APPENDIX A GEOPHYSCIAL SURVEY





June 2, 2015

Our ref: 105-0526.000

Maul Foster & Alongi, Inc. 400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660

Attention: Mr. Kyle Roslund

RE: REPORT FOR LOCATING BURIED UNDERGROUND STORAGE TANK AT 500 N CUSTER STREET, ABERDEEN, WA

This letter report presents the results of the geophysical survey performed by Global Geophysics on May 21st, 2015 at 500 N Custer Street, Aberdeen, WA. The objectives of the studies are to locate underground storage tank.

METHODOLOGY, INSTRUMENTATION AND FIELD PROCEDURES

Ground penetrating radar was used for this project.

Ground Penetrating Radar

The GPR method uses electromagnetic pulses, emitted at regular intervals by an antenna to map subsurface features. The electromagnetic pulses are reflected where changes in electrical properties of materials occur such as changes in lithology or where underground UST are present. The reflected electromagnetic energy is received by an antenna, converted into an electrical signal, and recorded on the GPR unit. The data is recorded and viewed in real time on a graphical display that depicts a continuous profile or cross-section image of the subsurface directly beneath the path of the antenna.

The depth of penetration of the GPR signal varies according to antenna frequency and the conductivity of the subsurface material. The depth of subsurface penetration with GPR decreases with an increase in the frequency of the antenna and an increase in soil conductivity. Low frequency antennas (50 to 500 MHz) provide the best compromise between obtaining good subsurface penetration and resolution.

The data at this site were collected using Geophysical Survey Systems, Inc. (GSSI) SIR 2000 GPR system with an antenna having center frequency of 200 MHz. The data were digitally recorded for post processing.

RESULTS

The GPR data were collected and processed. The GPR anomalies and profiles are presented in Figure 1, Figures 2A-2X, Figure 3, Figures 4A-4F. The followings summarize the findings:

2

- Nine GPR anomalies are interpreted as possible USTs.
- GPR anomalies in linear alignment are interpreted as unknown utilities or buried objects.

LIMITATIONS

Global Geophysics's services are conducted in a manner consistent with the level of care and skill ordinarily exercised by other members of the geophysical community currently practicing under similar conditions subject to the time limits and financial and physical constraints applicable to the services. Ground penetrating radar (GPR) is a remote sensing geophysical method that may not detect all subsurface objects. Furthermore, it is possible that geophysical anomalies that are interpreted to be USTs may upon intrusive sampling prove to be misinterpreted.

If you have any questions or require additional information, please contact us at 425-890-4321.

Sincerely,

Global Geophysics

Jomes

John Liu, Ph.D. Principal Geophysicist



Legend:



Interpreted GPR anomaly Unknown utility

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PROJECT 500 N Custer Street GPR Survey TITLE Site 1: GPR Lines N S PROJECT NO.: 105-0526.000 FILE No. **Global Geophysics** DESIGN SCALE AS SHOWN REV ---11833 204th Avenue NE Redmond, WA, 98073 Tel: 425-890-4321 CADD JL. CHECK JL **FIGURE 2-E**



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500 N Custer Street GPR Survey



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500 N Custer Street GPR Survey



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500 N Custer Street GPR Survey



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500 N Custer Street GPR Survey

500 N Custer Street GPR Site 2 Map



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Interpreted GPR anomaly Unknown utility



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500 N Custer Street Guard Station N to S GPR





500 N Custer Street Guard Station N to S GPR





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500 N Custer Street Guard Station E to W GPR





500 N Custer Street Guard Station E to W GPR



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500 N Custer Street Guard Station E to W GPR

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APPENDIX B HEALTH AND SAFETY PLAN



HEALTH AND SAFETY PLAN

ABERDEEN SAWMILL SITE, INCLUDING WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES AQUATIC LANDS LEASE NO. 22-A02150 500 NORTH CUSTER STREET ABERDEEN, WASHINGTON

Prepared for GRAY'S HARBOR HISTORICAL SEAPORT AUTHORITY

August 6, 2015 Project No. 0863.01.09

Prepared by Maul Foster & Alongi, Inc. 411 First Avenue South, Suite 610, Seattle WA 98104



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The material and data in this report were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI, INC.

Madi Warah

Madi Novak Senior Environmental Scientist

Michael Murray Project Environmental Scientist

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APPENDIX B

MARINE AND BOAT SAFETY STANDARD OPERATING PROCEDURE

APPENDIX C

VEHICLE SAFETY STANDARD OPERATING PROCEDURE AND ACCIDENT REPORT FORM



Directions to Grays Harbor Community Hospital 915 Anderson Dr, Aberdeen, WA 98520 3.6 mi – about 10 mins



	1. Head south on N Custer St toward W Curtis St	go 135 ft total 135 ft
(101	2. Take the 1st right onto US-101 N/W Curtis St Continue to follow US-101 N About 3 mins	go 1.0 mi total 1.0 mi
٦	3. Turn left onto E Wishkah St About 3 mins	go 0.6 mi total 1.6 mi
Ŋ	 4. Turn right onto S Alder St About 1 min 	go 0.5 mi total 2.1 mi
5	5. Slight left onto Sumner Ave About 2 mins	go 0.9 mi total 2.9 mi
Ŋ	 6. Turn right onto Oak St About 1 min 	go 0.5 mi total 3.4 mi
	7. Continue onto Anderson Dr Destination will be on the right	go 0.2 mi total 3.6 mi
P	Grays Harbor Community Hospital 915 Anderson Dr. Aberdeen, WA 98520	

differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2013 Google

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

1 NEAREST HOSPITAL/EMERGENCY MEDICAL CENTER

1.1 Nearest Hospital

Grays Harbor Community Hospital 915 Anderson Dr. Aberdeen, WA 98520

Phone: (360) 532-8330 Distance: 3.6 miles Travel Time: 10 minutes

1.2 Emergency Route to Hospital

See first page of document.

1.2.1 Driving Directions

- 1. Head south on N Custer St toward W Curtis St
- 2. Take the 1st right onto US-101 N/W Curtis St, Continue to follow US-101 N
- 3. Turn left onto E Wishkah St
- 4. Turn right onto S Alder St
- 5. Slight left onto Sumner Ave
- 6. Turn right onto Oak St
- 7. Continue onto Anderson Dr., Destination will be on the right

1.3 Emergency Phone Numbers

Ambulance, Police, Fire	Dial 911
Madi Novak	Phone: (503) 501-5212
Project Manager	Cell: (971) 227-1060
Michael Murray	Phone: (503) 501-5226
Project Environmental Scientist	Cell: (503) 310-0435
Bill Beadie	Phone: (503) 501-5237
Health and Safety Coordinator	Cell: (503) 740-6847

2 PROJECT INFORMATION

Date: July 23, 2015
Project: 0863.01.07 and 0863.01.09
Site: Aberdeen Sawmill Site, including Washington State Department of Natural Resources Aquatic Lands Lease No. 22-092275
Location: Aberdeen, Washington
Project Manager: Madi Novak
Prepared By: Roxanne Degens

3 KEY PROJECT PERSONNEL

3.1 Site Work Team

Name	Responsibility
Madi Novak	Project Manager
Michael Murray	Field Personnel
Bill Beadie	Health and Safety Coordinator
Roxanne Degens	Field Personnel

3.2 Entry Briefing Date

First day of on-site work.

3.3 Special Conditions (e.g., work schedule or limitations)

Any work performed at night must be performed with lights mounted on stands (or equivalent) and using the "buddy system."

Maul Foster & Alongi, Inc. (MFA) personnel are not allowed to perform site activities alone after dark.

3.4 Required Training

MFA employees as well as any contractor employees assigned to perform field activities covered by this procedure must be currently approved for hazardous-waste fieldwork, including:

• Current medical clearance to conduct hazardous-waste fieldwork

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- Completion of training as required by Title 29 Code of Federal Regulations (CFR) 1910.120(e), including:
 - Forty hours of hazardous-waste worker basic instruction within the last 12 months, or
 - Eight hours of hazardous-waste worker refresher training within the last 12 months, subsequent to completion of 40 hours of basic hazardous-waste worker training

3.5 Special Training

Copies of all required training certificates and current medical surveillance certificates must be compiled before site entry. This information must also be provided to MFA by all subcontractors for their on-site personnel.

4 PROJECT DESCRIPTION

MFA has prepared this Health and Safety Plan (HASP) for the uplands property and the leased property (Washington State Department of Natural Resources Aquatic Lands Lease No. 22-A02150 in Aberdeen, Washington). These properties are collectively herein referred to as the site. The physical address of the site is 500 North Custer Street, Aberdeen, Washington. The leased property, on the Chehalis River in Grays Harbor County, is being leased from the Washington State Department of Natural Resources (DNR) by Weyerhaeuser under Lease No. 22-A02150. This HASP has been prepared to instruct MFA personnel working on site. Any clients, contractors or subcontractors involved in the scope of work for this HASP are responsible for developing their own HASPs to ensure that proper health and safety procedures are followed by their personnel.

The site is located in section 10, township 17 north, range 9 west of the Willamette Meridian.

MFA will be conducting soil and groundwater sampling within the uplands area, and sediment sampling activities in the Chehalis River within the site.

The purpose of this plan is to provide information to minimize the potential for adverse exposures or injuries while performing work on the site. A combination of personal protective equipment (PPE), engineering controls, and safe work practices will be used to minimize the risk of physical injuries and chemical exposures. All personnel are advised that this field project may result in exposure to chemical and physical hazards, and that this plan must be followed to minimize and/or eliminate these risks.

The procedures and requirements contained in this plan are intended for MFA personnel performing field activities. All MFA field personnel are responsible for understanding and adhering to this HASP, and should also be alert to any unsafe conditions or practices that may affect their safety. Each day before beginning fieldwork, a site safety officer (SSO) who is familiar with health and safety procedures and the site will be designated by the on-site MFA personnel. All subcontractors have the primary responsibility for the safety of their own personnel on the site. Any safety deficiencies should

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be immediately communicated to the SSO and to the health and safety coordinator (HSC). If personnel safety is threatened, the SSO, project manager, or MFA HSC must be contacted immediately.

All personnel who will be working on site are required to read and understand this HASP. All personnel entering the work area must sign the Personnel Acknowledgment Sheet (Section 11), certifying that they have read and understand this HASP and agree to abide by it.

4.1 Scope of Work

The MFA scope of work for this project includes the following activities:

- Soil and reconnaissance groundwater sampling in the uplands portion of the property. Borings will be collected using direct-push drilling techniques (see Appendix A).
- In-river and shore based sediment sampling in the leased property. The majority of the work will be conducted within approximately 100 feet of the Chehalis River shoreline. Drill rigs and/or vibracore devices will be used to assist in sample collection.

NOTE: This HASP must be reevaluated and updated annually or when site conditions or scope of work changes.

5 FACILITY DESCRIPTION AND BACKGROUND

5.1 Type of Facility

The site includes uplands property and state-owned aquatic lands located in the Chehalis River in Grays Harbor County. The site encompasses approximately 38 acres of combined uplands and leased in-water area.

5.2 Building/Structures

Some buildings and structures from the former sawmill operations conducted at the site remain. In January 2009 the small log sawmill on the property was permanently closed. In 2006, the Big Mill and attached finger pier were closed; the associated structures were removed from the site between 2006 and 2008. This area is now known as the Former Mill Area. In the Former Mill Area, there is an approximately 100-by-200-foot exposed area at low tide, and this area is inundated to an existing bulkhead wall at high tide. Immediately upstream of the Former Mill Area is the Filled Tidelands area, and immediately downstream is the Dock Area containing buildings and a dock structure. There are no active wood products manufacturing operations at the site.

5.3 Access

The uplands property is accessible by foot and via N. Custer St. for vehicular traffic. The leased property is accessible via watercraft and may be accessible by foot during low-tide.

5.4 Topography

The site is situated on the relatively flat lowlands adjacent to the Chehalis River.

5.5 General Geologic/Hydrologic Setting

The site is located in the alluvial meander plain of the Chehalis River in the northwestern margins of the Willipa Hills physiographic region of southwest Washington.

5.6 Site Status

Sawmill operations no longer occur at the site. It is currently used at the headquarters for the GHHSA and activities include administration and marine vessel maintenance.

5.7 Site History

A sawmill has existed on the site since before 1900. Weyerhaeuser acquired the site in 1955. In 2006, the Big Mill and attached finger pier were closed; the associated structures were removed from the site between 2006 and 2008. When the facility was operational, raw logs were brought to the site in log rafts in the Chehalis River and tied up to pilings in the river in front of the Big Mill until the mid-1960s. After the mid-1960s, raw logs were brought to the site by truck and staged on log decks at various locations in and adjacent to the site. The Big Mill was originally configured to manufacture shingles and slats for housing construction. During World War II, the Big Mill was converted to manufacture ship keels for the war effort. The site continued to operate a second mill, known as the small log mill, into early 2009. GHHSA acquired the property on March 29, 2013.

5.8 Special Conditions/Comments

Work over or adjacent to a waterway poses potential safety hazards. Workers must wear a U.S. Coast Guard-approved life vest while conducting sediment sampling or working along the shoreline.

Drill rigs and/or vibracore devices will be used over and adjacent to water from support vessels.

Commercial and recreation Chehalis River traffic pose a potential safety hazard. Workers should be aware of other water uses.

6.1 Hazardous Substances

Are hazardous substances known to have been stored/spilled on site?

X YES NO

6.2 Special Considerations/Comments

Before any site work, a copy of this HASP must be read and the Acknowledgment page signed.

HAZARD EVALUATION

The following subsections describe the potential physical and chemical hazards associated with implementing this project. The control measures that field personnel must use to eliminate or minimize these hazards, such as air monitoring, PPE, and decontamination procedures, are detailed in subsequent sections of this plan.

7.1 Physical Hazards

Potential physical hazards in site operations include:

- Vehicular traffic, including commercial and recreational river traffic
- Equipment and machinery (drill rigs)
- Fire/explosion
- Falling objects/loads
- Water/drowning hazards
- Uneven walking surfaces
- Noise

7.2 Electrical/Mechanical/Vapor Systems

MFA employees will not be working on electrical or mechanical systems. The contractor will be responsible for administering lockout/tagout procedures, as applicable.

7.3 Activity/Traffic/Pedestrian Control

Be alert for inattentive boaters/recreationists at or near the job site. Keep all nonessential personnel out of the sampling areas.

7.4 Fires and Explosions

In the case of an emergency, fire safety is the responsibility of all persons on site. The following general precautions address site-wide operations:

- A fire extinguisher will be kept in the MFA field vehicle.
- Smoking is not allowed on site by MFA personnel.
- Leaks and spills of flammable or combustible fluids must be cleaned up immediately.

See the air monitoring section for potential explosive-atmosphere precautions.

7.5 Uneven Walking Surfaces

Care should be used when boarding and exiting water craft. Boats may shift without notice. Operating in a water environment, surfaces are likely to be wet and slick. When possible, minimize movement around boat in order to minimize walking hazards. Care should be used when walking in or out of tidal mudflats. Steep grades and loose mud can make walking or standing on these surfaces difficult and potentially hazardous.

7.6 Noise

In addition to interference with oral communication, job performance, and safety, the effects of noise on humans include physiological effects, particularly temporary and permanent hearing loss. The factors that affect the degree and extent of hearing loss are intensity or loudness of the noise, type of noise, period of exposure, and distance from the noise source. When working in close proximity to operating equipment or other loud noise sources, all MFA personnel will be required to use hearing protection.

7.7 Marine Safety

When conducting activities related to the use of water craft, employees will adhere to the requirements in the MFA SOP for marine and boat safety (Appendix B). Any incidents must be reported as indicated in the MFA Accident/Loss Report (Appendix C).

7.8 Falling Overboard

It is anticipated that sampling will be conducted from a vessel. As with any work from a floating platform, there is a chance of falling overboard. A personal flotation device (PFD) for each crew

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person will be available in the boat at all times. PFDs will be worn and properly buckled and zipped as appropriate, by all personnel on or over water, regardless of work zone. If hydrostatic vests are used, they will be checked daily to ensure that the carbon dioxide cartridge is "green," indicating that it is ready for use.

7.9 MFA Vehicle Use

When operating vehicles on the site, employees will adhere to the requirements in the MFA standard operating procedure (SOP) for vehicle safety operations (Appendix C). Any traffic incidents must be reported as indicated in the MFA Accident/Loss Report (Appendix C).

7.10 Chemical Hazard Evaluation

The following potentially hazardous chemicals are known or suspected to be in site soil, groundwater and/or sediments.

Chemical of Concern	osha Pel	OSHA STEL	osha Idlh	Odor Threshold	LEL (%)	IP(eV)	Other Hazard
Mercury	0.1 mg/m ³	NA	10 mg/m³	NA	NA	?	С
Polychlorinated biphenyls	0.5 mg/m ³	1 mg/m ³	5 mg/m³	?	NA	?	С
Pentachlorophenol	0.5 mg/m ³	1.5 mg/m³	2.5 mg/m ³	NA	NA	NA	С, Р
Butyl-benzyl phthalate	NA	NA	NA	NA	NA	NA	Р
Bis(2-ethylhexyl) phthalate	NA	NA	NA	NA	NA	NA	Ρ
Acenaphthene	NA	NA	NA	NA	NA	NA	Ρ
Fluoranthene	NA	NA	NA	NA	NA	NA	Р
Pyrene	0.2 mg/m ³	NA	80 mg/m³	NA	NA	NA	С
1,4-Dichlorobenzene	450 mg/m ³	NA	900 mg/m ³	NA	2.5	8.98	Ρ
1,2,4-Trichlorobenzene	NA	NA	NA	NA	2.5	NA	Р
Dioxins/Furans	NA	NA	NA	NA	NA	NA	С, Р

NOTES:

C — carcinogen.

OSHA — Occupational Safety and Health Administration.

COR — corrosive.

P — poison.

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PEL — permissible exposure lex IDLH — immediately dangerous to life and health. ppm — parts per million. IP (eV) — ionization potential. R — reactive. LEL — lower explosive limit. SC — suspected carcinogen. mg/m³ — milligrams per cubic meter. STEL — short-term exposure lev NA — not available. TWA — time-weighted average	E F IDLH IP (eV) LEL mg/m NA) , ³	explosivity. flammable. immediately dangerous to life and health. ionization potential. lower explosive limit. milligrams per cubic meter. not available.	PCB PEL ppm R SC STEL TWA		polychlorinated biphenyls permissible exposure level parts per million. reactive. suspected carcinogen. short-term exposure level. time-weighted average.	
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8 SAFETY EQUIPMENT AND PROCEDURES

8.1 Safety Equipment

The following safety equipment will be used as needed on the site:

- Protective clothing—water-resistant clothing.
- Chemical protective gloves—nitrile.
- Decontamination equipment—soap and water.
- Steel-toed boots.
- Hearing protection.
- Safety glasses—safety glasses with side shields are required at all times during active site work. Use splash shields if performing activities where the potential exists for liquids to contact face or eyes.
- Hard hat.
- Type II or III personal floatation vests that are U.S. Coast Guard approved.
- Caution tape, traffic cones, or barriers.
- High-visibility vest or clothing for working in or adjacent to any roadway.
- First-aid kit—located in the MFA field vehicle.
- Fire extinguisher—located in the MFA field vehicle.
- Drinking water and Gatorade or equivalent.

8.2 Communications

A mobile phone will be available to MFA personnel. Field personnel are not permitted to carry mobile phones into a potentially flammable environment, as such instruments are not intrinsically safe.

8.3 Decontamination Procedures

Decontamination procedures are outlined below.

8.3.1 Partial Decontamination Procedure

Partial decontamination procedures will be followed when exiting the exclusion zone and will apply to items used in the exclusion zone.

- Wash and rinse boots and outer gloves in buckets in the contamination-reduction zone.
- Remove outer gloves. Inspect and discard in a labeled container for disposable clothing if ripped or damaged.
- Wash hands and face with soap and water.

8.3.2 Full Decontamination Procedures

Full decontamination procedures will be followed at the end of each work shift and will apply to items used.

- Wash and rinse boots and outer gloves in buckets in the contamination-reduction zone.
- Remove gloves and deposit in a labeled container for disposable clothing.
- Remove work boots without touching exposed surfaces, and put on street shoes. Place work boots in a plastic bag for later reuse.
- Wash hands and face with soap and water.
- Shower as soon after the work shift as practicable.

8.4 Emergency Equipment

A fire extinguisher will be kept in the MFA field vehicle. The extinguisher will be Type ABC, approved by the National Fire Prevention Association. The extinguisher will be inspected monthly and serviced yearly. A first-aid kit will be available in the MFA field vehicle.

Additional emergency equipment required on the boat and described in the marine and boat safety SOP in Appendix B, include a sound-producing distress signal such as a whistle or airhorn, and one wearable Type I, II or III personal flotation device for each passenger. Optional but recommend equipment include oars or paddle, a VHF radio, and a fire extinguisher if the vessel is propelled by a gasoline engine.

9 HEALTH AND SAFETY EQUIPMENT CHECKLIST

REQUIRED SAFETY EQUIPMENT

Equipment	Requirements
Hard Hat	Use when appropriate.
Steel-Toed Boots	Required on all job sites.
Safety Glasses w/side shields	Required on all job sites.
Hearing Protection	Use when appropriate.
Protective Clothing	Water resistant clothing when appropriate.
Personal floatation device	US Coast Guard-approved vest when working near or over water.
Decontamination Equipment	Bring soap and water to wash hands and face if no facilities are available.
Caution Tape, Traffic Cones, or Barriers	Use when working near traffic.
Emergency Eyewash	Located in the MFA field vehicle.
First-Aid Kit	Located in the MFA field vehicle.
Fire Extinguisher	Located in the MFA field vehicle.
Drinking Water	Located in the MFA field vehicle.

10 GENERAL SAFE WORK PRACTICES

Field operations for this project shall be conducted in accordance with the minimum safety practices described below, which are required for MFA employees.

10.1 Safety Practices for Field Personnel

- 1. Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of materials is prohibited in any area where the possibility of contamination exists.
- 2. Field personnel must thoroughly wash hands when leaving a contaminated or suspected contaminated area before eating, drinking, or any other activities.

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- 3. Contaminated protective equipment shall not be removed from the work area until it has been properly decontaminated or containerized on site.
- 4. Avoid activities that may cause dust. Removal of materials from protective clothing or equipment by blowing, shaking, or any means that may disperse materials into the air is prohibited.
- 5. Field personnel must use the "buddy system". Communications between members must be maintained at all times. Emergency communications shall be prearranged in case unexpected situations arise. Visual contact must be maintained between pairs on site, and team members should stay close enough to assist one another in the event of an emergency.
- 6. Personnel should be cautioned to inform one another of subjective symptoms of chemical exposure such as headache, dizziness, nausea, and irritation of the respiratory tract.
- 7. At sites with known or suspected contamination, appropriate work areas for field personnel support, contaminant reduction, and exclusion will be designated and maintained.
- 8. MFA field personnel are to be briefed thoroughly on the anticipated hazards, equipment requirements, safety practices, emergency procedures, and communications methods, both initially and in daily briefings.
- 9. All MFA field vehicles shall contain a first-aid kit and a multipurpose, portable fire extinguisher.
- 10. All field personnel will, whenever practicable, remain upwind of drilling rigs, open excavations, boreholes, etc.
- 11. Subsurface work shall not be performed at any location until the area has been confirmed by a utility-locator firm to be free of underground utilities or other obstructions.
- 12. Field personnel are specifically prohibited from entering excavations, trenches, or other confined spaces deeper than 4 feet. Unattended boreholes must be properly covered or otherwise protected.

11 ACKNOWLEDGMENT

MFA cannot guarantee the health or safety of any person entering this site. Because of the potentially hazardous nature of visits to active sites, it is not possible to discover, evaluate, and provide protection for all possible hazards that may be encountered. Strict adherence to the health and safety guidelines set forth herein will reduce, but not eliminate, the potential for injury and illness at this site. The health and safety guidelines in this plan were prepared specifically for this site and should not be used on any other site without prior evaluation by trained health and safety personnel.

All MFA personnel are to read, understand, and agree to comply with the specific practices and guidelines as described in this HASP (including attachments for specific activities and the General Work Practices described below) regarding field safety and health hazards.

This HASP has been developed for the exclusive use of MFA personnel. MFA makes this plan available for review by contracted or subcontracted personnel for information only. This plan does not cover the activities performed by employees of any other employer on the site. All contract or subcontracted personnel are responsible for generating and using their own plan, which must have requirements at least as stringent as those listed in this HASP.

I have read and I understand this HASP and all attachments, and agree to comply with the requirements described herein:

Name	Title	Date

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APPENDIX A DRILLING OPERATIONS STANDARD OPERATING PROCEDURE



DRILLING OPERATING PROCEDURE

PURPOSE

This operating procedure (OP) addresses a Maul Foster & Alongi, Inc. (MFA) employee's responsibility and authority for overseeing the use of safe work practices during drilling operations. The OP also includes safety guidelines for:

- Drill-rig mobilization and setup
- Confirm the location of overhead lines, buried utilities, and the work area
- Safety considerations with drilling operations and activities
- Roadside drilling and traffic
- Personal protective equipment
- Drilling tools and downhole equipment
- Fire safety

APPLICATION

The guidelines shall be applied to MFA projects in which engine-powered drill rigs are used. The guidelines are applicable to MFA employees only. The primary responsibility for drilling safety lies with the drilling contractor.

RESPONSIBILITY AND AUTHORITY

Drill-rig safety and maintenance are the responsibility of the drill-rig operator. MFA employees are responsible for their own safety, including recognizing and avoiding drill-rig hazards. MFA employees who observe a drill-rig condition believed to be unsafe shall immediately advise the drill-rig operator and/or the client of the unsafe condition.

SAFETY GUIDELINES

Drill-Rig Mobilization and Setup

The following guidelines should be considered when drilling equipment is mobilized:

• Drilling equipment, tools, and materials must be secured.

- When moving between multiple drilling locations, the drill mast should be lowered and secured. Exceptions may be granted if the distance between holes is small (e.g. a few feet) and the terrain flat.
- To the extent practical, walk the planned route of travel with the drill operator and inspect it for depressions, gullies, ruts, and other obstacles.
- Appropriate driving speeds should be maintained when driving on site, including while driving forklifts, all-terrain vehicles, and other support rigs.
- A spotter should be used when the drill rig is being backed up, pulling onto a busy roadway, in the vicinity of overhead lines, and/or maneuvering in tight spaces.
- No passengers should accompany the drill rig or support truck when these vehicles are moving on variable terrain where rough, steep, or soft conditions exist.
- Driving drill rigs along hillsides or embankments should be avoided; however, if hillside travel becomes necessary, the operator must conservatively evaluate the ability of the rig to remain upright.

When setting up a drill rig over a drilling location, the following conditions should be considered:

- Potential drilling locations should be approved by the client or facility personnel.
- Drilling locations should be confirmed to be free of underground utilities and overhead lines by a professional utility locator. The utility locator should indicate that the location has been approved by physically marking it (see below—Underground Utilities and Overhead Lines).
- After the rig has been positioned to begin drilling, all brakes and/or locks must be set before drilling begins. The wheel of the vehicle should be blocked and/or other means should be used to prevent the rig from moving.
- A minimum 8-foot by 8-foot workspace area should exist around the borehole and the back of the drill rig. Drill operators should have clear access to enter or exit the work area.
- Appropriate traffic cones should be placed in the front, rear, and sides of the drill rig (see Traffic, below).
- MFA employees should maintain tidy and organized work areas during drilling activities. Obstacles in the work area should be removed or marked. Drilling materials should be placed on level ground and should not restrict access to the drill rig or egress from the drill rig.

- MFA employees should be wary of slip hazards caused by drilling activities and/or weather.
- Open boreholes should be covered to prevent tripping hazards. Appropriate amounts of materials (e.g. bentonite, grout, cement or asphalt) should be used to prevent mounding or caving at the surface.

UNDERGROUND UTILITIES AND OVERHEAD LINES

- The locations of overhead and buried utility lines must be determined before drilling begins, and they should be noted on boring plans and/or assignment sheets. Potential borehole locations should be approved by the client or by site personnel. A public and/or private utility locator should be used to confirm all boring locations are free of underground utilities and overhead lines. In cases where the underground utility line is in question, site workers should carefully advance a hand auger to 5 feet below ground surface as a precaution.
- Site conditions may require hand augering or air-knifing deeper than 5 feet to confirm the elevation of utilities.
- When overhead power lines are close by, the drill-rig mast should not be raised unless the distance between the rig and the nearest power line is at least 20 feet. The drill-rig operator or assistant should walk completely around the rig to make sure that proper distance exists.
- When the drill rig is positioned near an overhead line, the rig operator should be aware that swaying hoist lines and/or power lines may contact each other during windy conditions. When necessary, the utility and/or overhead lines should be shielded, deactivated, or moved by the appropriate agency or personnel.

OVERSEEING USE OF DRILL RIGS

- MFA personnel should always attempt to remain upwind (when practicable) of the drilling location.
- Drill casing should be stacked on wood blocks or drill rod before, during, and after drill activities.
- Use care when lifting drill casing that are caked with clay or cuttings (e.g., auger flights). Drill casing can be extremely heavy and awkward. Moving and handling of drill casing should be conducted by two people.
- Never place hands or fingers under the bottom of drill casing or drill rods when hoisting them over the top of other drill casing or rod, or other hard surfaces such as the drill-rig

platform. Never allow feet to get under the drill casing or drill rod while either is being hoisted.

- When the drill is rotating or advancing, stay clear of the drill string and other moving components of the drill rig. Never reach behind or around rotating casing or moving drill string for any reason. MFA employees should never approach the drill casing string unless the drill rig's transmission is in neutral or the engine is off and the casing has stopped rotating.
- Move soil cuttings away from the casing with a long-handled shovel or spade; never use hands or feet. If a cyclone is used during drilling, stay clear of the cyclone opening and hose.
- Never clean a casing attached to the drill rig unless the transmission is in neutral or the engine is off and the casing has stopped rotating.
- Power-washing or steam-cleaning drilling equipment should be conducted by personnel using protective eyewear and rain suits at a minimum. All workers should remain up ward if possible.
- Exercise caution when pulling casing from the borehole with the main winch line or top head. In cases where the winch line or top head is being used to pull downhole casing that is locked in place, the drilling area should be cleared of all personnel except for the drill operator.
- Winch lines and sand lines should be properly secured when not being used. MFA employees should note the condition of the winch lines (e.g., fraying, spliced sections).
- Drill-rod strings should be secured using the mast cage, or placed on blocks on the ground. The length of the drill-rod strings should not exceed the mast height (typically 40 feet).

SAFE USE OF HAND TOOLS

The Occupational Safety and Health Administration (OSHA) regulations regarding hand tools should be observed in addition to the guidelines provided below:

- Each tool should be used only to perform tasks for which it was originally designed.
- Damaged tools should be repaired before use. Discarded tools that's are not repairable.
- Safety goggles or glasses should be at all times. Nearby coworkers and bystanders should be required to wear safety goggles or glasses also, or to move away.
- Tools should be kept cleaned and stored in an orderly manner when not in use.

PROTECTIVE GEAR

Minimum Protective Gear

Items listed below should be worn by all members of the drilling team while engaged in drilling activities.

- Hard hat
- Safety shoes (shoes or boots with steel toes and shanks)
- Gloves
- Safety glasses
- Hearing protection

Note that a photo ionization detector must be used when conducting subsurface work activities.

Other Gear

Items listed below should be worn when conditions warrant their use. Some of the conditions are listed after each item.

- **Respirator:** When working with materials that produce particulate matter such as silica sand or cement grout, the appropriate respirator should be used. When volatile organic vapors are present as described in the site health and safety plan.
- **Safety Harnesses and Lifelines:** Safety harnesses and lifelines shall be worn by all persons working on top of an elevated derrick beam or mast. The lifeline should be secured at a position that will allow a person to fall no more than 6 feet. OSHA Full Protection requirements apply.
- Life Vests: Use for work over or adjacent to water.

TRAFFIC SAFETY

Drilling in streets, parking lots, or other areas of vehicular traffic requires definition of the work zones with cones and warning tape and compliance with local police requirements. A minimum buffer that is conducive to a safe work environment should be established around the drilling area. Work with the public right-of-way will require a permit from the regulatory agency.

FIRE SAFETY

• Fire extinguishers shall be kept on or near drill rigs for fighting small fires.

- If methane is suspected in the area, a combustible gas instrument shall be used to monitor the air near the borehole, with all work to stop at 10 percent of the lower explosive limit.
- Work shall stop during lightning storms.

APPENDIX B

MARINE AND BOAT SAFETY STANDARD OPERATING PROCEDURE



PURPOSE

This operating procedure (OP) establishes guidelines for the safe operation of watercraft during Maul Foster & Alongi Inc.'s (MFA) field activities such as sediment sampling, biological sampling, and bathymetry mapping. The U.S. Coast Guard (USCG) and individual states have additional specific requirements. This OP is intended to apply to the operation of Class A and Class 1 boats.

DEFINITIONS

Class A—a boat less than 16 feet long. Class A has the greatest number of boats. They can all be car-topped or trailered. Due to their lightness and small size, many can become unstable if weight in them is excessive or carelessly loaded. Too much weight makes these boats sluggish, reduces their freeboard (the height of their sides above water), and can swamp (flood) them.

Class 1—a motorized boat from 16 feet to less than 26 feet in length. Though heavier and more powerful than Class A craft, most are still trailerable.

Type III Flotation Aid—generally the most comfortable, they have at least 15.5 pounds of buoyancy in the adult size.

Type IV Throwable Devices—include the horseshoe, rung, and cushion. They have at least 16.5 pounds of buoyancy.

BOARDING SMALL BOATS

Be sure that the boat is secure. With one hand on the boat, quickly lower yourself straight down into the center of the boat. A life preserver should be worn. If others are boarding, have them step along the fore-and-aft centerline of the boat while you hold the boat in place along the pier. Avoid carrying anything aboard. Step down into the boat and load the items off the pier, or have someone hand them to you one by one.

LOADING OF BOATS

Amount and location of weight (persons and gear: the movable ballast) are critical for capsize protection. In a small utility boat, keep weight toward the middle, both fore and aft and side to

side. If you see waves approaching, take them on the bow. Overloading a small boat inhibits its ability to rise to oncoming waves. Less freeboard means less clearance above the water's surface to prevent swamping. All craft must be operated within the boat manufacturers' weight limits.

OPERATED CLASS A AND CLASS 1 BOATS

- All persons on the boat will wear a USCG-approved Type III personal flotation vest. The type II vests (typically orange chest type) are not recommended because they are difficult to work in. In addition, throwable Type IV devices will be readily available for use.
- At least one B-1 Type USCG-approved, hand-held, portable fire extinguisher will be on the boat, readily available for use.
- Visual distress-signal flares and a battery-operated light will be in good working order and readily available on the boat.
- A sound-producing distress signal, either bell, whistle, or horn, will be in good working order and readily available on the boat.
- A first-aid kit will be available on the boat.
- All boat fuel (gasoline) will be contained in engine manufacturer's approved containers that supply fuel to the engine via neoprene fuel lines. No fuel transfers between containers are to be conducted aboard the boat.
- A secondary means of propulsion will be available on the boat (oars or paddle).
- A boat hook, anchors, and proper mooring lines will be available on the boat.

SAFE BOATING OPERATIONS

- All boats will be properly registered for use in waterways of local, state, and federal jurisdictions.
- All boat trailers and towing vehicles will be properly licensed and in good working order.
- The boat will be operated only by experienced personnel. The USCG Auxiliary and other organizations regularly sponsor boating-safety courses. In addition to basic boating safety, the courses cover navigation regulations and emergency procedures. The training is recommended, even for experienced boat operators.
- The boat will be operated in a safe manner and all waterway regulations will be obeyed.

- No smoking or alcoholic beverages are permitted on the boat.
- No recreational equipment for fishing, hunting, water skiing, or scuba diving will be allowed on the boat unless specifically authorized as part of the work-related equipment.

BOATING ACCIDENTS

USCG regulations, as well as state regulations, require accident reports if significant injuries or property damage occurs. It is normally best to stay with the boat in case of an accident and use signal flares or a distress horn to summon help. Hypothermia (cold stress) is a risk for those involved in boating accidents due to the rapid conduction of body heat by cold water. Wet or dry suits are recommended for cold weather/cold water (less than 45°F) operations.

APPENDIX C VEHICLE SAFETY STANDARD OPERATING PROCEDURE AND ACCIDENT REPORT FORM



This operating procedure applies to Maul Foster & Alongi, Inc. (MFA)-owned vehicles, vehicles leased or rented for MFA business, and personal vehicles when used on MFA business. In order to drive a vehicle on behalf of the company, you must have a valid driver's license as well as a driving record that is satisfactory to MFA and its insurance carriers.

Additional policies relating to vehicle use are provided in Part 2, Section 3 of the MFA Policies and Procedures Manual.

COMPANY-OWNED AND COMPANY-RENTED VEHICLES

Company vehicles are to be driven by authorized employees only, except in case of testing by a mechanic. An employee must be familiarized with the vehicle before it is driven. To avoid accidents because an accessory cannot be located during operation (e.g., windshield wipers), it is recommended that the driver locate the horn, windshield-wiper switch, lights, defroster, gauges, hood and gas fill door releases, and seat and mirror adjustments before the vehicle is started. Once the vehicle is started, fluid levels, wiper blades, and lights should be checked. The spare tire should be located, along with instructions and tools for changing a flat tire.

HAZARDOUS SUBSTANCES

Hazardous substances or potentially hazardous substances may not be transported in privatelyowned vehicles. Hazardous substances include, but are not limited to, environmental-media samples, air-monitoring meters (photoionization detectors, four-gas meters) and associated calibration gases, investigation-derived waste, decontamination chemicals, fuel, and fuel products.

DRIVER SAFETY GUIDELINES

The use of a vehicle for company business while under the influence of intoxicants or other drugs that could impair driving ability is forbidden and is sufficient cause for disciplinary action, up to and including termination of employment.

Cell-phone use while driving is a major cause of accidents. Drivers should complete calls while the vehicle is parked. While driving, attention to the road and safety must always take precedence over conducting business over the phone. No driver shall operate a vehicle on company business when his/her ability to do so safely has been impaired by illness, fatigue, injury, or prescription medication.

All drivers and passengers operating or riding in a company vehicle must wear seat belts, even if air bags are available.

No unauthorized personnel are allowed to ride in company vehicles.

Headlights shall be used starting two hours before sunset until two hours after sunrise, during inclement weather, and at any time when the area 500 feet ahead of the vehicle cannot be clearly seen.

Allot enough time for travel to avoid the need to hurry.

Be well rested and alert.

Notify someone of your destination and anticipated time of arrival.

DEFENSIVE-DRIVING GUIDELINES

Drivers are required to maintain a safe following distance at all times. Drivers should keep at least a two-second interval between their vehicle and the vehicle immediately ahead. During slippery road conditions, the following distance should be increased.

Drivers must yield the right of way at all traffic control signals and signs requiring them to do so. Drivers should also be prepared to yield for safety's sake at any time. Pedestrians and bicycles in the roadway always have the right of way.

Drivers must honor posted speed limits. In adverse driving conditions, reduce speed to a safe operating speed that is consistent with the conditions of the road, weather, lighting, and volume of traffic.

Radar detectors are strictly prohibited in company vehicles. Drivers are to drive at the speed of traffic but are never to exceed the posted speed limit.

Turn signals must be used before every turn or lane change.

When passing or changing lanes, view the entire vehicle in your rearview mirror before pulling into that lane.

Be alert to other vehicles, pedestrians, and bicyclists when approaching intersections. Never speed through an intersection on a caution light. When the traffic light turns green, look both ways for oncoming traffic before proceeding.

When waiting to make left turns, keep your wheels facing straight ahead. If rear-ended, you will not be pushed into the path of oncoming traffic.

When stopping behind another vehicle, leave enough space so you can see the rear wheels of the car in front. This allows room to go around the vehicle, if necessary, and may prevent you from being pushed into the car in front of you if you are rear-ended.

Avoid backing where possible, but when necessary, keep the distance traveled to a minimum and be particularly careful. Check behind your vehicle before backing. Back the vehicle toward the driver's side. Do not back around a corner or into an area of no visibility.

ACCIDENT PROCEDURES

All accidents, in either company vehicles, rented vehicles, or personal vehicles (while on company business), must follow these accident procedures.

In an attempt to minimize the results of an accident, the driver involved in the accident must prevent further damages or injuries and obtain all pertinent information and report it accurately. Call for medical aid, if necessary.

Record names and addresses of driver, witnesses, and occupants of the other vehicles and any medical personnel who may arrive at the scene. Complete the form located in the Vehicle Accident Packet. An employee who is involved in an accident when on MFA business must report it by completing an MFA Accident/Loss Report and submit it to the health and safety coordinator as soon as possible. An Accident/Loss Report form is attached.

Pertinent information to obtain includes: driver's license number of other drivers; insurance company names and policy numbers of other vehicles; make, model, year, and license plate number of other vehicles; date and time of accident; and overall road and weather conditions. Provide the other party with your name, address, driver's license number, and insurance information. Do not discuss the accident with anyone at the scene except the police. Do not accept any responsibility for the accident. Do not argue with anyone.

All accidents, regardless of severity, must be reported to the police and also to the Managing Director or your Group Manager. Accidents are to be reported immediately (from the scene, during the same day, or as soon as practicable if immediate or same-day reporting is not possible). If the driver cannot get to a phone, he/she should write a note giving the location to a reliable-appearing motorist and ask him or her to notify the police. MFA may conduct a review of each accident to determine its cause and how it could have been prevented.

Accidents involving personal injury to an MFA employee must be reported to the Managing Director or your Group Manager so that a workers' compensation claim can be promptly filed and MFA's short-term-disability carrier can be notified, if applicable. Failing to stop after an accident and/or failure to report an accident may result in disciplinary action, up to and including termination of employment.

TRAFFIC VIOLATIONS

Driving motor vehicles is a serious responsibility and must be done safely and in accordance with all traffic laws. Vehicle accidents are costly to our company, but more importantly, they may result in injury to you or others. It is the driver's responsibility to operate the vehicle in a safe manner and to drive defensively to prevent injuries and property damage. MFA endorses all applicable state motor-vehicle regulations relating to driver responsibility and expects each driver to drive in a safe and courteous manner pursuant to the preceding safety rules. The attitude you take when behind the wheel is the single most important factor in driving safely. Traffic and/or parking citations will not be reimbursed by MFA.

ATTACHMENT

ACCIDENT/LOSS REPORT

THIS REPORT MUST BE COMPLETED IN FULL AND SUBMITTED TO THE MFA MANAGING DIRECTOR

Date of Accident:	Company:
Time Occurred:	Project Number:
Where Occurred:	Name and Location of Project:
ράρτι βροφέρτν πάμαζε/Ι όςς	
Fauinment Involved:	
Names of Dersons Involved:	
Describe Incident/Demoge:	
Describe incluent/Damage	
Estimated Cost of Damage:	
*Copy of Police Report, if filed, must also be submitted.	
DRAW A DIAGRAM OF INCIDENT	ON THE BACK OF THIS REPORT
PART II—PERSONAL INJURY (fill out only if personal	al injury occurred)
Name of employee injured:	Age:
Address:	Occupation:
What was employee doing when injured:	
Exact location where injury occurred (station number or prominent landmark):	
Was place of accident or exposure on job site?:	
Describe injury:	
How did injury occur?:	
Did employee see a doctor or go to the hospital? Doctor and/or hospital:	If yes, give name, address, and phone number of
Employee Name (print):	
Employee Signature:	
Date of this report:	

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