firematic Supply in Shirley, the supplier of most of The District's fire equipment.

Containers in storage of these two types of foam have the year 2008 on them. As far as donating foam to FRES or anywhere else, apparently there is a "foam depot" at Gabreski Airport that the surrounding fire departments donated to so that there would be sufficient foam in the event of a disaster.

There are fourteen (14) 5 gallon plastic containers of foam concentrate on a pallet in the maintenance building northside, bus side.
They consist of :
7- Silv-Ex Plus
4- Ansulite ARC 3 and 6%
3- Slivex Class A
The containers are intact, are not leaking and the surrounding area is dry. A majority of the containers have the date 8/09 on them.

ANSUL

PURCHASING SPECIFICATION

ANSULITE® ARC 3% or 6% AR-AFFF CONCENTRATE

Bid Opening Date –

Quantity Required –

Packaging –

			Wt. Ea. Lb	No./Pallet	Wt. Pallet Lb
☐	5	Gallon Pail (Part No. 55797)	45	24	1120
☐	55	Gallon Drum (Part No. 55808)	495	4	2000
☐	275	Gallon Tote (Part No. 432157)	2465	–	–

The foam concentrate shall be a totally synthetic fire fighting foam agent (containing no hydrolized protein) suitable for use on either hydrocarbon fuels at 3% or polar solvent fuels at a 6% proportioned solution. The agent shall be formulated with fluorochemical and hydrocarbon surfactants, a high molecular weight polymer and solvents. Normal shelf life is 20 to 25 years and recommended storage temperature range is +35 °F to +120 °F (+1.7 °C to +49 °C). No spill reporting required per EPA CERCLA Section 101 (19).

Physiochemical Properties:At 77 °F (25 °C) the foam concentrate shall have the following characteristics:

- Appearance: Pale Yellow Gelled Liquid
- Density: 1.00 ± 0.02 g/mL
- pH: 7.0 – 8.5
- Refractive Index: 1.3480 ± 0.0020
- Viscosity: 2525 ± 700 cps (measured by Brookfield Viscometer Spindle #4, Speed 30)

Application Concentrations: The foam concentrate shall be designed for use as a 3% concentrate on hydrocarbon fuels and as a 6% concentrate on polar solvent fuels.

Approval Requirements: Each bidder shall submit documentation certifying that the agent has been listed by Underwriters Laboratories under UL Standard 162 as an (1) aqueous film-forming foam and (2) as a polar solvent type concentrate. Such listing shall include UL Type II discharge devices on polar solvents and UL Type III discharge devices on hydrocarbon fuels.

Minimum Underwriters Laboratories published application rates under UL Standard 162 shall be:

Polar Solvents @ 6% Concentration	**Minimum Application Rate (gpm/ft²)**
Alcohols	
Methanol (MeOH)	0.10
Ethanol (EtOH)	0.10
Isopropanol (IPA)	0.15
Carboxylic Acid	
Acetic Acid	0.17
Aldehyde	
Propionaldehyde	0.17
Ketones	
Methyl Ethyl Ketone (MEK)	0.15
Acetone	0.15
Ester	
Ethyl Acetate	0.10
Butyl Acetate	0.10
Hydrocarbons	
@ 3% Concentration	0.10

Ansul Warehouse Locations: Marinette, WI; Los Angeles, CA; Atlanta, GA; Dallas, TX; New Jersey

ANSUL

ANSULITE A364 3%x6% AR-AFFF Concentrate

009835

Description

ANSULITE A364 3%x6% AR-AFFF (Alcohol Resistant Aqueous Film-Forming Foam) Concentrate combines fluoro- and hydrocarbon-surfactant technology to provide superior fire and vapor suppression for Class B, polar solvent, and hydrocarbon fuel fires. This synthetic foam concentrate is intended for firefighting applications at 3% solution for hydrocarbon fuels and at 6% solution for polar solvent fuels in fresh, salt, or hard water.

ANSULITE A364 3%x6% foam solution utilizes three suppression mechanisms for rapid fire knockdown and superior burnback resistance:

- The foam blanket blocks oxygen supply to the fuel.
- Liquid drains from the foam blanket and forms one of the following two items:
  - An aqueous film on a hydrocarbon fire
  - A polymeric membrane on a polar solvent fire which suppresses the vapor and seals the fuel surface
- The water content of the foam solution produces a cooling effect for additional fire suppression.

TYPICAL PHYSIOCHEMICAL PROPERTIES AT 77 °F (25 °C)

Appearance	Yellow gelled liquid
Density	1.00 ± 0.02 g/ml
pH	7.0 - 8.5
Refractive Index	1.3450 minimum
Viscosity	2300 ± 500 cps*
Spreading Coefficient	3 dynes/cm minimum at 3% dilution
Freeze Point	27.5 °F (-2.5 °C)

*Brookfield Viscometer Spindle #4, speed 30 rpm

ANSULITE A364 3%x6% AR-AFFF Concentrate is a non-Newtonian fluid that is both pseudoplastic and thixotropic. Because of these properties, dynamic viscosity will decrease as shear increases.

The environmentally-mindful ANSULITE A364 Concentrate formulation contains short-chain, C-6 fluorochemicals manufactured using a telomer-based process. The telomer process produces no PFOS, and these C-6 materials do not breakdown to yield PFOA. The fluorochemicals used in the concentrate meet the goals of the U.S. Environmental Protection Agency 2010/15 PFOA Stewardship Program.

ENVIRO-MINDED FORMULA C6

Approvals, Listings, and Standards

ANSULITE A364 3%x6% AR-AFFF Concentrate is approved, listed, qualified under, or meets the requirements of the following specifications and standards:

- Underwriters Laboratories Inc. (UL)
  - UL Standard 162, Foam Liquid Concentrates

ANSULITE A364 3%x6% AR-AFFF Concentrate is designed in accordance with the following National Fire Protection Association (NFPA) Standards:

- NFPA 11, Standard for Low-, Medium-, and High-Expansion Foam

UL LISTED

Application

ANSULITE A364 3%x6% AR-AFFF Concentrate is intended for use on both types of Class B fires: hydrocarbon fuels having low water solubility, such as crude oils, gasolines, diesel fuels, and aviation fuels; polar solvent fuels having appreciable water solubility, such as methyl and ethyl alcohol, acetone, and methyl ethyl ketone.

The concentrate has excellent wetting properties that can effectively combat Class A fires as well. It may also be used in conjunction with dry chemical agents to provide even greater fire suppression performance.

ANSULITE A364 Concentrate is ideal for firefighting applications designed to protect petroleum, oil, gas, chemical, and similar industrial assets. Typical applications include:

- Fuel or chemical storage tanks
- Industrial chemical and petroleum process/storage facilities
- Truck/rail loading and unloading facilities
- Flammable liquid containment areas
- Docks/marine tankers
- Mobile equipment

One Stanton Street / Marinette, WI 54143-2542, USA / +1-715-735-7411 / www.ansul.com

Foaming Properties

ANSULITE A364 3%x6% AR-AFFF Concentrate may be effectively applied using most conventional foam discharge equipment at the correct dilution with fresh, salt, or hard water. For optimum performance, water hardness should not exceed 500 ppm expressed as calcium and magnesium.

ANSULITE A364 Concentrate requires low energy to foam and the foam solution may be applied with aspirating and non-aspirating discharge devices. Aspirating discharge devices typically produce expansion ratios from 3.5:1 to 10:1, depending on the type of device and the flow rate. Non-aspirating devices, such as handline water fog/stream nozzles or standard sprinkler heads, typically produce expansion ratios from 2:1 to 4:1. Medium-expansion discharge devices typically produce expansion ratios from 20:1 to 60:1.

TYPICAL FOAM CHARACTERISTICS (Fresh and Sea Water)**

	Hydrocarbon	Polar Solvent
Proportioning Rate	3%	6%
Expansion Ratio LE	≥ 5	≥ 6
25% Drain Time (min:sec)	≥ 5:00	≥ 10:00
50% Drain Time (min:sec)	≥ 12:00	≥ 20:00

**per EN 1568-3, 2008 protocol

Proportioning

ANSULITE A364 3%x6% AR-AFFF Concentrate can be correctly proportioned using most conventional, properly calibrated, in-line proportioning equipment such as:

- Balanced and in-line balanced pressure pump proportioners
- Balanced pressure bladder tanks and ratio flow controllers
- Around-the-pump type proportioners
- Fixed or portable in-line venturi type proportioners
- Handline nozzles with fixed eductor/pick-up tubes

The recommended operational temperature range for this foam concentrate is 35 °F to 120 °F (2 °C to 49 °C).

For immediate use: The concentrate may also be premixed with fresh or sea water to a 3% solution for hydrocarbon fuel fires or a 6% solution for polar solvent fuel fires.

For delayed use: Consult Technical Services for guidance regarding suitability of a pre-mix solution (fresh water only).

Materials of Construction Compatibility

To avoid corrosion, galvanized pipes and fittings should never be used in contact with undiluted concentrate. Please contact Technical Services for recommendations and guidance regarding compatibility of ANSUL® concentrates with common materials of construction in the firefighting foam industry.

Storage and Handling

ANSULITE A364 3%x6% AR-AFFF Concentrate should be stored in the original supplied package (HDPE totes, drums, or pails) or in the foam system equipment recommended by Technical Services. A thin layer (up to 1/4 in. (6 mm) thick) of appropriate-grade mineral oil may be applied to the surface of the foam concentrate stored in a fixed, atmospheric storage container to minimize evaporation. Please consult Tyco Fire Protection Products for further guidance regarding the use of mineral oil to help seal the surface of AR-AFFF concentrates.

The product should be maintained within the recommended 35 °F to 120 °F (2 °C to 49 °C) operational temperature range. Freezing of the product should be avoided. If, however, the product is frozen during transport or storage, it must be thawed and inspected for signs of separation. If separation has occurred, the product must be mechanically mixed until homogeneous.

Factors affecting foam concentrate long-term effectiveness include temperature exposure and cycling, storage container, air exposure, evaporation, dilution, and contamination. The effective life of ANSULITE A364 Concentrate can be maximized through optimal storage conditions and proper handling.

ANSULITE foam concentrates have demonstrated effective firefighting performance with contents stored in the original package under proper conditions for more than 10 years.

Mixing ANSULITE A364 AR-AFFF Concentrate with other foam concentrates for long-term storage is not recommended. Use in conjunction with comparable 3%x6% AR-AFFF products for immediate incident response is appropriate.

Inspection

ANSULITE A364 3%x6% AR-AFFF Concentrate should be inspected periodically per NFPA 11 "Standard for Low-, Medium-, and High-Expansion Foam," EN 13565-2 "Foam System Standard," or other relevant standard. A representative concentrate sample should be sent to Tyco Fire Protection Products Foam Analytical Services or other qualified laboratory for quality analysis per the applicable standard. An annual inspection and sample analysis is typically sufficient unless the product has been exposed to unusual conditions.

Ordering Information

ANSULITE A364 3%x6% AR-AFFF Concentrate is available in pails, drums, totes, or bulk shipment.

Part No.	Description	Shipping Weight	Container Volume
443130	Pail 5 gal (19 L)	45 lb (20.4 kg)	1.25 ft^3 (0.0353 m^3)
443131	Drum 55 gal (208 L)	495 lb (224.5 kg)	11.83 ft^3 (0.3350 m^3)
443132	Tote 265 gal (1000 L)	2463 lb (1117 kg)	50.05 ft^3 (1.42 m^3)
Bulk Order	Consult Technical Services		

Safety Data Sheet (SDS) available at www.ansul.com

Note: The converted metric values provided are for dimensional reference only and do not reflect an actual measurement.

Safety Data Sheet

This safety data sheet complies with the requirements of: 2012 OSHA Hazard Communication Standard (29CFR 1910.1200)

Product name ANSULITE 3% (AFC-3A) AFFF Concentrate

1. Identification

1.1. Product Identifier

Product name ANSULITE 3% (AFC-3A) AFFF Concentrate

1.2. Other means of identification

Product code 055800
Synonyms None
Chemical Family No information available

1.3. Recommended use of the chemical and restrictions on use

Recommended use Fire extinguishing agent
Uses advised against Consumer use

1.4. Details of the Supplier of the Safety Data Sheet

Company Name Tyco Fire Protection Products
One Stanton Street
Marinette, WI 54143-2542
Telephone: 715-735-7411

Contact point Product Stewardship at 1-715-735-7411
E-mail address psra@tycofp.com

1.5. Emergency Telephone Number

Emergency telephone CHEMTREC 800-424-9300 or 703-527-3887

2. Hazards Identification

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

2.2. Label Elements

The product contains no substances which at their given concentration, are considered to be hazardous to health

Precautionary Statements

2.3. Hazards Not Otherwise Classified (HNOC)

Not Applicable.

2.4. OTHER INFORMATION

Unknown Acute Toxicity 4.824% of the mixture consists of ingredient(s) of unknown toxicity

3. Composition/information on Ingredients

3.1. Mixture

The following component(s) in this product are considered hazardous under applicable OSHA(USA)

Chemical name	CAS No	weight-%
2-(2-Butoxyethoxy)ethanol	112-34-5	5 - 10
Lauryl Imino Propionate, Sodium Salt	14960-06-6	1 - 5

4. First aid measures

4.1. Description of first aid measures

Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash skin with soap and water. Get medical attention if irritation develops and persists.

Inhalation Remove to fresh air. If breathing is difficult, give oxygen. (Get medical attention immediately if symptoms occur.).

Ingestion Rinse mouth. Do not induce vomiting without medical advice. If swallowed, call a poison control center or physician immediately.

4.2. Most Important Symptoms and Effects, Both Acute and Delayed

Symptoms No information available.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

Note to physicians Treat symptomatically.

5. Fire-fighting measures

5.1. Suitable Extinguishing Media

Product is extinguishing agent. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2. Unsuitable Extinguishing Media

None.

5.3. Specific Hazards Arising from the Chemical

None known.

Hazardous Combustion Products Carbon oxides, Fluorinated oxides, Nitrogen oxides (NOx), Oxides of sulfur

5.4. Explosion Data

Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

5.5. Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal Precautions Ensure adequate ventilation, especially in confined areas.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental Precautions

Environmental Precautions Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Pick up and transfer to properly labeled containers.

7. Handling and Storage

7.1. Precautions for Safe Handling

Advice on safe handling Avoid contact with skin and eyes. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible Materials Strong oxidizing agents. Strong acids. Strong bases.

8. Exposure Controls/Personal Protection

8.1. Control Parameters

Exposure guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
2-(2-Butoxyethoxy)ethanol 112-34-5	TWA: 10 ppm inhalable fraction and vapor	-	-

ACGIH (American Conference of Governmental Industrial Hygienists) OSHA (Occupational Safety and Health Administration of the US Department of Labor) NIOSH IDLH Immediately Dangerous to Life or Health

8.2. Appropriate Engineering Controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

8.3. Individual protection measures, such as personal protective equipment

Eye/Face Protection Avoid contact with eyes. Tight sealing safety goggles.

Skin and Body Protection Wear protective gloves and protective clothing.

Respiratory Protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Ventilation	Use local exhaust or general dilution ventilation to control exposure with applicable limits

8.4. General hygiene considerations

Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State	Liquid		
Odor	Characteristic	**Color**	Light yellow
odor threshold	No data available		

Property	**VALUES**	**Remarks • Method**
pH	7.5	
Melting point/freezing point	No data available	
Boiling point / boiling range	> 100 °C / 212 °F	
Flash Point	> 100 °C / > 212 °F	
Evaporation Rate	No data available	
flammability (solid, gas)	No data available	
Flammability limit in air		
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Vapor Pressure	No data available	
Vapor Density	No data available	
Specific gravity	No data available	
Water Solubility	No data available	
Solubility in Other Solvents	No data available	
Partition coefficient	No data available	
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Kinematic viscosity	2.9 mm2/s	
density	1.03	

10. Stability and Reactivity

10.1. Chemical Stability

Stable under recommended storage conditions.

10.2. Reactivity

No data available

10.3. Possibility of hazardous reactions

None under normal processing.

hazardous polymerization Hazardous polymerization does not occur.

10.4. Conditions to Avoid

Extremes of temperature and direct sunlight.

10.5. Incompatible Materials

Strong oxidizing agents. Strong acids. Strong bases.

10.6. Hazardous decomposition products

Carbon oxides. Nitrogen oxides (NOx). Oxides of sulfur. Fluorinated oxides.

11. Toxicological Information

11.1. Information on Likely Routes of Exposure

Product information no data available

INHALATION no data available.

Eye Contact no data available.

Skin contact no data available.

INGESTION no data available.

Acute Toxicity

Chemical name	Oral LD50	dermal LD50	Inhalation LC50
2-(2-Butoxyethoxy)ethanol 112-34-5	= 3384 mg/kg (Rat)	= 2700 mg/kg (Rabbit)	-

11.2. Information on Toxicological Effects

Symptoms No information available.

11.3. Delayed and immediate effects as well as chronic effects from short and long-term exposure

sensitization No information available.
Germ Cell Mutagenicity No information available
carcinogenicity No information available.
Reproductive Toxicity No information available.
STOT - Single Exposure No information available.
STOT - Repeated Exposure No information available.
Aspiration Hazard No information available.

11.4. Numerical Measures of Toxicity - Product information

The following values are calculated based on chapter 3.1 of the GHS document mg/kg

12. Ecological Information

12.1. ecotoxicity

Not classified

0% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical name	Algae/aquatic plants	Fish	Crustacea
2-(2-Butoxyethoxy)ethanol 112-34-5	EC50 96 h > 100 mg/L Desmodesmus subspicatus	LC50 96 h = 1300 mg/L Lepomis macrochirus static	EC50 24 h = 2850 mg/L Daphnia magna EC50 48 h > 100 mg/L Daphnia magna
2-Methyl-2,4-pentanediol 107-41-5	-	LC50 96 h 10500 - 11000 mg/L Pimephales promelas flow-through LC50 96 h = 10000 mg/L Lepomis macrochirus static LC50 96 h = 8690 mg/L Pimephales promelas flow-through LC50 96 h = 10700 mg/L Pimephales promelas static	EC50 48 h 2700 - 3700 mg/L Daphnia magna
t-Butanol 75-65-0	EC50 72 h > 1000 mg/L Desmodesmus subspicatus	LC50 96 h 6130 - 6700 mg/L Pimephales promelas flow-through	EC50 48 h = 933 mg/L Daphnia magna EC50 48 h 4607 - 6577 mg/L Daphnia magna Static
Sodium chloride 7647-14-5	-	LC50 96 h 5560 - 6080 mg/L Lepomis macrochirus flow-through LC50 96 h = 12946 mg/L Lepomis macrochirus static LC50 96 h 6020 - 7070 mg/L Pimephales promelas static LC50 96 h = 7050 mg/L Pimephales promelas semi-static LC50 96 h 6420 - 6700 mg/L Pimephales promelas static LC50 96 h 4747 - 7824 mg/L Oncorhynchus mykiss flow-through	EC50 48 h = 1000 mg/L Daphnia magna EC50 48 h 340.7 - 469.2 mg/L Daphnia magna Static
Polyethylene Glycol 25322-68-3	-	LC50 24 h > 5000 mg/L Carassius auratus	-
Formaldehyde 50-00-0	-	LC50 96 h 22.6 - 25.7 mg/L Pimephales promelas flow-through LC50 96 h = 1510 µg/L Lepomis macrochirus static LC50 96 h = 41 mg/L Brachydanio rerio static LC50 96 h 0.032 - 0.226 mL/L Oncorhynchus mykiss flow-through LC50 96 h 100 - 136 mg/L Oncorhynchus mykiss static LC50 96 h 23.2 - 29.7 mg/L Pimephales promelas static	LC50 48 h = 2 mg/L Daphnia magna EC50 48 h 11.3 - 18 mg/L Daphnia magna Static

12.2. Persistence and Degradability
No information available.

12.3. Bioaccumulation
No information available.

12.4. Other Adverse Effects
No information available

13. Disposal Considerations

13.1. Waste Treatment Methods
Disposal of wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Do not reuse container.

14. Transport Information

DOT	NOT REGULATED
TDG	NOT REGULATED
MEX	NOT REGULATED
ICAO (air)	NOT REGULATED
IATA	NOT REGULATED
IMDG	NOT REGULATED

15. Regulatory Information

15.1. International Inventories

TSCA	Complies
DSL/NDSL	Complies
ENCS	Does not comply
IECSC	Does not comply
KECL	Does not comply
PICCS	Does not comply
AICS	Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

15.2. US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical name	SARA 313 - Threshold Values %
2-(2-Butoxyethoxy)ethanol - 112-34-5	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic health hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

15.3. US State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals

Chemical name	California Proposition 65
Formaldehyde - 50-00-0	Carcinogen

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
2-(2-Butoxyethoxy)ethanol 112-34-5	X	-	X
t-Butanol 75-65-0	X	X	X
Formaldehyde 50-00-0	X	X	X

16. Other information, including date of preparation of the last revision

NFPA	**Health Hazards** 0	**flammability** 1	**Instability** 0	**Physical and chemical properties** -
HMIS	**Health Hazards** 0	**flammability** 1	**Physical Hazards** 0	**Personal Protection** X

Revision date 25-May-2015
Revision note
No information available
Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

ANSUL

by Tyco Fire Suppression & Building Products

SILV-EX PLUS "CLASS A" FIRE CONTROL CONCENTRATE

Data/Specifications

FEATURES

SILV-EX PLUS is a low, medium, and high expansion, Class A foam concentrate formulated from specialty hydrocarbon surfactants, stabilizers, corrosion inhibitors and solvents. This formulation provides superior cold weather performance. The latest development in the *original* forest fire control concentrate, SILV-EX PLUS has been proven effective on many deep-seated Class A fires such as tire fires, paper fires, coal fires, structure fires, and wild fires.

SILV-EX PLUS foam concentrate can be proportioned from 0.1% to 1.0% in fresh, brackish or sea water. When used as a pre-mixed solution, only fresh or potable water should be used if the premix is to be stored over long time periods. Due to its extremely low proportioning rate, SILV-EX PLUS foam concentrate offers outstanding economy in concentrate storage space, cost (compared to conventional 3% and 6% foaming agents) and water hauling requirements.

Example:

How much SILV-EX PLUS concentrate is required to make 500 gallons (1893 L) of foam solution?

Final solution volume X concentration percentage = foam concentrate required

At 0.1% concentration:
500 gal (1893 L) X 0.001 = 0.5 gal (1.9 L) of concentrate

At 0.6% concentration:
500 gal (1893 L) X 0.006 = 3 gal (11.4 L) of concentrate

At 1.0% concentration:
500 gal (1893 L) X 0.01 = 5 gal (19 L) of concentrate

Fire extinguishment mechanisms in effect when using SILV-EX PLUS "Class A" Fire Control Concentrate include:

- Reduction of the surface tension of water, which provides the SILV-EX PLUS solution with superior wetting and penetrating characteristics. This renders Class A fuels less combustible and allows the solution to penetrate past the char to control deep seated fires.
- Extended drain time provides longer surface wetting, reducing the risk of ignition/reignition.
- SILV-EX PLUS agent creates a foam blanket which provides an insulating barrier between the fuel and air.
- SILV-EX PLUS foam suppresses combustible vapors while cooling the fuel.

In addition, SILV-EX PLUS concentrate offers fire fighting characteristics:

- The brilliant white foam reflects heat.
- SILV-EX PLUS solution creates a dense foam blanket with excellent insulating properties.
- SILV-EX PLUS foam clings to vertical surfaces for structure protection.
- The wetting and penetrating characteristics of the SILV-EX PLUS solution reduce the combustibility of Class A fuels and makes water five times more effective.

Applicable extinguishment mechanisms and some properties of SILV-EX PLUS foam depend on the type of foam delivery device used. SILV-EX PLUS has a reduced environmental signature and does not have any EPA reportable contents. The solution does not destroy or retard new forest growth, and will not harm fish or wildlife; it is biodegradable in soils, aquatic ecosystems, and sewage treatment facilities.

008318

Typical Physiochemical Properties at 77 °F (25 °C)

Appearance	Light Amber Clear Liquid
Density	1.010 g/ml ± 0.010
pH	7.0 – 8.5
Refractive Index	1.3660 ± 0.0035
Viscosity	12 ± 3 centistokes

For comparison purposes, the viscosity of 10W40 motor oil is 160 centistokes at 77 °F (25 °C) and 800 centistokes at 12 °F (–11.1 °C).

Surface Tension	
Water	66 to 76 dynes/cm
0.1% SILV-EX PLUS solution	27.20 dynes/cm
0.6% SILV-EX PLUS solution	26.80 dynes/cm
1.0% SILV-EX PLUS solution	26.60 dynes/cm
Flash Point	> 200 °F (93.3 °C)
Pour Point	22 °F (–5.5 °C)

APPLICATION

SILV-EX PLUS concentrate is designed specifically for use on Class A fuel fires including wood, paper, coal, and rubber. SILV-EX PLUS foam gives the fire fighter extinguishment capabilities, exposure protection, and increased safety.

Although designed for Class A fires, SILV-EX PLUS foam can be effective on some Class B flammable liquid fires when applied by medium and high expansion devices.

SILV-EX PLUS solution can be used with aspirating and non-aspirating discharge devices, compressed air foam systems (CAFS), or dropped from fixed or rotary wing aircraft.

ENVIRONMENTAL AND HEALTH INFORMATION

1. Biodegradability Test – the concentrate is readily biodegradable
2. Mammalian Toxicity Tests
   a. Acute Oral Toxicity in Rats
      i. Concentrate: LD_{50} > 5050 mg/Kg
      ii. 1.0% Dilution: LD_{50} > 5050 mg/Kg
   b. Acute Dermal Toxicity in Rabbits
      i. Concentrate: LD_{50} > 2020 mg/Kg
      ii. 1.0% Dilution: LD_{50} > 2020 mg/Kg

ENVIRONMENTAL AND HEALTH INFORMATION (Continued)

3. Mammalian Irritation Tests
   a. Primary Eye Irritation in Rabbits
      i. Single-Wash Eyes
         1. Concentrate: mildly irritating
         2. 1.0% Dilution: minimally irritating
      ii. Double-Wash Eyes
         1. Concentrate: minimally irritating
         2. 1.0% Dilution: practically non-irritating
   b. Primary Dermal Irritation in Rabbits
      i. Concentrate: non-irritating
      ii. 1.0% Dilution: non-irritating
4. Aquatic Toxicity Tests
   a. Fish:
      i. Rainbow Trout: Concentrate: 96 hour LC_{50} = 56.6 mg/L
      ii. Threespined Stickleback: Concentrate: 96 hour LC_{50} = 7.31 mg/L
   b. Daphnids, Daphnia Magna: Concentrate: 48 hour LC_{50} = 62.7 mg/L

PERFORMANCE

Standards/Specifications – The performance of SILV-EX PLUS concentrate is measured against and/or is on the approved list of the following:

- NFPA 1150 – Foam Chemicals for Fire in Class A Fuels
- Canadair Corporation – Approved for use in the CL-215 and CL-415 Aircraft and foam metering systems
- USDA Forest Service Specification 307a – Fire Suppressant Foam for Wildland Firefighting

Foaming Properties – When used with fresh, sea or brackish water at the correct proportioning rate, the expansion will vary depending on the performance characteristics of the foam making equipment.

Proportioning – SILV-EX PLUS concentrate can be proportioned using most conventional proportioning equipment such as:

- Flow-Mix™ Model 500 foam proportioner
- Hypro FoamPro™ injection system
- Balanced pressure pump or bladder tank fixed sprinkler system
- In-line fixed or portable venturi type proportioners (eductors)

TYPICAL PROPORTIONING RATES FOR COMMON APPLICATIONS:

Fixed Wing Aircraft	0.6% to 0.7%
Rotary Wing Aircraft	0.2% to 0.5%
Air Aspirating Devices	0.2% to 1.0%
Non-Air Aspirating Devices	0.5% to 1.0%
Compressed Air Foam Systems (CAFS)	0.1% to 0.3%
ANSUL Handline Nozzles	
HL-60 Low Expansion	0.3% to 1.0%
HL-95 Low Expansion	0.3% to 1.0%
KR-S2 Low Expansion	0.3% to 1.0%
KR-M2 Medium Expansion	0.3% to 1.0%
KR-S/M2 Dual Expansion	0.3% to 1.0%

Storage/Shelf Life – When stored in the original packaging supplied (polyethylene drums or pails) or in equipment recommended by the manufacturer as part of the foam system and within the temperature limits specified, the shelf life of SILV-EX PLUS concentrate is normally about 20-25 years. The recommended storage temperature for SILV-EX PLUS concentrate is 30 °F (–1 °C) to 120 °F (49 °C).

If the product is frozen during storage or transportation, thawing will render the concentrate completely usable and ready for proportioning.

Compatibility – Because of the many products available, consult with ANSUL before mixing SILV-EX PLUS concentrate with other manufacturer's products.

Materials of Construction Compatibility – Tests have been performed with SILV-EX PLUS concentrate verifying its compatibility with the steel, stainless steel, yellow brass, magnesium and aluminum alloys found in aerial and ground-based fire fighting equipment. SILV-EX PLUS is also compatible with standard fire fighter turn out gear and hose material.

Packaging – SILV-EX PLUS concentrate is packaged in opaque white 5 gallon (19 L) plastic (polyethylene) containers with 2 3/4 in. (6.9 cm) capped openings. 55 gallon (208 L) drum size is blue polyethylene with sealed 2 1/4 in. (5.7 cm) closures. All containers are marked "SILV-EX PLUS Class A Fire Control Concentrate."

Equipment Clean-up – The standard procedure of flushing with fresh water should be used with all equipment used with SILV-EX PLUS concentrate or foam solution.

Additional Information – Request the following ANSUL Forms:

- MSDS Sheet – F-2009065

ORDERING INFORMATION

SILV-EX PLUS concentrate is available in the following sizes:

Part No.	Size	Shipping Weight	Cube
434467	5 gallon (19 L)	45 lb (20.4 kg)	1.25 ft^3 (0.0353 m^3)
434469	55 gallon (208 L)	495 lb (224.5 kg)	11.83 ft^3 (0.3350 m^3)
▸ 434471	265 gallon (1003 L)	2465 lb (1118 kg)	50.05 ft^3 (1.42 m^3)
434463	Bulk (contact ANSUL about domestic truckload delivery)		

tyco
Fire Suppression & Building Products
www.ansul.com
One Stanton Street
Marinette, WI 54143-2542 USA

Form No. F-2009064-1

Safety Data Sheet

This safety data sheet complies with the requirements of: 2012 OSHA Hazard Communication Standard (29CFR 1910.1200)

Product name SILV-EX PLUS Class A Fire Control Foam Concentrate

1. Identification

1.1. Product Identifier

Product name	SILV-EX PLUS Class A Fire Control Foam Concentrate

1.2. Other means of identification

Product code	434467
Synonyms	None
Chemical Family	No information available

1.3. Recommended use of the chemical and restrictions on use

Recommended use	Fire extinguishing agent
Uses advised against	Consumer use

1.4. Details of the Supplier of the Safety Data Sheet

Company Name	Tyco Fire Protection Products One Stanton Street Marinette, WI 54143-2542 Telephone: 715-735-7411
Contact point	Product Stewardship at 1-715-735-7411
E-mail address	psra@tycofp.com

1.5. Emergency Telephone Number

Emergency telephone	CHEMTREC 800-424-9300 or 703-527-3887

2. Hazards Identification

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage/eye irritation - Category 2A

2.2. Label Elements

Signal Word
WARNING

hazard statements
Causes serious eye irritation

Precautionary Statements

Prevention
Wash face, hands and any exposed skin thoroughly after handling. Wear eye/face protection.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

2.3. Hazards Not Otherwise Classified (HNOC)

Not Applicable.

2.4. OTHER INFORMATION

Toxic to aquatic life with long lasting effects.

3. Composition/information on Ingredients

3.1. Mixture

The following component(s) in this product are considered hazardous under applicable OSHA(USA)

Chemical name	CAS No	weight-%
1-(2-Butoxy-1-methylethoxy)propan-2-ol	29911-28-2	5 - 10
Sodium Alkene sulphonate	68439-57-6	5 - 10
Lauryl Alcohol	112-53-8	1 - 5

4. First aid measures

4.1. Description of first aid measures

Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash skin with soap and water. Get medical attention if irritation develops and persists.

Inhalation Remove to fresh air. If breathing is difficult, give oxygen. (Get medical attention immediately if symptoms occur.).

Ingestion Rinse mouth. Do not induce vomiting without medical advice. If swallowed, call a poison control center or physician immediately.

4.2. Most Important Symptoms and Effects, Both Acute and Delayed

Symptoms No information available.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

Note to physicians Treat symptomatically.

5. Fire-fighting measures

5.1. Suitable Extinguishing Media

Product is extinguishing agent. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2. Unsuitable Extinguishing Media

None.

5.3. Specific Hazards Arising from the Chemical

None known.

Hazardous Combustion Products Carbon oxides, Nitrogen oxides (NOx), Oxides of sulfur

5.4. Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

5.5. Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal Precautions Ensure adequate ventilation, especially in confined areas.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental Precautions

Environmental Precautions Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Pick up and transfer to properly labeled containers.

7. Handling and Storage

7.1. Precautions for Safe Handling

Advice on safe handling Avoid contact with skin and eyes. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible Materials Strong oxidizing agents. Strong acids. Strong bases.

8. Exposure Controls/Personal Protection

8.1. Control Parameters

Exposure guidelines . This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

8.2. Appropriate Engineering Controls

Engineering controls Showers
Eyewash stations

Ventilation systems.

8.3. Individual protection measures, such as personal protective equipment

Eye/Face Protection	Avoid contact with eyes. Tight sealing safety goggles.
Skin and Body Protection	Wear protective gloves and protective clothing.
Respiratory Protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Ventilation	Use local exhaust or general dilution ventilation to control exposure with applicable limits

8.4. General hygiene considerations

Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State	Liquid		
Odor	Characteristic	**Color**	No data available
odor threshold	No data available		

Property	VALUES	Remarks • Method
pH	7	
Melting point/freezing point	No data available	
Boiling point / boiling range	100 °C / 212 °F	
Flash Point	> 100 °C / > 212 °F	
Evaporation Rate	No data available	
flammability (solid, gas)	No data available	
Flammability limit in air		
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Vapor Pressure	No data available	
Vapor Density	No data available	
Specific gravity	No data available	
Water Solubility	No data available	
Solubility in Other Solvents	No data available	
Partition coefficient	No data available	
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Kinematic viscosity	No data available	

10. Stability and Reactivity

10.1. Chemical Stability

Stable under recommended storage conditions.

10.2. Reactivity

No data available

10.3. Possibility of hazardous reactions

None under normal processing.

hazardous polymerization Hazardous polymerization does not occur.

10.4. Conditions to Avoid

Extremes of temperature and direct sunlight.

10.5. Incompatible Materials

Strong oxidizing agents. Strong acids. Strong bases.

10.6. Hazardous decomposition products

Carbon oxides. Nitrogen oxides (NOx). Oxides of sulfur.

11. Toxicological Information

11.1. Information on Likely Routes of Exposure

Product information no data available

INHALATION no data available.

Eye Contact no data available.

Skin contact no data available.

INGESTION no data available.

Acute Toxicity

Chemical name	Oral LD50	dermal LD50	Inhalation LC50
1-(2-Butoxy-1-methylethoxy)propan-2-ol 29911-28-2	= 1620 µL/kg (Rat)	= 5860 µL/kg (Rabbit)	= 42.1 ppm (Rat) 4 h
Sodium Alkene sulphonate 68439-57-6	= 2310 mg/kg (Rat)	= 6300 mg/kg (Rabbit)	-
Lauryl Alcohol 112-53-8	> 5000 mg/kg (Rat)	-	-

11.2. Information on Toxicological Effects

Symptoms No information available.

11.3. Delayed and immediate effects as well as chronic effects from short and long-term exposure

sensitization No information available.
Germ Cell Mutagenicity No information available
carcinogenicity No information available.
Reproductive Toxicity No information available.
STOT - Single Exposure No information available.
STOT - Repeated Exposure No information available.
Aspiration Hazard No information available.

11.4. Numerical Measures of Toxicity - Product information
The following values are calculated based on chapter 3.1 of the GHS document mg/kg

12. Ecological Information

12.1. ecotoxicity
Toxic to aquatic life with long lasting effects

0% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical name	Algae/aquatic plants	Fish	Crustacea
1-(2-Butoxy-1-methylethoxy)propan-2-ol 29911-28-2	-	LC50 96 h = 841 mg/L Poecilia reticulata static	-
Sodium Alkene sulphonate 68439-57-6	-	LC50 96 h = 12.2 mg/L Brachydanio rerio semi-static LC50 96 h 1.0 - 10.0 mg/L Brachydanio rerio static	-
1,2-Propanediol 57-55-6	EC50 96 h = 19000 mg/L Pseudokirchneriella subcapitata	LC50 96 h = 51600 mg/L Oncorhynchus mykiss static LC50 96 h 41 - 47 mL/L Oncorhynchus mykiss static LC50 96 h = 51400 mg/L Pimephales promelas static LC50 96 h = 710 mg/L Pimephales promelas	EC50 48 h > 1000 mg/L Daphnia magna Static EC50 24 h > 10000 mg/L Daphnia magna
Lauryl Alcohol 112-53-8	EC50 96 h = 0.62 mg/L Desmodesmus subspicatus	LC50 96 h = 1.01 mg/L Pimephales promelas flow-through LC50 96 h = 0.1855 mg/L Pimephales promelas	EC50 48 h = 320 mg/L Daphnia magna

12.2. Persistence and Degradability
No information available.

12.3. Bioaccumulation
No information available.

Chemical name	Partition coefficient
Lauryl Alcohol 112-53-8	5.36

12.4. Other Adverse Effects
No information available

13. Disposal Considerations

13.1. Waste Treatment Methods

Disposal of wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Do not reuse container.

14. Transport Information

DOT NOT REGULATED

TDG	NOT REGULATED
MEX	NOT REGULATED
ICAO (air)	NOT REGULATED
IATA	NOT REGULATED
IMDG	NOT REGULATED

15. Regulatory Information

15.1. International Inventories

TSCA	Complies
DSL/NDSL	Does not comply
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

15.2. US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic health hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

15.3. US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
1,2-Propanediol 57-55-6	X	-	X

16. Other information, including date of preparation of the last revision

NFPA	Health Hazards 1	flammability 1	Instability 0	Physical and chemical properties -
HMIS	Health Hazards 1	flammability 1	Physical Hazards 0	Personal Protection X

Revision date 25-May-2015

Revision note

No information available

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

MAY 2, 2007
REGULAR MEETING

HAMPTON BAYS BOARD
OF FIRE COMMISSIONERS

PRESENT: CHMN. BAUCUM, COMM. SPITALERI, BUCKLEY AND KING. DEP. TREAS. KENNY, ATTY. GLASS & CHIEF'S BROWN, DURAND AND BORELL. GLEN HEIDTMANN & SFHA UREVICH IN ATTENDANCE.

MEETING CALLED TO ORDER BY CHAIRMAN BAUCUM AT 7:00 P.M.

COMM. KING DISCUSSED THE LETTER FROM THE SOUTHAMPTON TOWN FIRE CHIEFS COUNCIL REQ. 2 CANS OF FOAM AND 3 CANS OF LIGHTWATER. DISCUSSION BY THE BOARD MEMBERS, IT WILL BE PUT ON HOLD UNTIL THE NEXT SHT DISTRICTS MEETING.

MAY 7, 2008
REGULAR MEETING

HAMPTON BAYS BOARD
OF FIRE COMMISSIONERS

PRESENT: CHMN. BUCKLEY, COMM. JANKOWSKI, SPITALERI, KING AND KENNY. TREAS. JANKOWSKI, ATTY. GLASS & CHIEF'S DURAND, BORELL, TEDESCO AND HUTCHISON.

MEETING CALLED TO ORDER BY CHAIRMAN BUCKLEY AT 7:00 P.M.

CHIEF TEDESCO ASKED ABOUT THE 350 GALS. OF FOAM THEY HAD - DISCUSSED WHAT TO DO WITH WHAT THEY DON'T USE IN PRACTICE - WHAT IS LEFT OVER WILL BE GIVEN THE AIR BASE TO USE.

March 2, 2011
Regular Meeting

Hampton Bays Board
of Fire Commissioners

PRESENT: Chmn. Durand, Comm. Buckley, King & Connolly, Treas. Kenny, Atty. Orzechowski & Chief Borell, Tedesco, Hutchison & Gorman.

Meeting called to order by Chairman Durand at 7:00 pm.

Comm. King made a motion to buy the foam for the foam bank at cost of $197.96. Motion seconded by Comm. Connolly . All Comm. present voted in favor.

INVOICE

SOUTH SHORE FIRE & SAFETY EQUIPMENT DISTRIBUTORS INC
579 EAST MEADOW AVENUE
EAST MEADOW, NY 11554
PH 516-794-4000 FAX 516-794-1016

Fax (516) 794-1016

INVOICE NUMBER: 0069836-IN
INVOICE DATE: 03/31/2011

CUSTOMER NO: 00-HAMPTON

SOLD TO:
HAMPTON BAYS FIRE DISTRICT
P O DRAWER 800
HAMPTON BAYS, NY 11946-0701

SHIP TO:
HAMPTON BAYS FIRE DEPARTMENT
69 W MONTAUK HIGHWAY
HAMPTON BAYS, NY 11946-0701

CUSTOMER P.O.	SHIP VIA	F.O.B.	TERMS
			NET 30

ITEM NO.	QUANTITY	PRICE	AMOUNT
TICKET 402182			
NEW EQUIPMENT			
NEQ 1 3/4 X 50' HOSE - RED 2/14/11	3.00	114.00	342.00
TICKET 403803			
NEQ 5 GALLON PAIL FIRE AID — foam Bank	2.00	98.90	197.80
TICKET 399608			
NEQ CLEAR ECONOMY SAFETY GLASSES	25.00	8.00	200.00
FREIGHT/NON TAX FREIGHT- NON TAXABLE	1.00	15.00	15.00

PAID 5588

Net Invoice:	754.80
Less Discount:	0.00
Freight:	0.00
Sales Tax:	0.00
Invoice Total:	**754.80**

SOUTH SHORE FIRE & SAFETY EQUIPMENT DISTRIBUTORS, INC.

579 EAST MEADOW AVE. • EAST MEADOW, NY 11554
(516) 794-4000
www.southshorefire.com

CUSTOMER'S ORDER NO.	PHONE	DATE
		3.8.11

NAME Hamptons Bays

ADDRESS

SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MDSE.RET'D.	PAID OUT	

QTY.	DESCRIPTION	PRICE	AMOUNT
2	Fire Aid	98.90	
	5 gallons Pails		197 80
	Del to		
	Southampton Fire Marshall		
	Foam Bank		
	Southampton Foam Bank		
	2 5gal Drums		
	As per Kim's		
		TAX	
RECEIVED BY		TOTAL	197 80

All claims and returned goods MUST be accompanied by this bill.

Thank You

403803

Ref. No. G. 127302337

Appendix C

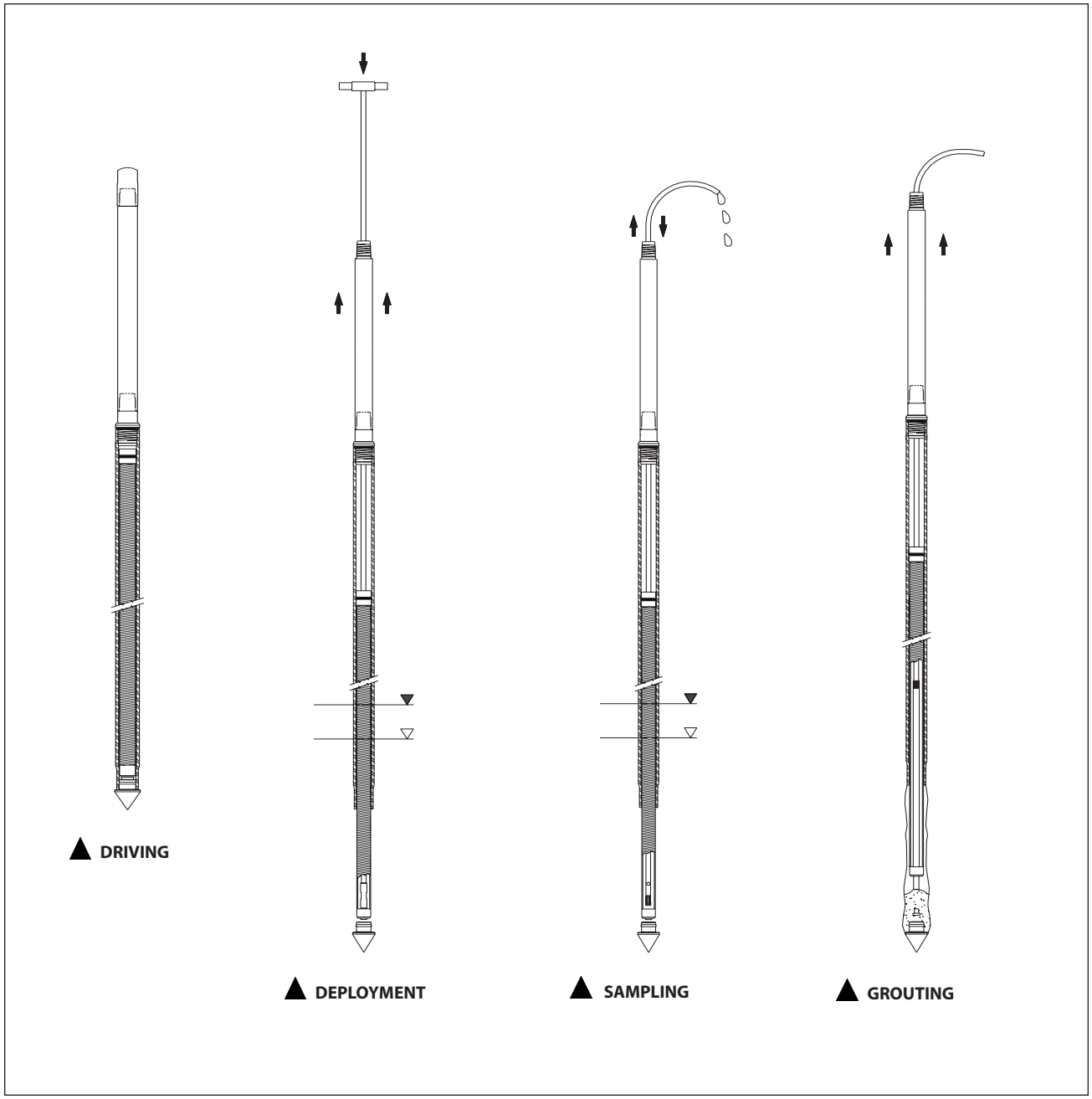
GEOPROBE® SCREEN POINT 15 GROUNDWATER SAMPLER

STANDARD OPERATING PROCEDURE

Technical Bulletin No. MK3141

PREPARED: October, 1995

REVISED: November, 2007



GEOPROBE® SCREEN POINT 15 GROUNDWATER SAMPLER

Geoprobe® and Geoprobe Systems®, Macro-Core® and Direct Image® are Registered Trademarks of Kejr, Inc., Salina, Kansas

Screen Point 15 Groundwater Sampler is manufactured under U.S. Patent 5,612,498

1.0 OBJECTIVE

The objective of this procedure is to drive a sealed stainless steel or PVC screen to depth, deploy the screen, obtain a representative water sample from the screen interval, and grout the probe hole during abandonment. The Screen Point 15 Groundwater Sampler enables the operator to conduct abandonment grouting that meets American Society for Testing and Materials (ASTM) Method D 5299 requirements for decommissioning wells and borings for environmental activities (ASTM 1993).

2.0 BACKGROUND

2.1 Definitions

Geoprobe®: A brand name of high quality, hydraulically powered machines that utilize both static force and percussion to advance sampling and logging tools into the subsurface. The Geoprobe® brand name refers to both machines and tools manufactured by Geoprobe Systems®, Salina, Kansas. Geoprobe® tools are used to perform soil core and soil gas sampling, groundwater sampling and monitoring, soil conductivity and contaminant logging, grouting, and materials injection.

Screen Point 15 (SP15) Groundwater Sampler: A direct push device consisting of a PVC or stainless steel screen that is driven to depth within a sealed, steel sheath and then deployed for the collection of representative groundwater samples. The assembled SP15 Sampler is approximately 50.5 inches (1283 mm) long with an OD of 1.5 inches (38 mm). Upon deployment, up to 41 inches (1041 mm) of screen can be exposed to the formation. The Screen Point 15 Groundwater Sampler is used primarily with 1.25-inch probe rods and machines equipped with a GH40 Series (GH40, GH41, or GH42) Hydraulic Hammer.

Rod Grip Pull System: An attachment mounted on the hydraulic hammer of a direct push machine which makes it possible to retract the tool string with extension rods or flexible tubing protruding from the top of the probe rods. The Rod Grip Pull System includes a pull block with rod grip jaws and two support straps that are bolted directly to the machine. A removable handle assembly straddles the tool string while hooking onto the pull block to effectively grip the probe rods as the hammer is raised. A separate handle assembly is required for each probe rod diameter.

2.2 Discussion

In this procedure, the assembled Screen Point 15 Groundwater Sampler (Fig. 2.1A) is threaded onto the leading end of a Geoprobe® probe rod and advanced into the subsurface with a Geoprobe® direct push machine. Additional probe rods are added incrementally and advanced until the desired sampling interval is reached. While the sampler is advanced to depth, O-ring seals at each rod joint, the drive head, and the expendable drive point provide a watertight system. This system eliminates the threat of formation fluids entering the screen before deployment and assures sample integrity.

Once at the desired sampling interval, extension rods are sent downhole until the leading rod contacts the bottom of the sampler screen. The tool string is then retracted approximately 44 inches (1118 mm) while the screen is held in place with the extension rods (Fig. 2.1B). As the tool string is retracted, the expendable point is released from the sampler sheath. The tool string and sheath may be retracted the full length of the screen or as little as a few inches if a small sampling interval is desired.

There are three types of screens that can be used in the Screen Point 15 Groundwater Sampler. Two of the these, a stainless steel screen with a standard slot size of 0.004 inches (0.10 mm) and a PVC screen with a standard slot size of 0.010 inches (0.25 mm), are recovered with the tool string after sampling. The third screen is also manufactured from PVC with a standard slot size of 0.010 inches (0.25 mm), but is designed to be left downhole when sampling is complete. This disposable screen has an exposed screen length of approximately 43 inches (1092 mm). The two screens that are recovered with the sampler both have an exposed screen length of approximately 41 inches (1041 mm).

(continued on following page)

An O-ring on the head of the stainless steel screens maintains a seal at the top of the screen. As a result, any liquid entering the sampler during screen deployment must first pass through the screen. PVC screens do not require an O-ring because the tolerance between the screen head and sampler sheath is near that of the screen slot size.

The screens are constructed such that flexible tubing, a mini-bailer, or a small-diameter bladder pump can be inserted into the screen cavity. This makes direct sampling possible from anywhere within the saturated zone. A removable plug in the lower end of the screens allows the user to grout as the sampler is extracted for further use.

Groundwater samples can be obtained in a number of ways. A common method utilizes polyethylene (TB25L) or Teflon® (TB25T) tubing and a Check Valve Assembly (GW4210). The check valve (with check ball) is attached to one end of the tubing and inserted down the casing until it is immersed in groundwater. Water is pumped through the tubing and to the ground surface by oscillating the tubing up and down.

An alternative means of collecting groundwater samples is to attach a peristaltic or vacuum pump to the tubing. This method is limited in that water can be pumped to the surface from a maximum depth of approximately 26 feet (8 m). Another technique for groundwater sampling is to use a stainless steel Mini-Bailer Assembly (GW41). The mini-bailer is lowered down the inside of the casing below the water level where it fills with water and is then retrieved from the casing.

The latest option for collecting groundwater from the SP15 sampler is to utilize a Geoprobe® MB470 Series Mechanical Bladder Pump (MBP)*. The MBP may be used to meet requirements of the low-flow sampling protocol (Puls and Barcelona 1996, ASTM 2003). Through participation in a U.S. EPA Environmental Technology Verification study, it was confirmed that the MB470 can provide representative samples (EPA 2003).

**The Mechanical Bladder Pump is manufactured under U.S. Patent No. 6,877,965 issued April 12, 2005.*

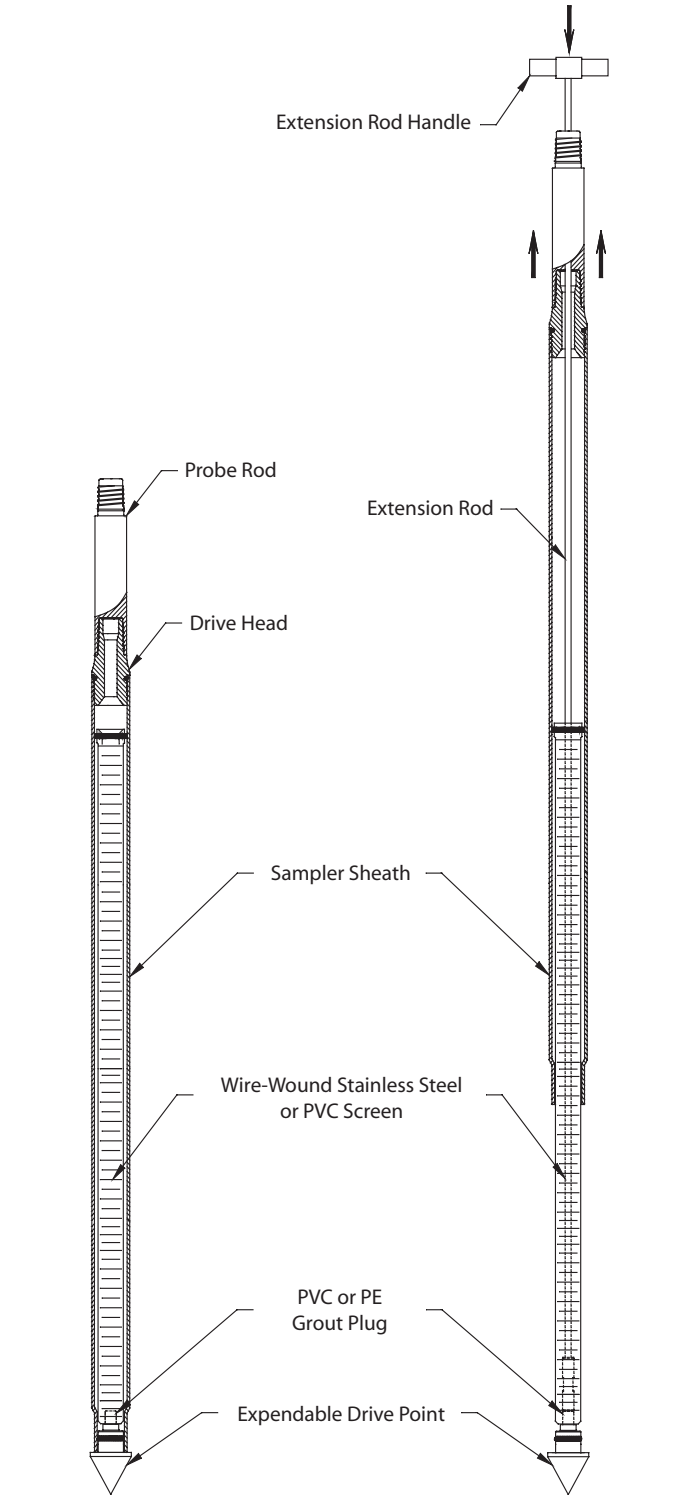


FIGURE 2.1
Screen Point 15Groundwater Sampler

3.0 TOOLS AND EQUIPMENT

The following tools and equipment can be used to successfully recover representative groundwater samples with the Geoprobe® Screen Point 15 Groundwater Sampler. Refer to Figures 3.1 and 3.2 for identification of the specified parts. Tools are listed below for the most common SP15 / 1.25-inch probe rod configuration. Additional parts for optional rod sizes and accessories are listed in Appendix A.

SP15 Sampler Parts	**Part Number**
SP15 Sampler Sheath	GW1510
SP15 Drive Head, 0.625-inch bore, 1.25-inch rods*	GW1512
Screen, Wire-Wound Stainless Steel, 4-Slot*	GW1520
SP15 O-ring Service Kit, 1.25-inch rods *(includes 4 each of the O-ring packets below)*	GW1505K
O-rings for Top of SP15 Drive Head, 1.25-inch rods only (Pkt. of 25)	*AT1250R*
O-rings for Bottom of SP15 Drive Head (Pkt. of 25)	*GW1516R*
O-rings for GW1520 Screen Head (Pkt. of 25)	*GW1520R*
O-rings for SP15 Expendable Drive Point (Pkt. of 25)	*GW1555R*
Grout Plugs, PE (Pkg. of 25)	GW1552K
Expendable Drive Points, steel, 1.625-inch OD (Pkg. of 25)*	GW1555K
Screen Point 15 Groundwater Sampler Kit, 1.25-inch Probe Rods *(includes 1 each of: GW1505K, GW1510, GW1513, GW1520, GW1535, GW1540, GW1552K, and GW1555K)*	GW1512K

Probe Rods and Probe Rod Accessories	**Part Number**
Drive Cap, 1.25-inch probe rods, (for GH40 Series Hammer)	AT1200
Pull Cap, 1.25-inch probe rods	AT1204
Probe Rod, 1.25-inch x 48-inch*	AT1248
Rod Grip Pull System, 1.0-/1.25-inch probe rods (for GH40 Series Hammer)	GH1250K

Extension Rods and Extension Rod Accessories	**Part Number**
Screen Push Adapter	GW1535
Grout Plug Push Adapter	GW1540
Extension Rod, 48-inch*	AT671
Extension Rod Coupler	AT68
Extension Rod Jig	AT690
Extension Rod Quick Link Coupler, pin	AT695
Extension Rod Quick Link Coupler, box	AT696

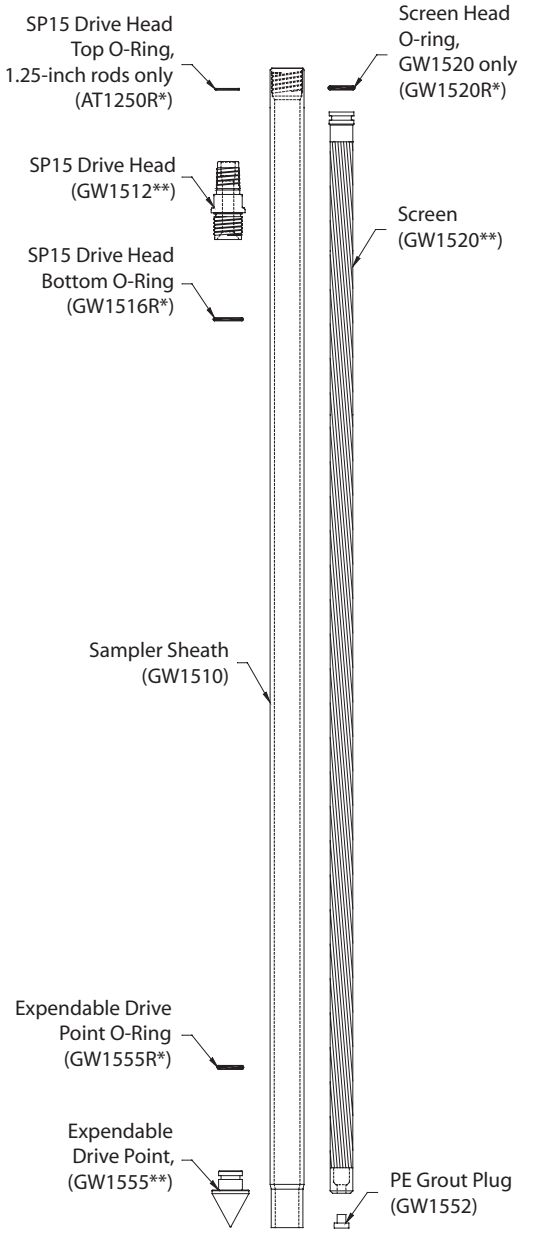
Grout Accessories	**Part Number**
Grout Nozzle, for 0.375-inch OD tubing	GW1545
High-Pressure Nylon Tubing, 0.375-inch OD / 0.25-inch ID, 100-ft. (30 m)	11633
Grout Machine, self-contained*	GS1000
Grout System Accessories Package, 1.25-inch rods	GS1012

Groundwater Purging and Sampling Accessories	**Part Number**
Polyethylene Tubing, 0.375-inch OD, 500 ft.*	TB25L
Check Valve Assembly, 0.375-inch OD Tubing*	GW4210
Water Level Meter, 0.438-inch OD Probe, 100 ft. cable*	GW2000
Mechanical Bladder Pump**	MB470
Mini Bailer Assembly, stainless steel	GW41

Additional Tools	**Part Number**
Adjustable Wrench, 6.0-inch	FA200
Adjustable Wrench, 10.0-inch	FA201
Pipe Wrenches	NA

* See Appendix A for additional tooling options.

** Refer to the Standard Operating Procedure (SOP) for the Mechanical Bladder Pump (Technical Bulletin No. MK3013) for additional tooling needs.



* Included in the SP15 O-ring Service Kit (GW1505K)
** Part numbers show most common tool configuration. See Appendix A for alternative parts.

FIGURE 3.1
SP15 Sampler Parts

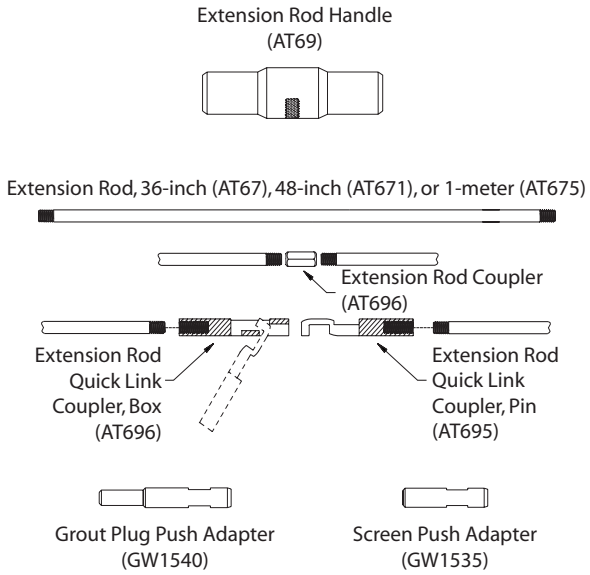


FIGURE 3.2
Geoprobe® Extension Rods and Accessories

4.0 OPERATION

4.1 Basic Operation

The SP15 sampler utilizes a stainless steel or PVC screen which is encased in an alloy steel sampler sheath. An expendable drive point is placed in the lower end of the sheath while a drive head is attached to the top. O-rings on the drive head and expendable point provide a watertight sheath which keeps contaminants out of the system as the sampler is driven to depth.

Once the sampling interval is reached, extension rods equipped with a screen push adapter are inserted down the ID of the probe rods. The tool string is then retracted up to 44 inches (1118 mm) while the screen is held in place with the extension rods. The system is now ready for groundwater sampling. When sampling is complete, a removable plug in the bottom of the screen allows for grouting below the sampler as the tool string is retrieved.

4.2 Sampler Options

The Screen Point 15 and Screen Point 16 Groundwater samplers are nearly identical. Subtle differences in the design of the SP16 sampler makes it more durable than the earlier SP15 system. Operators of GH60-equipped machines should always utilize SP16 tooling. Operators of machines equipped with GH40 Series hammers may also choose SP16 tooling when sampling in difficult probing conditions.

A 1.75-inch OD Expendable Drive Point (17066K) and Disposable PVC Screen (16089) provide two useful options for the SP15 sampler. The 1.75-inch drive point may be used when soil conditions make it difficult to remove the sampler after driving to depth. The disposable PVC screen may be left downhole after sampling (when regulations permit) to eliminate the time required for screen decontamination.

4.3 Decontamination

In order to collect representative groundwater samples, all sampler parts must be thoroughly cleaned before and after each use. Scrub all metal parts using a stiff brush and a nonphosphate soap solution. Steam cleaning may be substituted for hand-washing if available. Rinse with distilled water and allow to air-dry before assembly.

4.4 SP15 Sampler Assembly (Figure 4.1)

Part numbers are listed for a standard SP15 sampler using 1.25-inch probe rods. Refer to Page 6 for screen and drive head alternatives.

1. Place an O-ring on a Steel Expendable Drive Point (GW1555). Firmly seat the expendable point in the necked end of a Sampler Sheath (GW1510).

2. Install a PE Grout Plug (GW1552) in the lower end of a Wire-wound Stainless Steel Screen (GW1520). Place a GW1520R O-ring in the groove on the upper end of the screen.

3. Slide the screen inside the sampler sheath with the grout plug toward the bottom of the sheath. Lubricate the O-ring with distilled water if needed. Ensure that the expendable point is not displaced by the screen.

4. Install a bottom O-ring (GW1516R) on a Drive Head (GW1512). Thread the drive head into the sampler sheath using an adjustable wrench if necessary to ensure complete engagement of the threads. Attach a Drive Cap (AT1200) to the top of the drive head.

Sampler assembly is complete

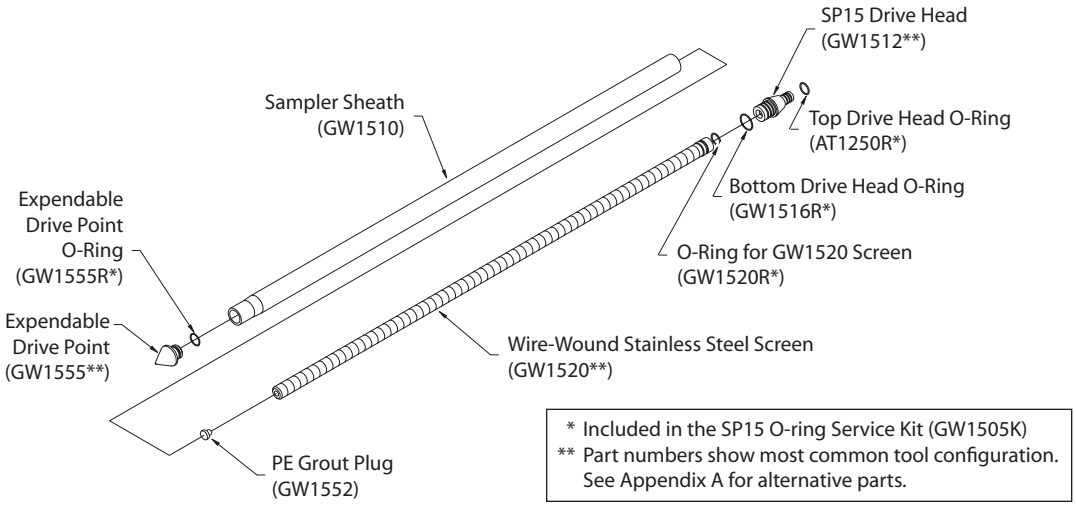


FIGURE 4.1
Screen Point 15 Groundwater Sampler Assembly

4.5 Advancing the SP15 Sampler

To provide adequate room for screen deployment with the Rod Grip Pull System, the probe derrick should be extended a little over halfway out of the carrier vehicle when positioning for operation.

1. Begin by placing the assembled sampler (Fig. 2.1.A) in the driving position beneath the hydraulic hammer of the direct push machine as shown in Figure 4.2.

2. Advance the sampler with the throttle control at slow speed for the first few feet to ensure that the sampler is aligned properly. Switch to fast speed for the remainder of the probe stroke.

3. Completely raise the hammer assembly. Remove the drive cap and place an O-ring in the top groove of the drive head. Distilled water may be used to lubricate the O-ring if needed.

Add a probe rod (length to be determined by operator) and reattach the drive cap to the rod string. Drive the sampler the entire length of the new rod with the throttle control at fast speed.

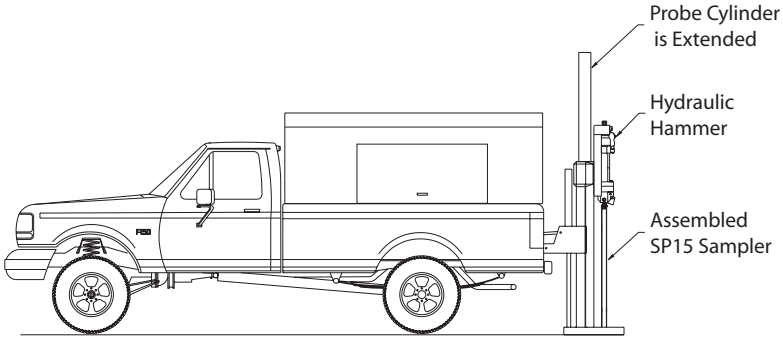


FIGURE 4.2
Screen Point 15 Groundwater Sampler in Driving Position

4. Repeat Step 3 until the desired sampling interval is reached. Approximately 12 inches (305 mm) of the last probe rod must extend above the ground surface to allow attachment of the puller assembly. A 12-inch (305 mm) rod may be added if the tool string is over-driven.

5. Remove the drive cap and retract the probe derrick away from the tool string.

4.6 Screen Deployment

1. Thread a Screen Push Adapter (GW1535) onto an extension rod of suitable length (AT67, AT671, or AT675). Attach a threaded coupler (AT68) to the other end of the extension rod. Lower the extension rod inside the tool string taking care not to drop it downhole.

2. Add extension rods until the adapter contacts the bottom of the screen. To speed up this step, it is recommended that Extension Rod Quick Links (AT695 and AT696) are used at every other rod joint.

3. Ensure that at least 48 inches (1219 mm) of extension rod protrudes from the probe rod. Thread an extension rod handle (AT69) on the top extension rod.

4. Maneuver the probe assembly into position for pulling.

5. Raise (pull) the tool string while physically holding the screen in place with the extension rods (Fig. 4.3.B). A slight knock with the extension rod string will help to dislodge the expendable point and start the screen moving inside the sheath.

   Raise the hammer and tool string about 44 inches (1118 mm) if using a GW1520 or GW1530 screen. At this point the screen head will contact the necked portion of the sampler sheath (Fig. 4.3.C.) and the extension rods will rise with the probe rods. Use care when deploying a PVC screen so as not to break the screen when it contacts the bottom of the sampler sheath.

   The Disposable Screen (16089) will extend completely out of the sheath if the tool string is raised more than 45 inches (1143 mm). Measure and mark this distance on the top extension rod to avoid losing the screen during deployment.

6. Remove the rod grip handle, lower the hammer assembly, and retract the probe derrick. Remove the top extension rod (with handle) and top probe rod. Finally, extract all extension rods.

7. Groundwater samples can now be collected with a mini-bailer, peristaltic or vacuum pump, check valve assembly, mechanical bladder pump, or other acceptable small diameter sampling device.

   When inserting tubing or a bladder pump down the rod string, ensure that it enters the screen interval. The leading end of the tubing or bladder pump will sometimes catch at the screen head giving the illusion that the bottom of the screen has been reached. An up-and-down motion combined with rotation helps move the tubing or bladder pump past the lip and into the screen.

4.7 Abandonment Grouting for GW1520 and GW1530 Screens

The SP15 Groundwater Sampler can meet ASTM D 5299 requirements for abandoning environmental wells or borings when grouting is conducted properly. A removable grout plug makes it possible to deploy tubing through the bottom of GW1520 and GW1530 screens. A GS500 or GS1000 Grout Machine is then used to pump grout into the open probe hole as the sampler is withdrawn. The following procedure is presented as an example only and should be modified to satisfy local abandonment grouting regulations.

1. Maneuver the probe assembly into position for pulling. Attach the rod grip puller to the top probe rod. Raise the tool string approximately 4 to 6 inches (102 to 152 mm) to allow removal of the grout plug.

2. Thread the Grout Plug Push Adapter (GW1540) onto an extension rod. Insert the adapter and extension rod inside the probe rod string. Add extension rods until the adapter contacts the grout plug at the bottom of the screen. Attach the handle to the top extension rod. When the extension rods are slightly raised and lowered, a relatively soft rebound should be felt as the adapter contacts the grout plug. This is especially true when using a PVC screen.

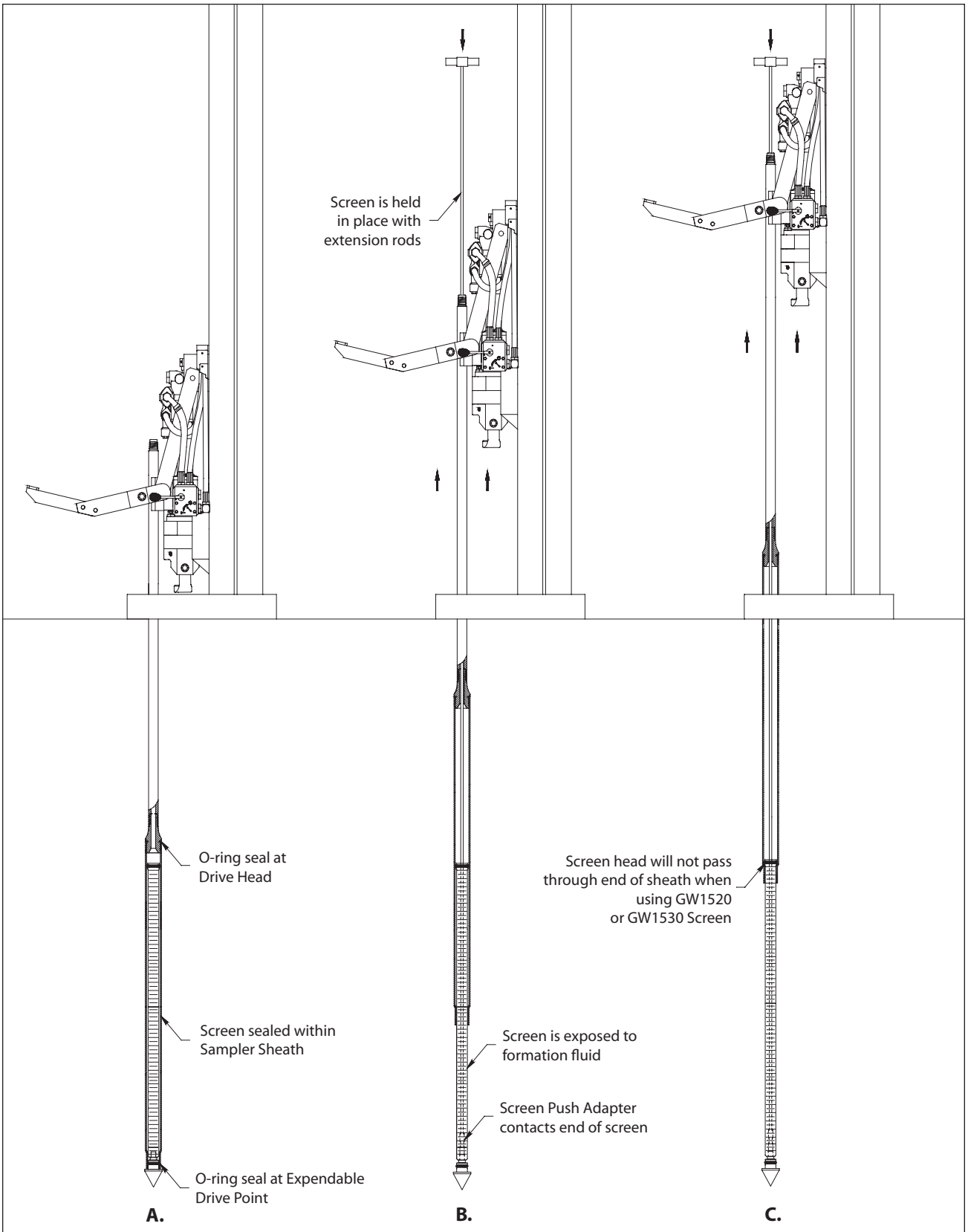


FIGURE 4.3
Screen Deployment for SP15 Sampler

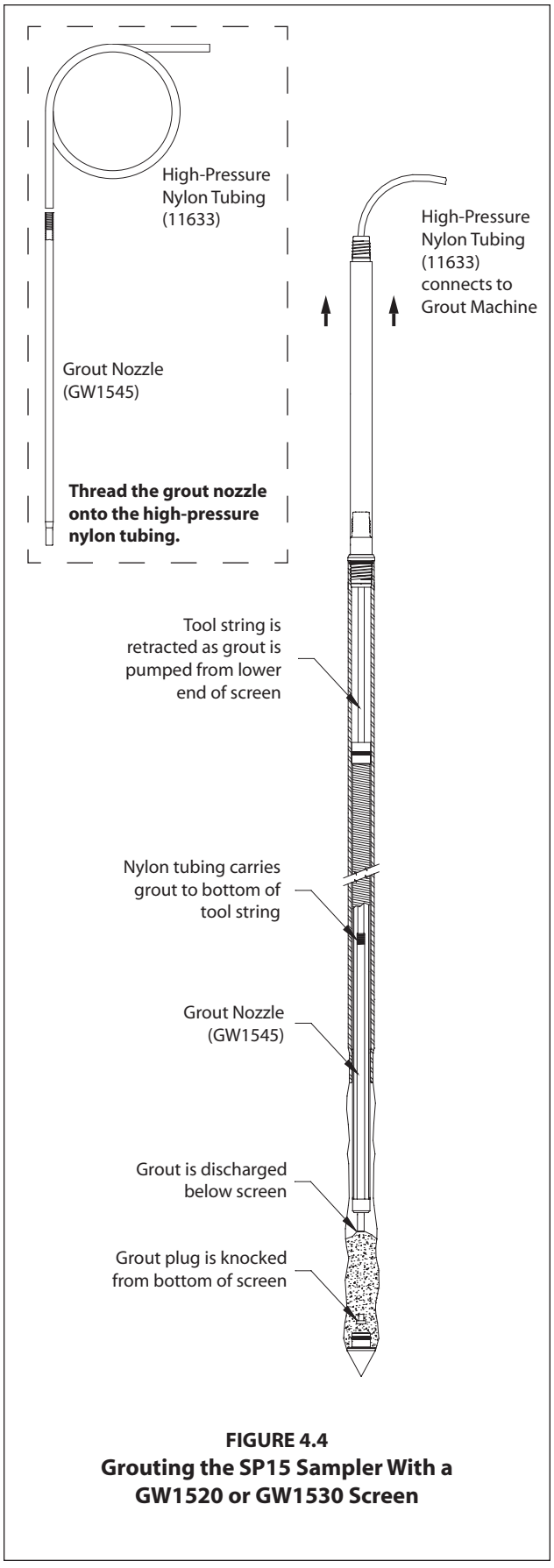


FIGURE 4.4
Grouting the SP15 Sampler With a GW1520 or GW1530 Screen

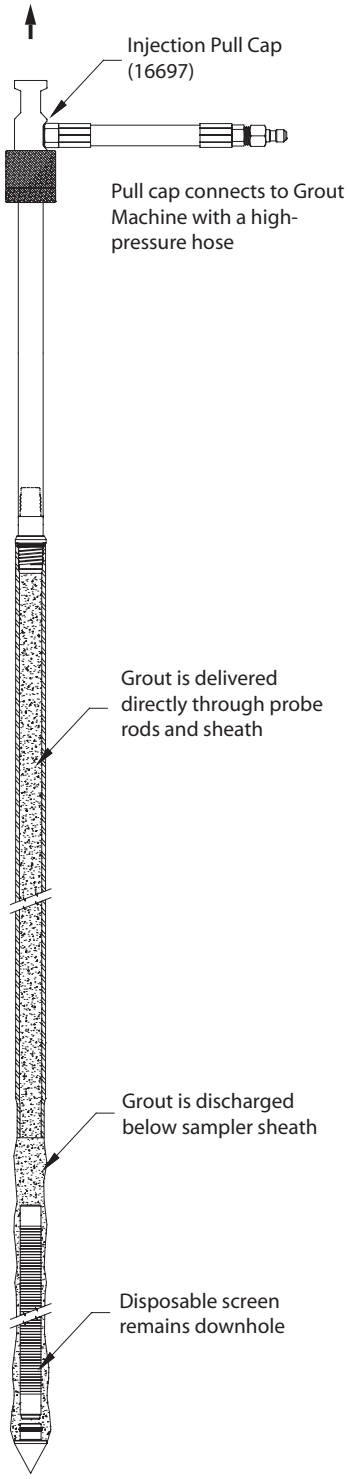


FIGURE 4.5
Grouting the SP15 Sampler With a 16089 Disposable Screen

3. Place a mark on the extension rod even with the top of the probe rod. Apply downward pressure on the extension rods and push the grout plug out of the screen. The mark placed on the extension rod should now be below the top of the probe rod. Remove all extension rods.

   Note: When working with a stainless steel screen, it may be necessary to raise and quickly lower the extension rods to jar the grout plug free. When the plug is successfully removed, a metal-on-metal sensation may be noted as the extension rods are gently "bounced" within the probe rods.

4. A Grout Nozzle (GW1545) is now connected to High-Pressure Nylon Tubing (11633) and inserted down through the probe rods to the bottom of the screen (Fig. 4.4). It may be necessary to pump a small amount of clean water through the tubing during deployment to jet out sediments that settled in the bottom of the screen. Resistance will sometimes be felt as the grout nozzle passes through the drive head. Rotate the tubing while moving it up-and-down to ensure that the nozzle has reached the bottom of the screen and is not hung up on the drive head.

   Note: *All probe rods remain strung on the tubing as the tool string is pulled. Provide extra tubing length to allow sufficient room to lay the rods on the ground as they are removed. An additional 20 feet is generally enough.*

5. Operate the grout pump while pulling the first rod with the rod grip pull system. Coordinate pumping and pulling rates so that grout fills the void left by the sampler. After pulling the first rod, release the rod grip handle, fully lower the hammer, and regrip the tool string. Unthread the top probe and slide it over the tubing placing it on the ground near the end of the tubing.

6. Repeat Step 5 until the sampler is retrieved. Do not bend or kink the tubing when pulling and laying out the probe rods. Sharp bends create weak spots in the tubing which may burst when pumping grout. Remember to operate the grout pump only when pulling the rod string. The probe hole is thus filled with grout from the bottom up as the rods are extracted.

7. Promptly clean all probe rods and sampler parts before the grout sets up and clogs the equipment.

4.8 Abandonment Grouting for the 16089 Disposable Screen

ASTM D 5299 requirements can also be met for the SP15 sampler when using the 16089 disposable screen. Because the screen remains downhole after sampling, the operator may choose either to deliver grout to the bottom of the tool string with nylon tubing or pump grout directly through the probe rods using an Injection Pull Cap (16697). A GS500 or GS1000 Grout Machine is needed to pump grout into the open probe hole as the sampler is withdrawn. The following procedure is presented as an example only and should be modified to satisfy local abandonment grouting regulations.

1. Maneuver the probe assembly into position for pulling with the rod grip puller.

2. Thread the screen push adapter onto an extension rod. Insert the adapter and extension rod inside the probe rod string. Add extension rods until the adapter contacts the bottom of the screen. Attach the handle to the top extension rod.

3. The disposable screen must be extended at least 46 inches (1168 mm) to clear the bottom of the sampler sheath. Considering the length of screen deployed in Section 4.6, determine the remaining distance required to fully extend the screen from the sheath. Mark this distance on the top extension rod.

4. Pull the tool string up to the mark on the top extension rod while holding the disposable screen in place.

   The screen is now fully deployed and the sampler is ready for abandonment grouting. Apply grout to the bottom of the tool string during retrieval using either flexible tubing (as described in Section 4.7) or an injection pull cap (Fig. 4.5). This section continues with a description of grouting with a pull cap.

5. Remove the rod grip handle and maneuver the probe assembly directly over the tool string. Thread an Injection Pull Cap (16697) onto the top probe rod and close the hammer pull latch over the top of the pull cap.

6. Connect the pull cap to a Geoprobe® grout machine using a high-pressure grout hose.

7. Operate the pump to fill the entire tool string with grout. When a sufficient volume has been pumped to fill the tool string, begin pulling the rods and sampler while continuing to operate the grout pump. Considering the known pump volume and sampler cross-section, time tooling withdrawal to slightly "overpump" grout into the subsurface. This will ensure that all voids are filled during sampler retrieval.

   The grouting process can lubricate the probe hole sufficiently to cause the tool string to slide back downhole when disconnected from the pull cap. Prevent this by withdrawing the tool string with the rod grip puller while maintaining a connection to the grout machine with the pull cap.

4.9 Retrieving the Screen Point 15 Sampler

If grouting is not required, the Screen Point 15 Sampler can be retrieved by pulling the probe rods as with most other Geoprobe® applications. The Rod Grip Pull System should be used for this process as it allows the operator to remove rods without completely releasing the tool string. This avoids having the probe rods fall back downhole when released during the pulling procedure. A standard Pull Cap (AT1204) may still be used if preferred. Refer to the Owner's Manual for your Geoprobe® direct push machine for specific instructions on pulling the tool string.

5.0 REFERENCES

American Society of Testing and Materials (ASTM), 2003. D6771-02 Standard Practice for Low-Flow Purging and Sampling for Wells and Devices Used for Ground-Water Quality Investigations. ASTM, West Conshocken, PA. (www.astm.org)

American Society of Testing and Materials (ASTM), 1993. ASTM 5299 *Standard Guide for Decommissioning of Groundwater Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities.* ASTM West Conshohocken, PA. (www.astm.org)

Geoprobe Systems®, 2003, *Tools Catalog, V.6.*

Geoprobe Systems®, 2006, *Model MB470 Mechanical Bladder Pump Standard Operating Procedure (SOP), Technical Bulletin No. MK3013.*

Puls, Robert W., and Michael J. Barcelona, 1996. Ground Water Issue: Low-Flow (Minimal Drawdown) Ground Water Sampling Procedures. EPA/540/S-95/504. April.

U.S. Environmental Protection Agency (EPA), 2003. Environmental Technology Verification Report: Geoprobe Inc., Mechanical Bladder Pump Model MB470. Office of Research and Development, Washington, D.C. EPA/600R-03/086. August.

Appendix A
ALTERNATIVE PARTS

The following parts are available to meet unique soil conditions. See section 3.0 for a complete listing of the common tool configurations for the Geoprobe® Screen Point 15 Groundwater Samplers.

SP15 Sampler Parts and Accessories	**Part Number**
SP15 Drive Head, 0.5-inch bore, 1.25-inch rods	GW1513
SP15 Drive Head, 0.625-inch bore, 1.5-inch rods	14998
SP15 Drive Head, 1.0-inch rods	GW1515
Expendable Drive Points, aluminum, 1.625-inch OD (Pkg. of 25)	GW1555ALK
Expendable Drive Points, steel, 1.75-inch OD (Pkg. of 25)	17066K
Screen, PVC, 10-Slot	GW1530
Screen, Disposable, PVC, 10-Slot	16089

Groundwater Purging and Sampling Accessories	**Part Number**
Polyethylene Tubing, 0.25-inch OD, 500 ft	TB17L
Polyethylene Tubing, 0.5-inch OD, 500 ft	TB37L
Check Valve Assembly, 0.25-inch OD Tubing	GW4240
Check Valve Assembly, 0.5-inch OD Tubing	GW4220
Check Valve Assembly, 0.625-inch OD Tubing	GW4230
Water Level Meter, 0.375-inch OD Probe, 100-ft. cable	GW2001
Water Level Meter, 0.438-inch OD Probe, 200-ft. cable	GW2002
Water Level Meter, 0.375-inch OD Probe, 200-ft. cable	GW2003
Water Level Meter, 0.438-inch OD Probe, 30-m cable	GW2005
Water Level Meter, 0.438-inch OD Probe, 60-m cable	GW2007
Water Level Meter, 0.375-inch OD Probe, 60-m cable	GW2008

Grouting Accessories	**Part Number**
Grout Machine, auxiliary-powered	GS500

Probe Rods, Extension Rods, and Accessories	**Part Number**
Probe Rod, 1.25-inch x 36-inch	AT1236
Probe Rod, 1.25-inch x 1-meter	AT1239
Probe Rod, 1.5-inch x 1-meter	17899
Probe Rod, 1.5-inch x 48-inch	13359
Drive Cap, 1.5-inch rods (for GH40 Series Hammer)	15590
Rod Grip Pull Handle, 1.5-inch Probe Rods (for GH40 Series Hammer)	GH1555
Extension Rod, 36-inch	AT67
Extension Rod, 1-meter	AT675

Equipment and tool specifications, including weights, dimensions, materials, and operating specifications included in this brochure are subject to change without notice. Where specifications are critical to your application, please consult Geoprobe Systems®.

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Appendix D

Hampton Bays Fire District PFC Investigation

Sample and QA/QC Summary Table

Matrix Type	Anticpated Number of Samples	Analysis Method	Holding Time	Glassware	QA/QC Samples	QA/QC Frequency
Soil	6	EPA Method 537	60 Days	6oz HDPE	Trip Blank, Field Blank, Blind Duplicate, MS/MSD	1 per 20 samples (one per SDG for trip and field blanks)
Groundwater	18	EPA Method 537	14 Days	(2) 125ml HDPE	Trip Blank, Field Blank, Blind Duplicate, MS/MSD	1 per 20 samples (one per SDG for trip and field blanks)

PFC Compounds and Detection Limits

EPA Method 537 Solid		EPA Method 537 Aqueous	
Analyte	**QL (ng/g)**	**Analyte**	**QL (ng/L)**
PFBA	2	PFBA	4
PFPeA	2	PFPeA	4
PFBS	2	PFBS	4
PFHxA	2	PFHxA	4
PFHpA	2	PFHpA	4
PFHxS	2	PFHxS	4
6:2-FTS	2	6:2-FTS	4
PFOA	2	PFOA	4
PFHpS	2	PFHpS	4
PFOS	2	PFOS	4
PFNA	2	PFNA	4
PFDA	2	PFDA	4
8:2-FTS	2	8:2-FTS	4
PFOSA	2	PFOSA	4
PFDS	2	PFDS	4
PFUnA	2	PFUnA	4
PFDoA	2	PFDoA	4
MeFOSA	10	MeFOSA	20
MeFOSE	10	MeFOSE	20
PFTrDA	2	PFTrDA	4
EtFOSA	10	EtFOSA	20
EtFOSE	10	EtFOSE	20
PFTeDA	2	PFTeDA	4
PFHxDA	2	PFHxDA	4
EtFOSAA	10	EtFOSAA	20
MeFOSAA	10	MeFOSAA	20

Appendix E

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Merrick, NY 11566
516-223-9761 FAX 516-223-0983

EXPERIENCE

PREMIER ENVIRONMENTAL SERVICES, Merrick, New York

1993-Present Perform organic and inorganic data validation according to the various protocols from the USEPA EPA CLP, NYS ASP and USEPA Test Methods for the Evaluation of Solid Waste, Methods for the Chemical Analysis of Water and Waste and the Federal Register. Use the USEPA National Functional Guidelines for Organic and Inorganic Data Validation (where applicable) as well as State (NYS DEC ASP/DUSR) and EPA Region requirements to report on laboratory data quality and data usability. Review and write Quality Assurance Project Plans using Regional and State guidelines for Remedial Investigations, Ground Water Monitoring programs and Superfund Programs. Review data and work plans as they relate to project data quality objectives. Conducts seminars on client specific topics. Perform on-site laboratory QA/QC audits as required by the client and site-specific work plans. Has performed ASTM Phase 1 Assessments for engineering firms when requested.

ENVIRONMENTAL QUALITY SERVICES, INC., Farmingdale, New York

1/2011-8/11 QA Manager
(25 hrs/wk) Perform the data review and report compilation of organic and inorganic data for report preparation. Review data for compliance with method as well as data quality objectives for specific client work plans. Perform departmental audits in compliance with NELAC and internal lab mandates. Revise laboratory logbooks for bench chemists. Revised/updated laboratory SOP's for method compliance. Participate in on-site audits by both state representatives and commercial clients. Coordinate PT studies for analyte certification for laboratory certifications. Insure analyte certification for client project requirements. Responsible for the review of new and/or updated method and implementation of these methods within the laboratory.

ENVIRONMENTAL TESTING LABORATORIES, Farmingdale, New York

8/2010-12/2010 QA Manager
(25-30 hrs/wk) Perform the data review and report compilation of organic and inorganic data for report preparation. Perform departmental audits in compliance with NELAC and internal lab mandates. Revise laboratory logbooks for bench chemists. Revised/updated laboratory SOP's for method compliance. Participate in on-site audits by both state representatives and commercial clients. Coordinate PT studies for analyte certification for laboratory certifications. Insure analyte certification for client project requirements.

SOUTH MALL ANALYTICAL LABORATORIES, Plainview, New York

10/2004-12/2009 QA Manager (Part Time)
(10 hrs/wk) Responsible for the overall QA program at the laboratory. Revised, updated and prepared SOP's for method compliance. Wrote and prepared the annual updates to laboratory Quality Assurance Manual. Perform audits of laboratory systems and methods. Prepare corrective action reports and follow-up to audit deficiencies. Oversee client and agency on-site audits. Contact with clients to discuss sampling plans, regulations, and required analyses. Perform the data review and report compilation of organic and inorganic data for reporting. Revised all laboratory logbooks and methods to comply with EPA and method guidelines. Handled document control of logbooks, SOP's, QAPP's. Performed annual data integrity and ethics seminars for all employees. Report directly to senior management.

ENVIRONMENTAL TESTING LABORATORIES, Farmingdale, New York

5/2002-10/2003 QA Specialist

(20-24 hrs/wk) Performed the data review and report compilation of organic and inorganic data for report preparation. Performed departmental audits in compliance with NELAC and internal lab mandates. Helped to revise laboratory logbooks for bench chemists. Revised/updated laboratory SOP's for method compliance. Participated in on-site audits by both state representatives and commercial clients.

KEYSPAN LABORATORY SERVICES, Brooklyn, New York

2/1999-5/2002 Consultant

Developed laboratory QAPP (in accordance with NELAC) and Chemical Hygiene Plan. Modified and updated laboratory SOP's. Perform audits in the different work areas. Maintained the NYS DOH proficiency program for analytes of interest. Review data for completeness and QC criteria. Implemented client inquiry system. Performed QC training and method training for bench and field chemists. Developed protocols and documentation for field PCB wipe sampling. Responsible for update/maintenance of laboratory state certifications and approvals.

NYTEST ENVIRONMENTAL INC., Port Washington, New York

1994-1998 Quality Assurance Officer

Responsible for the overall quality program at the laboratory. This included the auditing test methods, systems and data reporting. Performed the review of 10% of all data reports prior to submission to client. Oversaw the training program of new employees. Maintain the documentation of the training records. Review and maintain state certification paperwork and SOP files. Update and file annual MDL datum. Worked with sales and customer service to insure that client needs are met. Respond to client data inquires. Work with state and federal auditors for review of laboratory to receive certification. Successfully lead the laboratory to an Army Corp of Engineer validation.

1989-1993 **ENSECO EAST, Somerset, New Jersey**

QA/QC Scientist - Performed organic and inorganic audits of the laboratory. Performed and coordinated corrections and revisions to data reports. Wrote and reviewed laboratory Quality Assurance Project plans (QAPjP's) for client specific projects. Developed and led seminars for both client and employees on a number of topics including; data quality objectives, data review vs. data validation and laboratory QC. Interacted with clients, project managers and state personnel for regulatory concerns and data/lab issues. Performed lab audits for method compliance and project specific requirements. Acted as the Technical Representative for Ensecos EPA 3/90 Organic CLP Contract.

1988-1989 **INTECH BIOLABS, East Brunswick, New Jersey**

QA/QC Manager - Responsible for the review of all organic and inorganic data. Performed general laboratory and safety audits. Recorded and charted all QA/QC data. Reviewed and assembled all CLP organic data reports.

1986-1988 **INTERNATIONAL TECHNOLOGIES CORPORATION, Edison, New Jersey**
Central Laboratory Chemist - REAC and EERU Contract for the Emergency Response Branch (ERB) of the USEPA. Responsible for the organic and inorganic extraction of environmental samples according to EPA Methods. This included both metals digestion as well as organic extraction's for semivolatiles, pesticides and PCB's. Performed Volatile Organic analyses using Gas Chromatography, Total Petroleum Hydrocarbon Analysis by IR, Metal Analyses by both Graphite Furnace AA and ICP. Field experience included s on site analyses for both metals and GC volatiles.

1985-1986 **U.S. TESTING COMPANY, Hoboken, New Jersey**
Chemist - Responsible for the digestion and analysis of both soil and aqueous samples for metals according to USEPA CLP and SW 846 protocols. Responsible for the analysis of sample digestates using the Varian Graphite Furnace Atomic Absorption Spectrophotometer and a Jerall Ash ICP-61.

Education

B.S. Environmental Science, December 1984
B.S. Biology, May 1984
Old Dominion University, Norfolk, Virginia

20 hours of Chemistry coursework

Graduate Coursework - Rutgers University, New Brunswick, New Jersey
Long Island University at C.W. Post, Glen Cove, New York

Continuing Education

Good Laboratory Practice (GLP) - June 1992, Center for Professional Development, East Brunswick, New Jersey

40 Hour Course, Region II-Edison, NJ (1987)
24 Hour Refresher Course (1988, 1989, 1991)

References

Available upon request.