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SEATTLE  
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ANCHORAGE  
DENVER  
SAINT LOUIS  
BOSTON

June 30, 2010

Alaska Department of Environmental Conservation  
555 Cordova Street  
Anchorage, Alaska 99501

**RECEIVED**  
**JUL 7 2010**  
ADEC SPAR - RFA  
Contract Management Section

Attn: Mr. Bill O'Connell

**RE: FREE-PHASE PRODUCT RECOVERY, FORMER MARKAIR FACILITY, KING SALMON, ALASKA**

This letter report presents results of Shannon & Wilson, Inc.'s (Shannon & Wilson's) free-phase product recovery activities conducted at the former MarkAir Facility in King Salmon, Alaska. The project purpose was to recover product from up to five groundwater monitoring wells that have historically contained measurable thickness of product.

This work was conducted under Shannon & Wilson's Alaska Department of Environmental Conservation (ADEC) Term Contract, Division of Spill Prevention and Response No. 18-9028-14. Authorization to proceed with this project was received on September 8, 2008, with Notice to Proceed (NTP) No. 18-9028-14-99. The project NTP was amended to extend the expiration date on June 19, 2009, with NTP No. 18-9028-14-99B. The work was conducted in material accordance with Shannon & Wilson's January 8, 2008 ADEC-approved work plan prepared for the project site.

### **BACKGROUND**

The subject site is located west of the apron on Lot 2 Block 1 of the King Salmon Airport. A vicinity map is included as Figure 1, and approximate monitoring well locations and general site features are shown in Figure 2. Based on the information provided in ADEC documents and our knowledge of the site, a bulk fuel storage facility and other above and below ground fuel storage tanks were previously located on an unpaved portion of the property. Contamination at the site is likely the result of leaks and spills from the various fuel storage tanks. Previous investigations identified petroleum impacted soil and groundwater at the site, including up to 5.45 feet of free-phase product floating on the water table.

Under an ADEC contract in January 2008, Shannon & Wilson installed passive bailers and a passive skimmer to recover product from the on-site wells. Passive bailers were installed

in Monitoring Wells B4MW and B5MW and a passive skimmer was placed in Monitoring Well B9MW.

### **Free-Phase Product Recovery and Disposal**

The project scope was to recover free-phase product from select monitoring wells on regular basis using the passive bailers and passive skimmer installed in early 2008. Orin Williams of ODW and Sons Construction, located in King Salmon, was scheduled to conduct most of the product monitoring and recovery efforts. However, Mr. Williams chose not to continue providing the proposed services after conducting a few site visits and monitoring events. Shannon & Wilson's search was not successful to locate and hire a local contractor who is qualified and willing to assist in product monitoring and recovery efforts. As a result, the product monitoring and recovery efforts during the 2008 and 2009 field seasons were limited to recoveries conducted by Shannon & Wilson representatives who traveled to King Salmon for different projects. Based on monitoring results, the highest free-phase product thickness of 5.82 feet was measured in Well B9MW. Most of the 50 gallons of product recovered from the three monitored wells, Wells B4MW, B5MW, and B9MW, was generated from Well B9MW. The recovered product was stored in one 55-gallon drum.

The 50 gallons of product generated from the three monitored wells during the recovery efforts conducted in 2008 and 2009 were transported via air cargo to Anchorage and recycled/disposed by Emerald Alaska, Inc. The ADEC-approved transport letter and certificate of disposal are included in Attachment 1.

### **Closure/Limitations**

This report was prepared for the exclusive use of our client and their representatives in the study of this site. The findings we have presented within this report are based on the limited scope of work. The data presented in this report should be considered representative of the time of our site assessment. Changes in site conditions can occur over time, due to natural forces or human activity. In addition, changes in government codes, regulations, or laws may occur. Because of such changes beyond our control, our observations and interpretations may need to be revised. Shannon & Wilson has prepared the documents in Attachment 2, "Important Information About Your Geotechnical/Environmental Report", to assist you and others in understanding the use and limitations of our reports.

Former Mark Air Facility, King Salmon, Alaska  
June 30, 2010  
Page 3

SHANNON & WILSON, INC.

Copies of documents that may be relied upon by our client are limited to the printed copies (also known as hard copies) that are signed or sealed by Shannon & Wilson with a wet, blue ink signature. Files provided in electronic media format are furnished solely for the convenience of the client. Any conclusion or information obtained or derived from such electronic files shall be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, or you question the authenticity of the report please contact the undersigned.

We appreciate the opportunity to be of service. Please call Matt Hemry, P.E. or the undersigned at (907) 561-2120 with questions or comments concerning this report

Sincerely,

**SHANNON & WILSON, INC.**

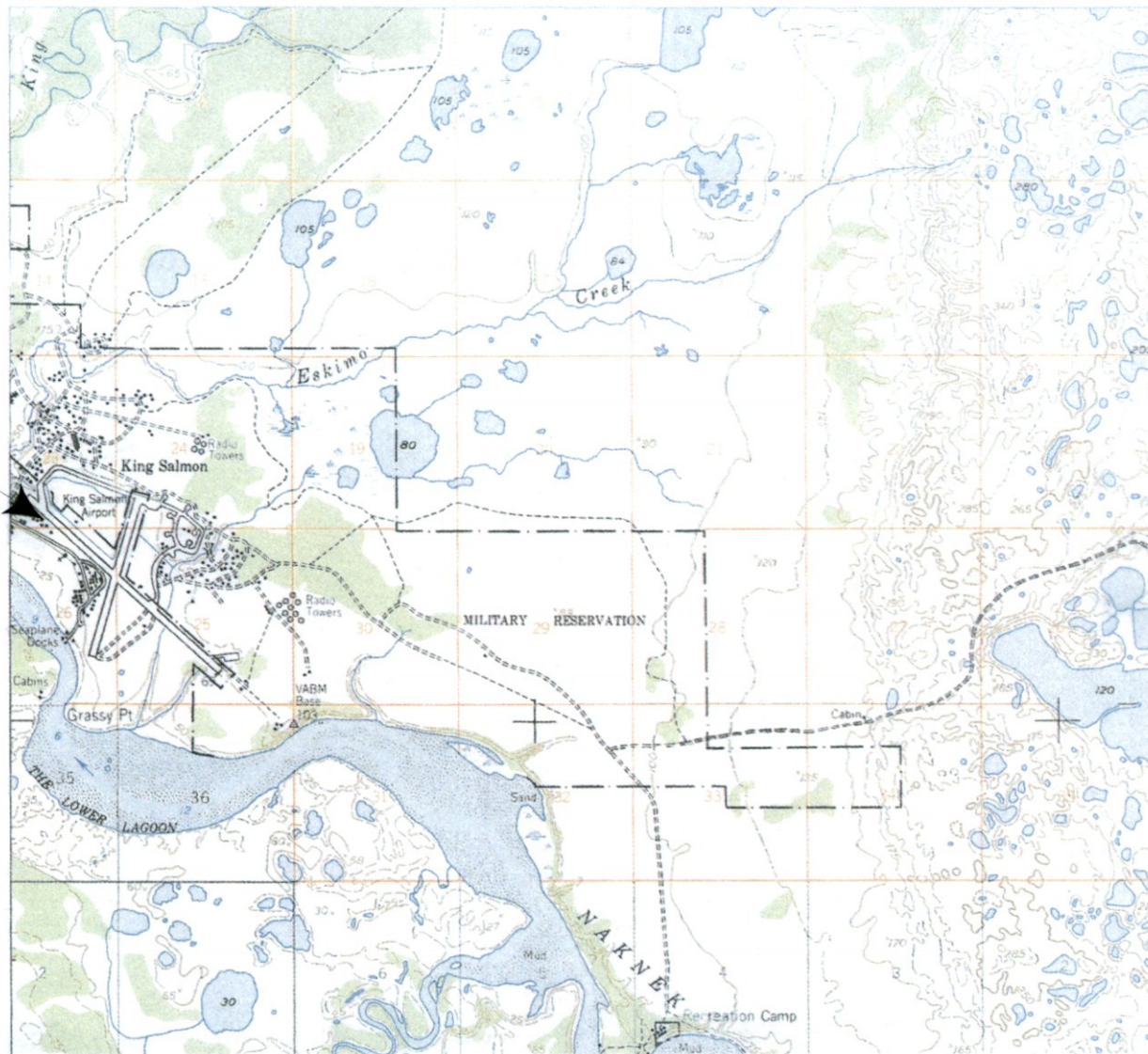


Haydar Turker  
Principal Engineering Geologist

Encl: Figures 1 and 2 and Attachments 1 and 2

32-1-17189-102

Approximate  
Site Location



Taken from Naknek C-2  
U.S. Geological Survey Quadrangle  
50 Foot Contour Interval



Former MarkAir Facility  
King Salmon, Alaska

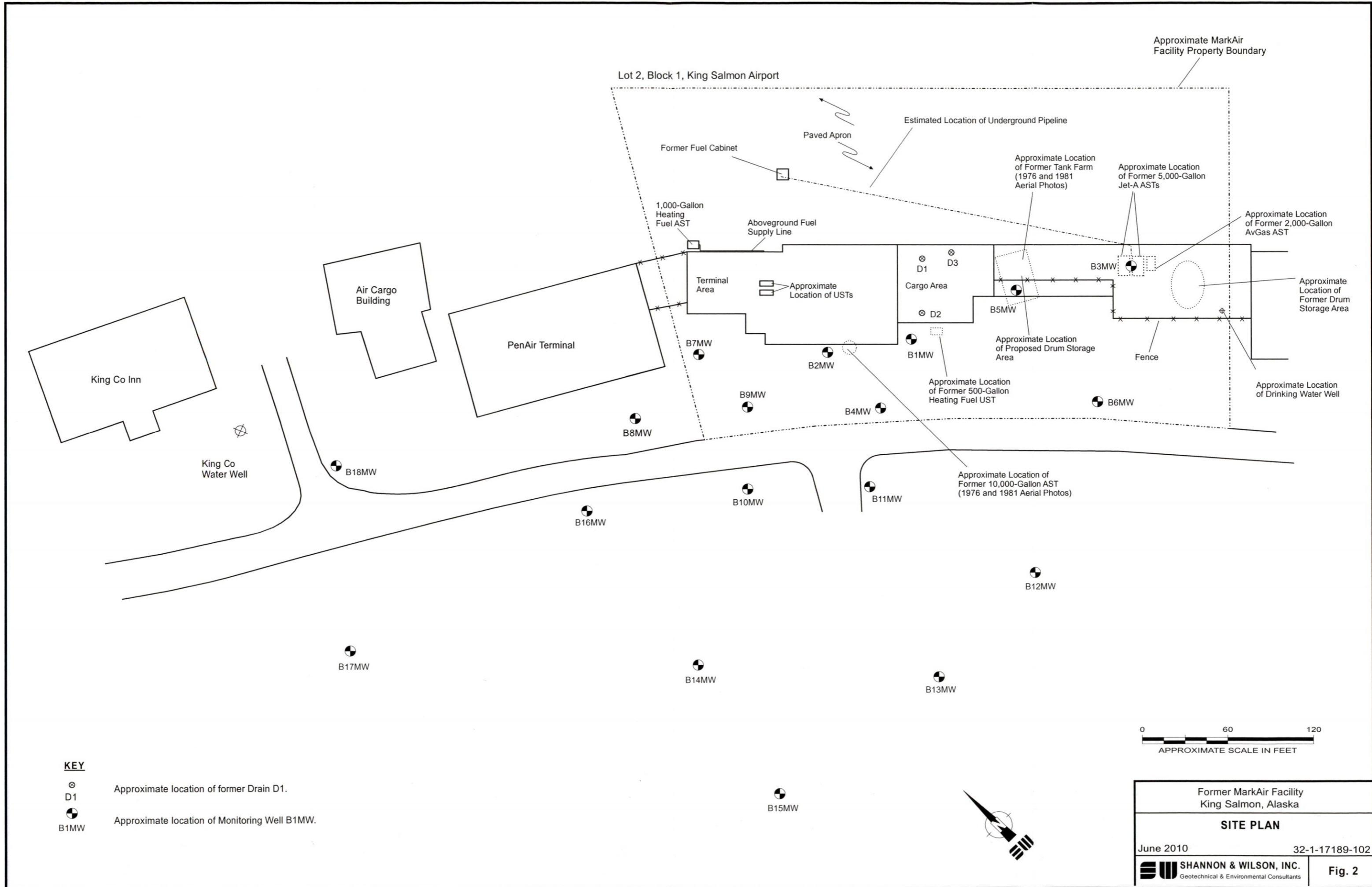
**VICINITY MAP**

June 2010

32-1-17189-102

 **SHANNON & WILSON, INC.**  
Geotechnical & Environmental Consultants

**Fig. 1**



**KEY**

⊗ D1 Approximate location of former Drain D1.

⊕ B1MW Approximate location of Monitoring Well B1MW.

0 60 120  
 APPROXIMATE SCALE IN FEET

Former MarkAir Facility King Salmon, Alaska	
<b>SITE PLAN</b>	
June 2010	32-1-17189-102
SHANNON & WILSON, INC. Geotechnical & Environmental Consultants	Fig. 2

**ATTACHMENT 1**

**PRODUCT TRANSPORT AUTHORIZATION**

**AND**

**CERTIFICATE OF DISPOSAL DOCUMENTATION**

October 22, 2009

Alaska Department of Environmental Conservation  
555 Cordova Street  
Anchorage, Alaska 99501

Attn: Mr. Bill O'Connell

**RE: REQUEST TO TRANSPORT AND RECYCLE/DISPOSE FREE-PHASE  
PRODUCT, FORMER MARKAIR FACILITY, KING SALMON, ALASKA**


On behalf of our client, the Alaska Department of Environmental Conservation (ADEC), Shannon & Wilson is requesting the ADEC's approval to transport and recycle/dispose free-phase product that was generated during the product recovery efforts performed at the above referenced site.

The approximately 45 gallons of free-phase product is currently stored in one 55-gallon drum. The 55-gallon drum of free-phase product will be transported via air cargo to Anchorage and recycled/disposed by Emerald Alaska.

The ADEC can indicate approval for transportation and recycling/disposal of the product by signing the line at the bottom of this letter and returning a copy to Shannon & Wilson. Please contact the undersigned with questions or comments regarding this request.

Sincerely,

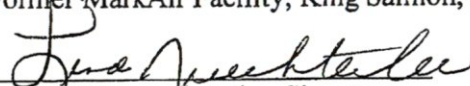
**SHANNON & WILSON, INC.**



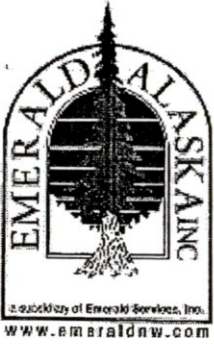
Haydar Turker  
Principal Engineering Geologist

**APPROVAL**

I approve the proposed transporting and recycling/disposal of the free-phase product from the Former MarkAir Facility, King Salmon, Alaska.

By:  Date: 10/23/09  
ADEC Representative Signature

Printed Name and Title: Linda Nuechterlein, Environmental Manager



# CERTIFICATE OF DISPOSAL/RECYCLE

**GENERATOR:** ADEC - MARK AIR

KING SALMON      AK 99613

**DISPOSAL FACILITY:** EMERALD ALASKA, INC.

2020 VIKING DRIVE  
ANCHORAGE      AK 99501

**EPA ID NUMBER:**                      EXEMPT  
**MANIFEST/DOCUMENT #:**        10783  
**DATE OF DISPOSAL/RECYCLE:** 11/11/2009

<u>LINE</u>	<u>WASTE DESCRIPTION</u>	<u>CONTAINERS</u>	<u>TYPE</u>	<u>QUANTITY</u>	<u>UOM</u>
1A	DIESEL FUEL	1	DM55	50	G
1B	GROUNDWATER / IDW WATER	2	DM55	105	G

**PREPARED BY:** MOISES ARAGONA

**SIGNATURE:** \_\_\_\_\_

**DATE:** 11/11/2009

*Your Local Partner for Recycling Environmental Services*



**ATTACHMENT 2**

**“IMPORTANT INFORMATION ABOUT YOUR  
GEOTECHNICAL/ENVIRONMENTAL REPORT”**



Date: June 30, 2010  
To: Mr. Bill O'Connell, ADEC  
Re: Former MarkAir, King Salmon, AK

## **Important Information About Your Geotechnical/Environmental Report**

### **CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.**

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

### **THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.**

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors, which were considered in the development of the report, have changed.

### **SUBSURFACE CONDITIONS CAN CHANGE.**

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

### **MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.**

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

## **A REPORT'S CONCLUSIONS ARE PRELIMINARY.**

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

## **THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.**

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

## **BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.**

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

## **READ RESPONSIBILITY CLAUSES CLOSELY.**

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the  
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland