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Nick Hollister
Senior Operations Manager

Via Electronic Filing

February 5, 2021

Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: Northfield Mountain Pumped Storage Project - FERC No. P-2485-MA
Notification of Intent to Dredge Upper Reservoir

Dear Secretary Bose,

FirstLight Power Services LLC, as agent for Northfield Mountain LLC (FirstLight), the current licensee for the Northfield Mountain Project, FERC No. 2485-MA, is informing the Federal Energy Regulatory Commission (Commission) that it intends to conduct a dredge operation of its Upper Reservoir beginning in April of this year as part of the implementation of its Sediment Management Plan (Plan). FirstLight developed the Plan, which the Commission approved on March 28, 2012,[1] in consultation with the U.S. Environmental Protection Agency (USEPA) and Massachusetts Department of Environmental Protection (MADEP). The Plan sets forth the methods by which FirstLight will annually assess sediment dynamics in the Project's Upper Reservoir and in the Connecticut River, and commits FirstLight to developing management measures to minimize entrainment of accumulated silt into the Project works and Connecticut River during drawdown or dewatering.

Accordingly, FirstLight submits, for informational purposes, a description of the dredge operation and best management practices to be implemented during the dredge operation to minimize the movement of sediment. Among the attachments to these documents are a site plan and technical specifications of the equipment to be used by FirstLight's contractor. As the enclosed documents reflect, the dredge operation would affect approximately five acres, or approximately 1.8% of the Upper Reservoir. The dredge will primarily traverse the eastern half of the intake channel and an area adjacent to an existing concrete cofferdam structure. The plan calls for the removal of approximately 25,000 to 30,000 cubic yards of consolidated dry material over an approximately 120-day period beginning in mid-April.

FirstLight previously consulted with USEPA and MADEP in the development of the 2015 pilot dredging plan and best management practices. The 2021 dredging scope of work and plans are nearly identical to that of 2015. In addition, by this letter, FirstLight is providing notification to the USEPA and MADEP of the planned dredge.

If you have any questions, or need additional information about FirstLight's plans to undertake this dredge operation of the Upper Reservoir, please feel free to contact me.

Very truly yours,

FIRSTLIGHT POWER SERVICES LLC
as agent for NORTHFIELD MOUNTAIN LLC

Nick Hollister
Senior Operations Manager

Attachments

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[1] *FirstLight Hydro Generating Co.*, 138 FERC ¶ 62,305 (2012).

Northfield Mountain Pumped Storage Project

FERC Project No. 2485

Project Description

and

Best Management Plan

for

Dredging

of the

Upper Reservoir

February 2021

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Appendices

1. INTRODUCTION

FirstLight Power Services LLC (FirstLight), as an agent for Northfield Mountain LLC is continuing its management of sediment in the Northfield Mountain Project's Upper Reservoir. The Northfield Mountain Pumped Storage Project is located along the east bank of the Connecticut River in the Towns of Northfield and Erving, Massachusetts.

The Project began commercial operation in 1972 and consists of an underground powerhouse, four reversible pump-turbine generators, an underground pressure shaft, four unit penstocks and draft tubes, and a mile-long tailrace tunnel connecting the powerhouse to a 20-mile-long reach of the Connecticut River known as the Turners Falls Impoundment, which serves as the lower reservoir. The manmade upper reservoir (Upper Reservoir) was formed with four earth-core rock fill embankment structures and a concrete gravity dam. The Upper Reservoir is depicted in Figures 1 and 2.

2. SEDIMENT MANAGEMENT PLAN

In its Administrative Order dated August 4, 2010, the US Environmental Protection Agency (US EPA) requested a report identifying measures to prevent discharges of sediments associated with draining the Upper Reservoir. Subsequently, by letter dated January 20, 2011, Federal Energy Regulatory Commission (FERC or the Commission) staff requested a plan to avoid or minimize the entrainment of sediment into the Project works during Upper Reservoir maintenance drawdowns. FirstLight filed its Sediment Management Plan (the Plan) with FERC on July 15, 2011. The Plan was developed in consultation with the USEPA and the Massachusetts Department of Environmental Protection (MADEP). The Plan contained proposed methods to assess sediment dynamics in the Project's Upper Reservoir and Turners Falls Impoundment (Connecticut River) from 2011 through 2014. The Plan also committed FirstLight, at the conclusion of the data collection and assessment efforts, to propose management measures to minimize entrainment of sediment into the Project works and Connecticut River. The Plan specifically provided that the management measures to be considered could include periodic dredging of the Upper Reservoir. In early 2012, FirstLight proposed certain modifications to the Plan, which FERC approved in March 2012.

During the study plan development phase of the Project relicensing, US EPA requested that FirstLight integrate the work being carried out for the Plan to be fully integrated into the FERC relicensing process. FirstLight agreed, and designated the Plan as relicensing Study No. 3.1.3. FirstLight also committed to extending data collection efforts pursuant to the Plan for an additional year, through 2015, to include data from a dredging operation conducted by FirstLight. FERC approved the Plan as Study No. 3.1.3 in September 2013.

By letter dated December 1, 2014, FirstLight filed its Sediment Management Plan – Report of 2014 Activities. The report provides an overview of sampling efforts conducted in 2014. Specific components of the Plan implemented during this report period included an annual bathymetric survey of the Upper Reservoir, collecting Suspended Sediment Concentration (SSC) and Total Suspended Solids (TSS) grab samples from the project area, measuring SSC and particle size distribution (PSD) at three locations in the project area, and developing a computational fluid dynamics model of the Upper Reservoir.

In 2015, FirstLight completed a pilot dredge project and subsequently revised relicensing Study No. 3.1.3. in June, 2017, to include data and lessons learned during the project. See Appendix 1.

3. DREDGE PROJECT

FirstLight has retained Dredge America, Inc. to assess and perform limited dredging of the Upper Reservoir in 2021. This document sets forth a dredging project, as well as proposed associated best management practices (BMPs) to minimize the risk of sediment entrainment in Project works and the Connecticut River during the program.

Dredge America, Inc. will utilize deep water hydraulic dredging to remove accumulated sediment in the Upper Reservoir. Use of deep water hydraulic dredging was proven to be a viable option for removing excess accumulated sediment in the Upper Reservoir during the 2015 pilot dredge project. The Northfield Project will remain in service, available for generation or pumping, while still allowing for removal of sediments during deep water hydraulic dredging. The technology employed by Dredge America inherently avoids disturbance of sediments outside the small area undergoing active dredging.

Because the dredging could occur during generation, BMP's will be implemented prior to, during and subsequent to any potential dredging to avoid sediment migration from the Upper Reservoir through the Project to the Connecticut River. Although some of the proposed BMP's function to reduce or control the re-suspension of sediments in the Upper Reservoir, the objective of the BMP's is not to minimize suspension of sediments in the Upper Reservoir per se, but rather to prevent impacts to the Connecticut River.

4. LOCATION OF DREDGING

The dredge program would occur in an approximate 200 foot by 1000-foot section of the Upper Reservoir. The location is shown on Exhibit-1 within Appendix B and is the same area dredged during the 2015 pilot dredge project. The dredge project would affect about 5 acres (1.8%) of the 274-acre Upper Reservoir. Approximately 25,000 to 30,000 CY of material is proposed to be dredged out of the Upper Reservoir as part of this program.

5. DESCRIPTION OF DREDGE PROCESS

The dredging project consists of a boat-mounted deep water dredge as the main platform. The unit will utilize a special Ellicot 370 HP dredge. Approximately 80 feet of additional flotation will be added to the front of the dredge in order to extend the ladder line and reach the required 125-foot depth. This depth of dredging will require an underwater pump to lift the slurry off the bottom of the reservoir. The power unit will be set on a second dredge platform positioned next to the main dredge.

The hybrid dredge setup will be running from a static cable that will reach across, and be anchored on, opposing shores of the Reservoir. The dredge will ride along the cable and slowly suction an area approximately 8 feet wide per pass. The dredge will be making passes back and forth across the limited dredging area similar to a lawn mower cutting the grass within a large field. The depth of the cutting head will be limited to approximately three feet during each pass which, based on our experience in 2015, allows the suction at the cutting head to effectively

capture all of the disturbed sediment and virtually eliminate the potential for a sediment plume in the Reservoir. The dredged slurry mixture will be incorporated with a polymer additive while being pumped into the "GEOSTRUX (geotextile tubes) dewatering system, which will be located adjacent to the Upper Reservoir. Sediments from the sediment-water mixture will be substantially captured in the geotextile tubes, with the filtered effluent out flowing back into the Upper Reservoir at a controlled flow rate. GEOSTRUCT data is provided in Appendix 2.

The polymer additive chosen for this project is Aquamark AQ 200 manufactured by Aquamark, Inc. and is an organic cationic emulsion polymer. Based on their experience, Dredge America has determined this polymer will be effective, at a dredge flow rate of 3,500 GPM, with 10% solids during pumping. Specifications on this emulsion polymer are provided within Appendix 2.

Should the need arise for any reason, Dredge America will have the ability to immediately shut down the dredge/pump with a single switch. All dredging operations can stop and FirstLight can take any appropriate action to address the conditions, including shutting down the Project. In addition, Dredge America will have several hundred feet of turbidity curtains on site in order to contain any sediment discharges that happened during the course of the dredge. If needed, the curtains may help limit the spread of solids around the dredge operation area. The curtains are made up of a PVC fabric that are wrapped around a flotation collar and extend to a varying depth below the surface. The solids contained within this containment area are given increased time to naturally settle back down to the bottom of the reservoir.

Dredge America is confident that this proposed design and methodology is suitable for dredging in the Upper Reservoir, as they have used the same process successfully on many projects including the 2015 Northfield project. Over the past 24 years, Dredge America has performed over 200 projects including one at Northfield Mountain.

6. STAGING OF DREDGED SEDIMENT AND GEOSTRUX SYSTEM

The dredging of the Upper Reservoir will include the preparation of a staging area and temporary sediment containment area located on the peninsula adjacent to the Intake Channel. A portion of this area will be utilized by the Contractor for daily operations to position machinery, stockpile operational materials and store supporting parts required for the dredge and geotextile tube system. Adjacent to the staging area, a temporary excavated containment area will be constructed for the required geotextile tube system. The containment area required is approximately 450 feet by 250 feet, the same basin as used in 2015. Heavy equipment and trucking operations will be designated along the existing gravel access way located along the southerly side of the peninsula and parallel to the intake channel.

Construction of the geotextile tube dewatering system will consist of utilizing the roughly 3 acre staging and containment area on the peninsula located on the north side of the Intake Channel (refer to Attachment 2). A perimeter containment berm will be constructed around the containment area in order to contain the geotextile tubes and dewatering run-off.

The bottom of the containment site will be level and large enough for the tubes to be staged and stacked on. The tubes are to be filled one level at a time. A sump will be located in the Northeast side of the tube staging area and will be roughly 2 feet below the outflow discharge pipe. This sump area will allow for residual material to settle out before the effluent is returned to the Upper

Reservoir. After all of the earth work is complete, a 10 mil poly liner or equivalent is to be placed over the top of the entire containment site (berms and all). The liner is designed to prevent undercutting around the tubes during the dewatering process.

A manifold piping system will be set up surrounding the tube area. This system of pipes and valves will feed the tubes with the combined sediment and water mixture removed from the reservoir bottom. In order to keep the tubes stable, each tube will be secured to the adjacent tube using the manufactured ties built into the tubes. Each of the outside tubes will be secured to stakes driven into the ground around the perimeter of the staging area. Once the piping system is setup, which would include the organic emulsion polymer injection system, pumping can begin.

The first level of tubes will consist of (10) 250' long tubes. Additional levels of tubes will be placed on top of the bottom layer as sediment is accumulated in the tubes. Multiple tubes will be pumped into at one time in order to maximize production and increase the amount of solids that can settle out within the tubes. The contractor anticipates pumping in up to (3) tubes at one time, with the option of pumping into any of the ten tubes per layer as needed. Each tube will be completely filled several times before it is deemed full. This process of filling and decanting usually happens roughly three times before at tube is considered full. The pipe manifold system is what allows the tubes to be filled one at a time at first and then in multiples to maintain dredging production/operations. The tubes will be filled to a maximum height of 8' in order to maintain integrity of the tube.

The geotextile tubes that are recommended for this project are GEOSTRUX. The Standard specifications are included within Appendix 2. The rate at which the tubes will be pumped into is within the proposed range of 2500-3500 GPM. The tubes are able to return clean effluent water at a rate of 35 GPM/SQFT. This means as each tube is being filled for the first time, the dewatering site will be experiencing a return water flow rate equal to the dredge flow rate. This rate will slow down as the square footage of open tube is replaced with dredged material. At a certain point, the tube will no longer be able to return water at the rate which it is being filled. Once this happens, one of the valves in the manifold system will be switched and pumping into a new tube will commence. Once all tubes have been filled at least once there will be a point where the return water flow rate from one tube could be less than the dredge flow. At this time the Contractor plans to reduce the flow into each tube by filling multiple tubes at the same time. The expected outflow for the duration of the project will be very similar to the flowrate out of the dredge. In order to keep up with this flowrate, an 18" gravity return line will be installed in the Eastern side of the sedimentation basin as shown on Figure 3.

7. MONITORING OF THE DREDGE PROJECT

Additional testing of the Aquamark AQ 200 polymer will be performed once the contractor has been mobilized on-site. This will reconfirm that the additive is suitable or additional additives will be required for the treatment process. The additive treatment process will begin by incorporating slightly less than the recommended solution. This is done to ensure the polymer is working properly and not settling the material out too quickly with the new flocs breaking up immediately as they enter the tubes. This process will continue throughout the first day of pumping until an optimal dosage rate is established. In order to keep the injection rate at the optimum level, daily samples must be taken from a specific point in the discharge line before the

slurry enters the tubes. Monitoring of this sampling point will occur every 3 hours during the dredging operations. The sample point is simply a tapped location in the pipe where a ball valve is installed. This allows for the superintendent or site manager to take a sample from the dredge line directly into a 5-gallon bucket. At this time the employee will visually assess the settling process and determine if the dosage rate should increase, decrease, or stay the same. If the sampling location is in the right spot and if the dosage rate is close to optimum, the sediment will begin forming flocs immediately and begin to fall to the bottom of the bucket. This sampling process will occur 4 times a day (every 3 hours) and will be documented on a testing sheet. Copies of these weekly testing sheets will be kept onsite in the event they need to be referenced at any time.

One goal of the dredge is to have no noticeable sediment plumes at the return location within the Upper Reservoir. To meet this target return water quality, the operation shall treat the slurry mixture with the proper additive at the proper dosage rate, properly construct the staging and dewatering area for the geotextile tube system and construct a sump area at the outflow location. Additional BMP's such as, but not limited to, the installation of no-woven fabric at the dewatering sump or installation of a turbidity curtain can be deployed as needed. The dredge operators, floc technician and basin monitor shall monitor operations for visual plumes at all times. At any visual indication of a plume, dredge operations shall stop, the situation shall be investigated and adjustments shall be made to the equipment in order to correct the issue. In addition to this ongoing monitoring, daily inspections of the return water location will take place every 3 hours, which is the same as chemical dosage testing. The visual observations will be recorded on a weekly log that will be kept onsite for reference throughout the duration of the project. The log shall include the daily events along with any corrective measures as needed. Although the goal is to have no visible plume at the return water location, if one were to occur, the outfall location is approximately 3,400 linear feet away from the intake channel by means of the reservoir body. Any plume would be diluted by mixing within the reservoir's morphological characteristics and existing water quality. Periodic monitoring of the intake channel will occur throughout the project.

8. FUEL STORAGE, SPILL RESPONSE, DREDGE MONITORING

Dual containment shall be provided for any fuel stored where it could drain into the Upper Reservoir. Storage shall also comply with all other applicable local, state and federal regulations. Storage, fueling and lubrication will be completed in a manner that ensures maximum protection against any spillage and evaporation. Any dredging equipment and any support boat(s) mobilized into the Upper Reservoir will be outfitted with a spill kit to contain any petroleum or other hazardous fluid leakage. Contractors will be trained to notify FirstLight in the event of a spill and to make any required regulatory notifications, as well as to take all necessary steps to contain and control the spill.

In the event of an emergency, Dredge America will have the ability to immediately shutdown the dredge/pump with a single emergency switch. In addition to shutting down the dredge several hundred feet of turbidity curtain will be kept on site in order to contain any sediment discharges that happen during the course of the project. These curtains will be next to the water's edge so they can be quickly deployed in the case of an emergency. At all times the outlet discharge pipe will be surrounded by a turbidity barrier in order to contain any returning sediment particles and

to assist in identifying any visual sediment plumes caused by the dredging process. Refer to the Dredge America, Combined Health and Safety, Accident Prevent Plan for details.

Figure 1

Project Location

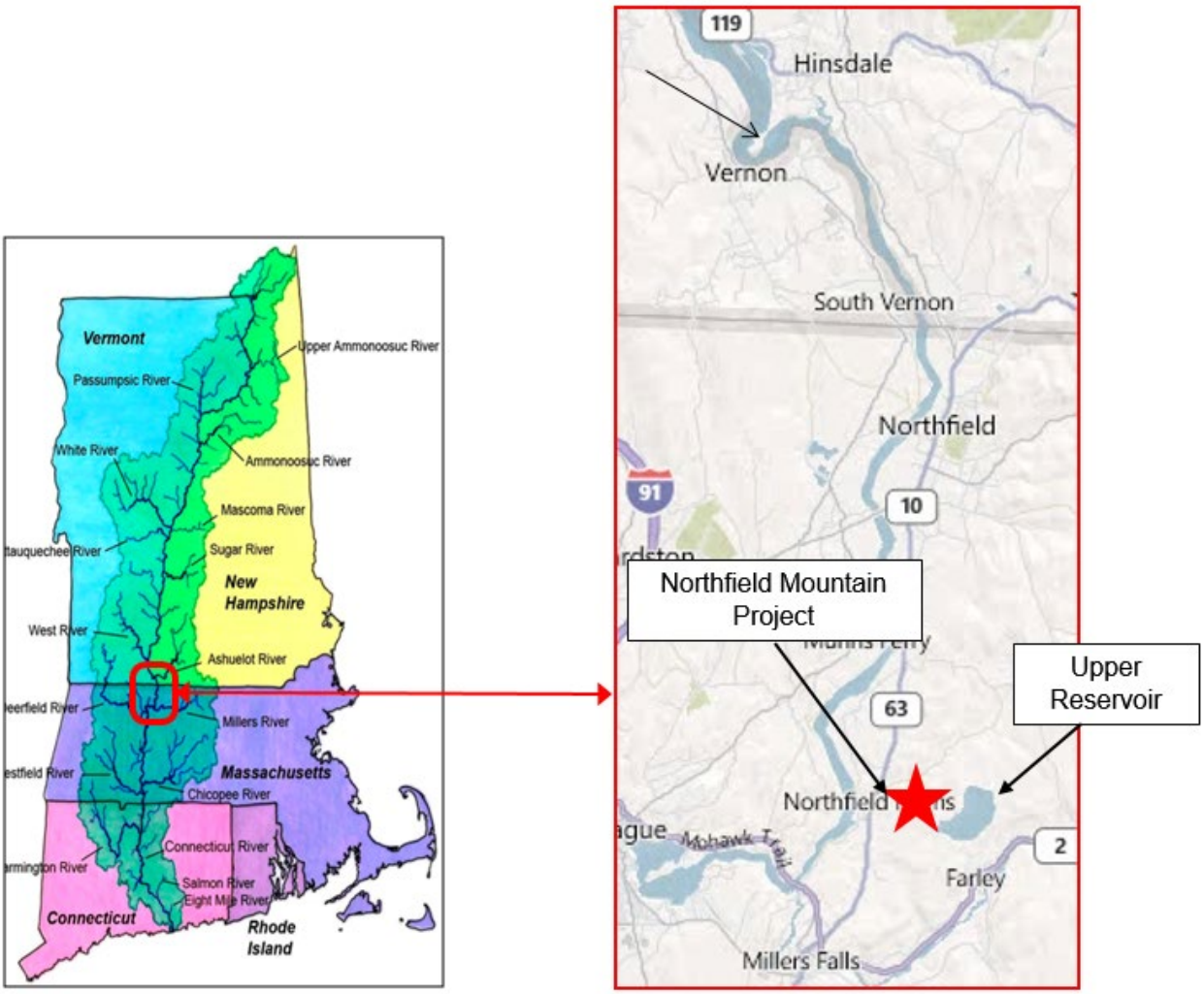


Figure 2
Upper Reservoir

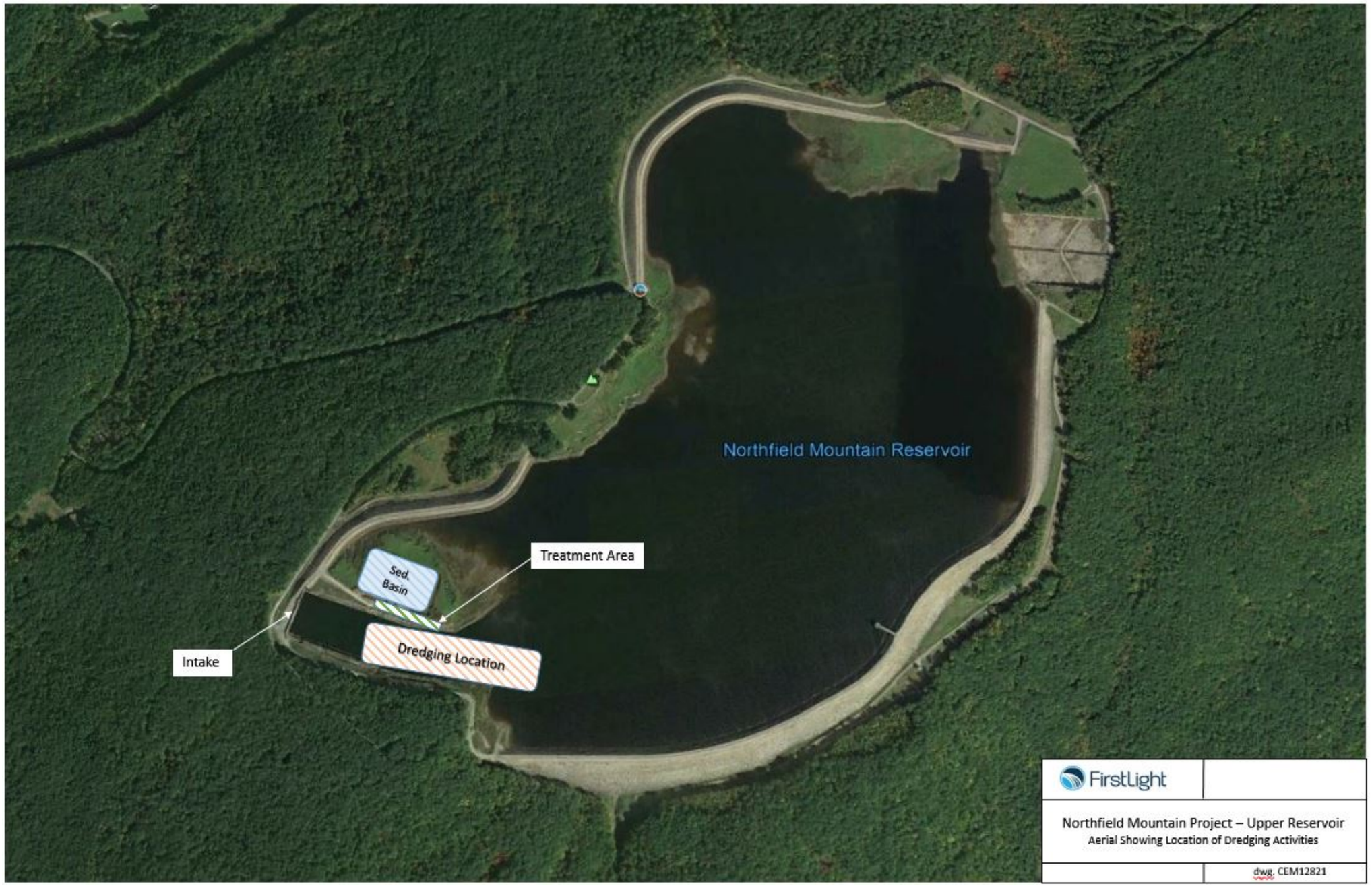
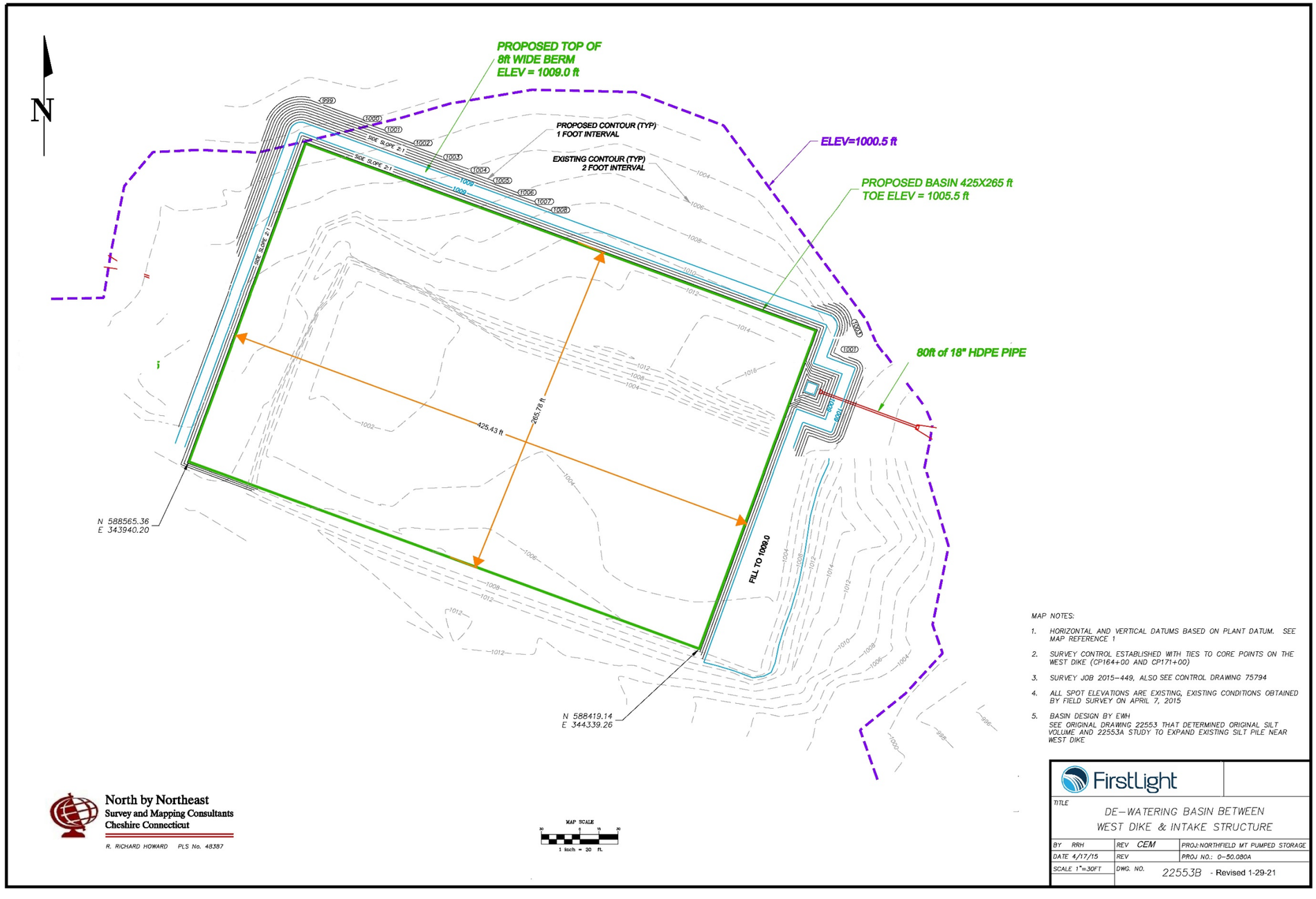


Figure 3
Sedimentation Basin



MAP NOTES:

1. HORIZONTAL AND VERTICAL DATUMS BASED ON PLANT DATUM. SEE MAP REFERENCE 1
2. SURVEY CONTROL ESTABLISHED WITH TIES TO CORE POINTS ON THE WEST DIKE (CP164+00 AND CP171+00)
3. SURVEY JOB 2015-449, ALSO SEE CONTROL DRAWING 75794
4. ALL SPOT ELEVATIONS ARE EXISTING, EXISTING CONDITIONS OBTAINED BY FIELD SURVEY ON APRIL 7, 2015
5. BASIN DESIGN BY EWH
   SEE ORIGINAL DRAWING 22553 THAT DETERMINED ORIGINAL SILT VOLUME AND 22553A STUDY TO EXPAND EXISTING SILT PILE NEAR WEST DIKE

North by Northeast
Survey and Mapping Consultants
Cheshire Connecticut
R. RICHARD HOWARD PLS No. 48387

FirstLight

TITLE	DE-WATERING BASIN BETWEEN WEST DIKE & INTAKE STRUCTURE	
BY RRH	REV CEM	PROJ: NORTHFIELD MT PUMPED STORAGE
DATE 4/17/15	REV	PROJ NO.: 0-50.080A
SCALE 1"=30FT	DWG. NO. 22553B - Revised 1-29-21	

Appendix 1

Relicensing Study 3.1.3

Northfield Mountain Pumped Storage Project Sediment Management Plan

Upper Reservoir Dewatering Protocols

Northfield Mountain Pumped Storage Project (No. 2485)

FirstLight™
Power Resources

JUNE 2017

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LIST OF ABBREVIATIONS

BMP	Best Management Practice
FERC	Federal Energy Regulatory Commission
Final Report	Northfield Mountain Pumped Storage Project Sediment Management Plan Final Report (October 2016)
FirstLight	FirstLight Power Resources
ft	Foot or feet
GIS	Geographic Information System
GPS	Global Positioning System
MA	Massachusetts
MADEP	Massachusetts Department of Environmental Protection
MW	megawatt
NTU	Nephelometric Turbidity Unit
PE	Professional Engineer
PG	Professional Geologist
QAPP	Quality Assurance Project Plan
SCADA	Supervisory Control and Data Acquisition
SSC	Suspended Sediment Concentration
TFI	Turners Falls Impoundment
the Plan	Northfield Mountain Pumped Storage Project Sediment Management Plan
the Project	Northfield Mountain Pumped Storage Project

1 INTRODUCTION

The Northfield Mountain Pumped Storage Project (the Project) is a 1,168-MW pumped storage hydroelectric project, completed in 1972 along the Connecticut River near Northfield, MA. The Project is owned by FirstLight Power Resources (FirstLight) and consists of an Upper Reservoir, underground powerhouse, four reversible pump-turbine generators, an underground pressure shaft, four penstocks and draft tubes, and a mile-long tailrace tunnel connecting the powerhouse to the Connecticut River. An approximately 20-mile segment of the Connecticut River, technically referred to as the Turners Falls Impoundment (TFI), serves as the Project's Lower Reservoir. The manmade Upper Reservoir is approximately 286 acres in area at elevation 1000.5 feet and contains an approximately 1,800 ft. long by 130 ft. wide intake channel. The Upper Reservoir was formed with four earth-core rockfill embankment structures and a concrete gravity dam.

Since 2010, FirstLight has completed several field data collection, data analysis, and modeling efforts to better understand sediment dynamics in the Connecticut River and at the Project, including both the Upper Reservoir and tailrace areas. The work was completed both as part of the Federal Energy Regulatory Commission (FERC) relicensing process (as Study No. 3.1.3) and in response to an Administrative Order issued by the United States Environmental Protection Agency (USEPA) dated August 4, 2010. The work was described as part of the July 15, 2011 *Northfield Mountain Pumped Storage Project Sediment Management Plan* (the Plan)[1], which was developed in consultation with the USEPA and the Massachusetts Department of Environmental Protection (MADEP).

Efforts associated with Study No. 3.1.3 were described in detail in the *Northfield Mountain Pumped Storage Project Sediment Management Plan Final Report* (Final Report), dated October 2016. The Final Report is integral to this document. As described in the Final Report, during normal Project operations (i.e., generation) material sediment releases to the Connecticut River are highly unlikely due to a combination of factors including the physical characteristics of the sediment, the velocity of the water during generation, the configuration of the Upper Reservoir intake structure, and the water level of the Upper Reservoir. Based on this, and other findings, FirstLight proposed adaptive, multi-step sediment management measures in the Final Report, which focused on minimizing the entrainment of sediment into the Project works and Connecticut River during drawdowns or dewatering activities. FirstLight did not propose other operational changes or physical modifications.

As proposed in the Final Report and in response to a December 16, 2016 comment letter from the USEPA, FirstLight has prepared the enclosed protocols to be followed in the event of a dewatering to minimize the potential for the release of excess sediment to the Connecticut River. FirstLight has provided these dewatering protocols to MADEP, USEPA, and FERC staff and may update them periodically as needed to reflect changes in site conditions, new technologies, or otherwise.

[1] In addition to the Sediment Management Plan, FirstLight also developed a Quality Assurance Project Plan (QAPP) in June 2012 at the USEPA's request. The QAPP was subsequently revised in October 2012.

2 BACKGROUND

The Connecticut River is an alluvial river meaning silt and sediment is naturally present within the river channel and is entrained in suspension through normal river dynamics. As noted in the previous section, the Project requires the use of a "lower" and "upper" reservoir as a component of the power generation process. The TFI serves as the Lower Reservoir, with the Upper Reservoir being man-made at the top of Northfield Mountain. During Project operations, silt is drawn into the facility when pumping and accumulates in the Upper Reservoir as it settles out of the water column. As Alden's Upper Reservoir computational hydrodynamic sedimentation modeling demonstrated (conducted for Study No. 3.1.3 and discussed in the Final Report) (Alden, 2014)[2], once sediment is deposited in the Upper Reservoir the sediment generally lies undisturbed.

The results of Study No. 3.1.3 found that during pumping cycles (i.e., up to 4 units operational in pumping mode), there is no practical way to prevent sediment from being transported to the Upper Reservoir. Conversely, the study also found that during generation (i.e., up to 4 units operational in generation mode), Project operations do not cause the release or transport of accumulated sediment from the Upper Reservoir to the Connecticut River. As a result, over time, sediment will accumulate in the Upper Reservoir intake channel and can require periodic removal to ensure that sediments have not accumulated to the point where there is a risk of material discharges of sediment into the Project works and potentially into the Connecticut River in the course of an unwatering (also known as dewatering). In the past, FirstLight has removed this sediment both "hydraulically" (with the Upper Reservoir in use) and in the "dry" (with the Upper Reservoir empty). FirstLight may periodically need to unwater the Upper Reservoir for maintenance and dam safety purposes. Maintenance drawdowns may be planned or unplanned depending on the circumstances.

During a dewatering there are several key physical Project features which help to prevent the release of excessive concentrations of sediment. The first feature is the "check dam" or "stop log structure". The check dam is an approximately 100 ft. long by 10 ft. high reinforced concrete structure spanning the entrance to the Upper Reservoir intake channel, separating the 1,750 foot long intake channel from the main storage area of the Upper Reservoir (Figure 2.1). The purpose of the check dam is to trap sufficient water in the Upper Reservoir to refill the pressure conduit after it has been unwatered and to prevent storm water from draining into the pressure shaft when the Upper Reservoir is unwatered. The check dam also retains sediment that has been accumulated behind the dam so long as sediment accumulation has not exceeded the height of the dam (i.e., 10 feet). As such, so long as the accumulated sediment remains below the height of the check dam, the check dam can reduce the release of excess sediments.

The second key Project feature is the geometry of the 1,750 foot long intake channel. The results of Alden's Upper Reservoir computational hydrodynamic sedimentation model found that during pumping, water and sediment from the Connecticut River are transported at a high velocity through the conduit system to the intake channel leading to the Upper Reservoir. As the water and sediment combine with the water already in the Upper Reservoir intake channel, the wider and deeper intake channel leads to a deceleration of the sediment rich pumped water, which results in the sediment depositing. During generation (i.e., up to four units), the expanded width and depth of the intake channel, combined with the relatively low exit velocity of the water being transported from the Upper Reservoir to the Connecticut River, result in much of the previously deposited sediment remaining in place and not being re-entrained back into the Project works during normal generation (Alden, 2014 [Page 55]). The results of the computational modeling are consistent with the continuous, empirical data collected at the Project tailrace during pumping and generating cycles, which demonstrated no appreciable increase in sediment concentration during generation.

[2] Alden Research Laboratory, Inc. (2014). Engineering Studies of Sedimentation at the Northfield Mountain Project. Holden, MA: FirstLight

Per FirstLight's dewatering procedures, discussed in subsequent sections, the rate of drawdown during a dewatering, and therefore the exit velocity of the water, is essentially the same as, or less than, that which occurs during normal periods of generation. Given this, based on the results of the modeling conducted by Alden (Alden, 2014 [Page 55]), if accumulated sediment is kept below a reasonable threshold in this area (i.e., below the crest of the check dam and of an appropriate thickness and distribution in the intake channel itself), entrainment of sediment in the Project works and the Connecticut River during a dewatering is unlikely as the corresponding velocity is insufficient to mobilize the previously deposited sediment.

The final key Project feature is the physical configuration of the tailrace tunnel. During a dewatering, water exits the Upper Reservoir through the intake channel, into the pressure conduit, through the turbines and draft tubes, into the tailrace tunnel and out through the tailrace exit structure to the Connecticut River. From the draft tubes, the tailrace tunnel runs nearly flat (downward slope of 0.4% for approximately 4,300 ft. or 0.8 miles) and then slopes upward at 12% for approximately 900 ft. or 0.2 miles where it then discharges to the Connecticut River. Figure 2.2 depicts the Project works described above. Due to the length and configuration, it is anticipated that the vast majority of any sediment transported through the pressure conduit and turbines during a dewatering will settle out and deposit in the mile long tailrace tunnel where it will either (1) be transported back to the Upper Reservoir during the next pumping cycle; (2) remain undisturbed; or (3) be removed during Project maintenance activities.

This is consistent with what was observed during the 2010 drawdown, when the shape and configuration of the tunnel, combined with the other factors discussed earlier in this section, resulted in minimal release of sediment to the Connecticut River during the drawdown even though a large amount of sediment had accumulated in the Project Works including the tailrace tunnel. It was not until sediment was being removed from the tailrace tunnel that excessive sediment concentrations were released to the Connecticut River. Issues associated with sediment removal from the tailrace tunnel during the 2010 dewatering have since been addressed and will not be repeated in the future.

The combination of the key Project features discussed above, the rate at which the Upper Reservoir is drawn down and the corresponding velocities, and maintaining the amount of accumulated sediment in the Upper Reservoir intake channel below a certain threshold minimizes the risk of excessive sediment releases during a dewatering. Based on the results of Study No. 3.1.3, FirstLight has focused its measures to minimize the risk of excessive sediment concentrations during a dewatering on ensuring the check dam remains effective and that the amount of accumulated sediment in the intake channel remains below a predetermined threshold. This document describes those measures in more detail.

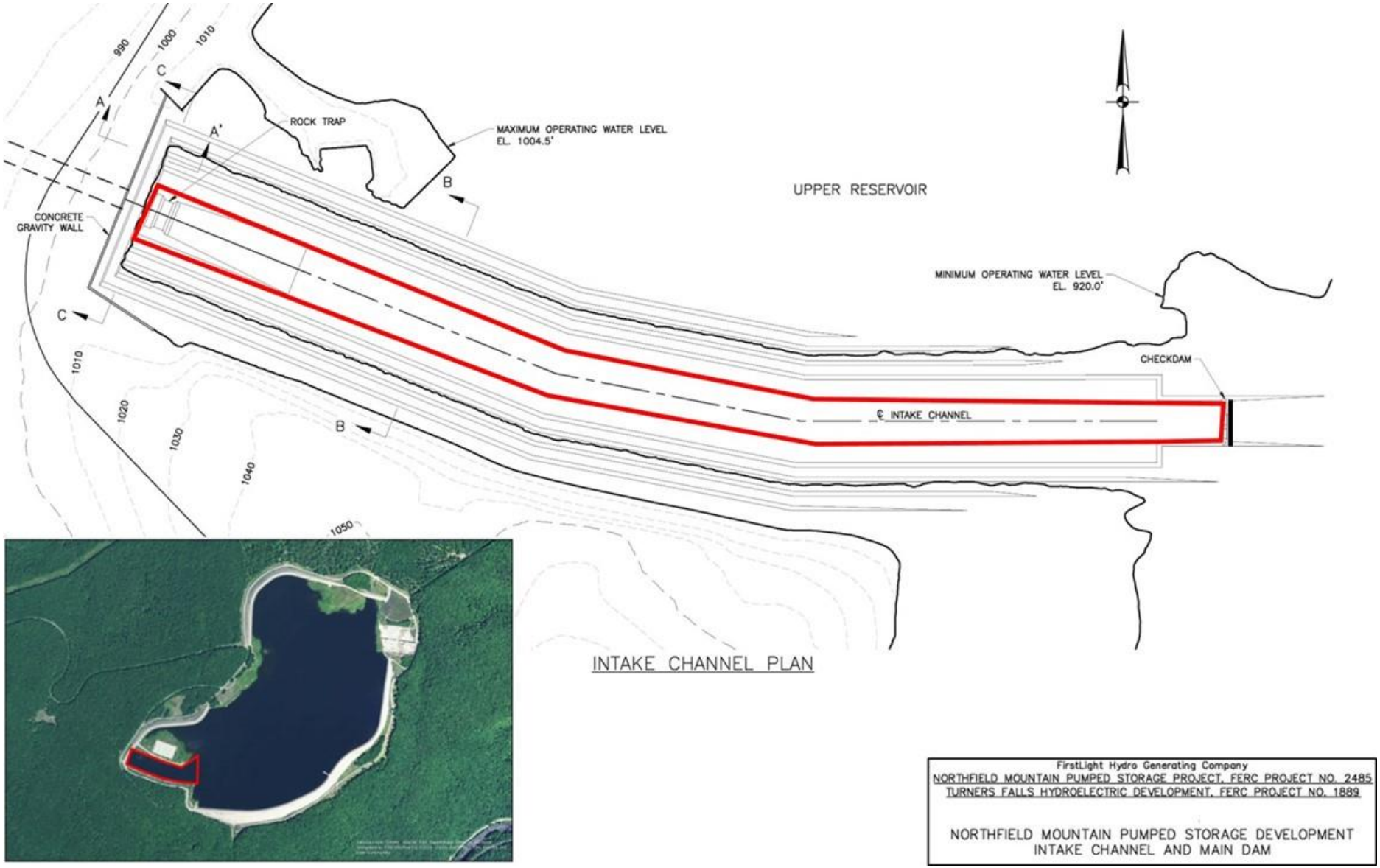
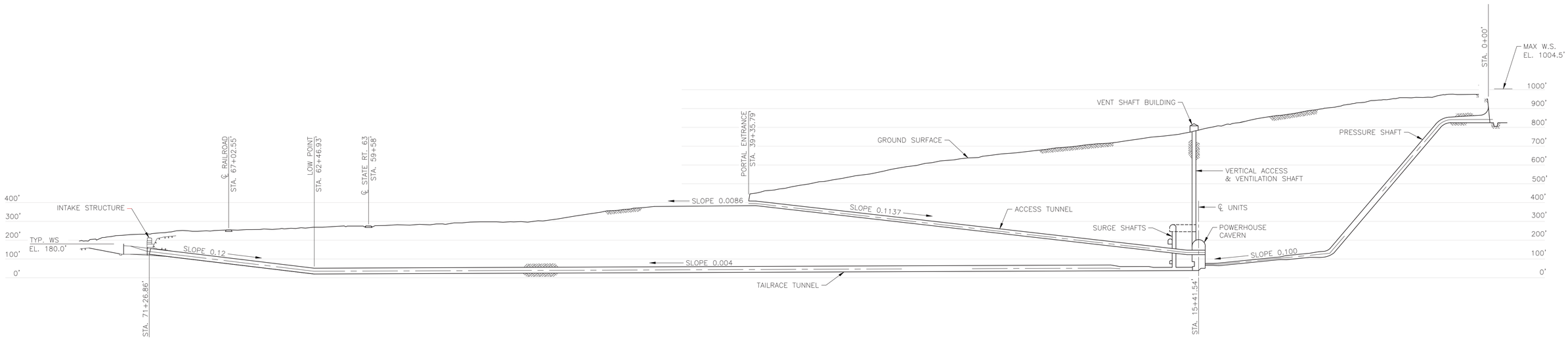


Figure 2.1: Upper Reservoir Intake Channel and Check Dam



POWERHOUSE AND WATER CONDUITS

FirstLight Hydro Generating Company

NORTHFIELD MOUNTAIN PUMPED STORAGE PROJECT, FERC PROJECT NO. 2485

NORTHFIELD MOUNTAIN PUMPED STORAGE DEVELOPMENT
SECTION – POWERHOUSE AND WATER CONDUITS

250' 0 250' 500'

FirstLight

3 MINIMIZING THE RISK OF EXCESSIVE SEDIMENT RELEASES DURING DEWATERING EVENTS

Consistent with the proposals made in the Final Report, the USEPA's letter dated December 15, 2016, notes that FirstLight must develop "*…a plan and procedures to prevent the release of excessive concentrations of sediment during dewatering events.*" In response to this requirement, FirstLight will actively monitor and manage the amount of sediment which accumulates in the Upper Reservoir, with special emphasis on the intake channel and the area in the vicinity of the check dam, to ensure that sediment accumulates at appropriate levels. The steps to prevent the release of excessive sediment during a dewatering event are discussed below.

Bathymetric Surveys

As described in the Final Report, to monitor the amount of sediment accumulation occurring throughout the Upper Reservoir, FirstLight will retain a qualified bathymetric surveying company to perform bathymetric mapping at least once every two years to help understand the location, volume, and rate of sediment accumulation in the Upper Reservoir. The specific techniques and technologies may evolve over time; however, the present plan for surveys is detailed below.

Bathymetric mapping will be performed by boat and is proposed to occur when the Upper Reservoir is near its normal maximum elevation so the maximum extent of bathymetric data can be obtained. Each survey will utilize a multi-beam echo sounder paired with GPS receiver to ensure comparability between surveys. Horizontal and vertical positioning data will be collected continuously on survey lines at predetermined grid spacing in a north-south and east-west direction. Where feasible, subsequent surveys will be conducted at approximately the same time of year as the initial survey to better predict annual sediment dynamics. If excavation of accumulated sediment were to occur, a survey of the excavated area will be conducted to establish an updated baseline.

Bathymetric data will be post processed and translated into a GIS compatible format for analysis purposes. For all bathymetric mapping conducted, data collected will be compared to previous data to estimate rates of sediment accumulation, depth of sediment, and the volume of accumulated sediment throughout the Upper Reservoir, Upper Reservoir intake channel, and the area in the vicinity of the check dam (which is detectable during bathymetric surveys). The results of the bathymetric surveys will reveal sediment location as well as changes in sediment depth and allow for timely removal decisions to be made. A series of steps will then be used to help determine the appropriate action.

Sediment Removal Determination Process

If the results of the bathymetric survey indicate an average sediment depth throughout the middle of the intake channel (as shown in red in Figure 2.1) of 5 ft. or greater, an internal detailed review by an engineering team will be initiated and planning for future sediment removal will commence. The detailed review will include an evaluation as to whether sediment levels have increased to the point where the check dam and/or intake channel geometry would not be able to prevent an excessive release of sediment to the Connecticut River during an unplanned or planned dewatering. The engineering review team will prepare a report of its findings and recommendations. FirstLight will then notify the appropriate agencies and inform them of the next steps.

Once the 5 ft. threshold has been reached, sediment removal will commence within 3 years unless there is a technical and engineering basis for a longer period of time, which would be submitted to USEPA, MADEP, and FERC for review and comment. After reaching the 5 ft. threshold, and until sediment removal occurs, FirstLight will perform bathymetric surveys and detailed engineering reviews annually.

An average sediment depth of 5 ft. throughout the middle of the intake channel (as shown in red in Figure 2.1) was chosen as the trigger point for two primary reasons. First, the results of the pilot dredge conducted for Study No. 3.1.3, combined with prior professional experience, found that 5 ft. of sediment accumulation represents the minimum amount of sediment necessary for hydraulic dredging to be effective. At sediment depths below this threshold, hydraulic dredging has been found to be less effective due to the fact that hydraulic dredging requires a sufficient depth of sediment into which the dredging head is inserted to function properly.

Secondly, based on the results of the computational modeling conducted for Study No. 3.1.3, exit velocities through the intake channel are insufficient to cause the mobilization and entrainment of bed sediment during typical periods of generation (i.e., up to 4 units) (Alden, 2014 [Page 55]). Given that the rate of drawdown, and therefore the velocity, during a dewatering is equal to or less than that of normal generation, it is anticipated that accumulated sediment will remain undisturbed on the bed of the intake channel. By maintaining an average sediment depth of 5 ft. or less throughout the middle of the intake channel, FirstLight believes it will have minimized the risk of excessive sediment releases during planned or unplanned unwatering while still being able to unwater whenever needed.

If the decision to dredge is made, FirstLight will notify the USEPA, MADEP, and FERC. Best Management Practices (BMPs) to prevent the release of sediment during dredging activities will follow those developed as part of Study No. 3.1.3 (Appendix A); these may be updated over time to reflect advances in techniques or technologies and/or to respond to specific conditions anticipated to be encountered during a specific dredging event. In addition, following each dredging event, FirstLight will review all BMPs and update as needed. In the event that the BMPs are updated, FirstLight will provide the most recent version to USEPA, MADEP, and FERC in advance of future dredging activities. The current estimated upland storage capacity available in the Upper Reservoir area for dredged sediments is approximately 50,000 cubic yards. Future sediment management options for dredged sediments include both the development of additional storage and beneficial reuse. Currently, the sediment stockpiled during the 2015 pilot dredge project is being removed from the Project for beneficial reuse.

Figure 3.1 depicts a summary flow chart detailing the decisions and steps involved to prevent the release of excessive sediment concentrations during a dewatering. The steps outlined above, combined with the physical characteristics of the Project works discussed in Section 2 and the dewatering protocols discussed in Section 4, will minimize the risk of excessive sediment releases to the Connecticut River during a planned or unplanned unwatering.

Upper Reservoir Survey

(≤ every 2 years)

Bathymetric Survey

Determine:

- Amount of sediment adjacent to Check Dam
- Depth of sediment in Intake Channel

Is the average depth of sediment in the middle of the intake channel greater than 5 feet?

NO

YES

Initiate internal detailed review by Engineering Team

Proceed with planning for excavation of sediment from Intake Channel

Notify:

- FERC
- USEPA
- MADEP

Can an UNWATERING be coordinated with Planned Maintenance?

NO

Hydraulic Dredging

Monitoring Protocol

- Visual

Notify:

- FERC
- USEPA
- MADEP

Dewater

Monitoring Protocol

- Continuous monitoring
- Visual
- Grab Samples

Mechanical (Dry) Removal (if necessary)

YES

Planned Maintenance requiring an Unwatered Reservoir

Unplanned Maintenance requiring an Unwatered Reservoir

Dewater

Monitoring Protocol

- Continuous monitoring
- Visual
- Grab Samples

FirstLight Power Resources

Figure 3.1
Northfield Mountain Upper Reservoir
Sediment Removal and Dewatering Flowchart

4 DEWATERING PROTOCOLS

As discussed in Section 2, there are typically two types of dewatering's which may occur at the Project, those for planned maintenance and those for unplanned maintenance. Planned maintenance may include repair of powerhouse electrical or hydraulic equipment, inspection of the Upper Reservoir dams and dikes, and repair of intake structures. A planned maintenance dewatering may also include sediment removal using traditional excavation equipment. Conversely, if conditions should arise such that the security or safety of the Project is at risk, FirstLight may require an unplanned dewatering of the Upper Reservoir. Under this scenario, FirstLight would follow the normal dewatering protocol to the extent possible but notify the appropriate agencies as soon as practical.

It should be noted that in the Final Report, FirstLight committed to developing two types of dewatering protocols, one for an emergency and one for maintenance or other. As a result of the sediment management measures discussed in Section 3 (i.e., maintaining the amount of accumulated sediment at a stable level at all times), FirstLight has minimized the risk of excessive sediment releases during planned or unplanned dewatering. As such, separate dewatering protocols are no longer needed as originally discussed in the Final Report.

4.1 Dewatering Protocols

Normal dewatering of the Upper Reservoir is a complicated process and includes steps to minimize the risk of damage to equipment, conduits, and structures and to prevent the entrainment of sediment into the Project works that could result in deposition in the Connecticut River. Typically, dewatering the Upper Reservoir takes 7-10 days due to the slow rate of drawdown and complexity of the process. In case of an emergency drawdown for safety reasons, it may be deemed necessary to advance the process as quickly as possible to reduce exposure to the public or potential for equipment damage.

Once the decision to dewater has been made, FirstLight will notify the appropriate agencies as discussed in Section 4.3. Operationally, FirstLight will begin the drawdown process utilizing all four units until a certain Upper Reservoir water surface elevation is reached. As the Upper Reservoir water surface level decreases, FirstLight will reduce the number of units from four to three, three to two, and two to one after which the dewatering process will transition to a slow drain. The rate of which the Upper Reservoir is drawn down, as well as the corresponding exit velocity of the water, will be equal to or less than that which occurs during normal Project operations. For the reasons discussed in the preceding sections (i.e., intake channel geometry and corresponding water velocities, configuration of Project works, and the amount of accumulated sediment in the intake channel), FirstLight does not anticipate the release of excessive sediment concentrations during this process.

Once the Upper Reservoir has been successfully unwatered, tailrace stop logs will be put in place to seal off the tailrace tunnel from the TFI. A series of sump pumps will then be utilized to remove water present within the tailrace tunnel. The sump pumps are connected to an independent pipe which eventually runs to the surface before discharging to a drainage swale in the vicinity of the Riverview Picnic area, located just upstream of the Project tailrace; the drainage swale discharges to the Connecticut River. It is anticipated that any sediment pumped to the drainage swale would be a de minimis amount; however, FirstLight will monitor the discharge and, if necessary, install a silt curtain, or implement other similar sediment retention strategies, at the drainage swale during the pumping of the water from the tailrace tunnel.

FirstLight will monitor turbidity or suspended sediment concentration (SSC) levels in the tailrace and mainstem TFI over the course of the dewatering as discussed in the next section.

4.2 Monitoring

FirstLight will employ a three-tiered approach to suspended sediment or turbidity monitoring during a dewatering including: (1) visual monitoring; (2) continuous monitoring; and (3) grab sample collection and laboratory analysis. Each monitoring component is discussed in greater detail below.

Visual Monitoring

FirstLight shall perform visual monitoring during daylight hours of the area adjacent to the Upper Reservoir intake channel and tailrace area. If increased turbidity is observed (i.e., water exiting the tailrace that appears to be more turbid than the TFI), the continuous monitoring data (see below) will be reviewed to determine if turbidity levels have risen to a point that the dewatering procedure should stop.

Continuous Monitoring

Continuous turbidity monitors, or similar technology, will be deployed in the tailrace and at an appropriate location along the TFI just upstream of the tailrace for the duration of the dewatering. Data will either be transmitted directly to the Project's SCADA system or be offloaded and reviewed at the beginning and end of each day as well as every two hours during normal business hours. In the event that visual monitoring indicates an increase in turbidity and (1) turbidity readings from the tailrace monitor are two times greater than those observed at the mainstem monitor or (2) turbidity levels measured at the tailrace monitor exceed 25 NTU, whichever is greater, for two hours, FirstLight shall investigate and correct the cause of the turbidity.

It should be noted that in its December 15, 2016 letter, the USEPA noted that FirstLight should deploy the suspended sediment monitors used for Study No. 3.1.3 to monitor suspended sediment concentrations during a dewatering. Due to the extensive issues encountered using the suspended sediment monitors during Study No. 3.1.3 (as detailed in the Final Report), FirstLight has instead elected to propose the monitoring approach detailed above.

Laboratory Analysis of Grab Samples

In advance of a non-emergency dewatering, FirstLight will collect grab samples in the tailrace and at an appropriate location along the TFI just upstream of the tailrace to conduct calibration testing of the continuous monitoring equipment described above. Grab samples will be submitted to a qualified laboratory for analysis. Results will then be compared to the data collected by the continuous monitors.

4.3 Agency Consultation / Notification

Should FirstLight choose to perform a non-emergency dewatering, it will follow this protocol unless an updated protocol has been submitted to reflect changes in site conditions, new technologies, or otherwise. FirstLight will notify MADEP, USEPA, and FERC in advance to document the specific plan and provide BMPs. FirstLight will comply with all applicable federal, state, and local regulations. Under emergency conditions, FirstLight will take immediate measures to protect human health and safety or property and notify the appropriate agencies as soon as practical and in any event within 2 hours of beginning those measures.

4.4 Protocol Review and Update

FirstLight shall review this protocol, at a minimum, after each dewatering event and provide revisions to the agencies listed in Section 4.3, as necessary. The intent of subsequent revisions is to improve the usefulness of the protocol by incorporating best practices learned from each event.

Appendix 2

Technical Data

for

Geostrux - Geotextile Tubes

Aquamark - Sediment Flocculant

GEOSTRUX™

GEOTEXTILE TUBES

ENVIRONMENTALLY PROVEN SOLUTIONS FOR DEWATERING AND COASTAL APPLICATIONS

GEOSTRUX™ Tubes are produced using high strength woven fabrics which are manufactured to exacting standards by our in-house fabrication group.

Once on site, GEOSTRUX™ Tubes are hydraulically filled with heavily saturated sediment, sand or waste materials. When fully dewatered, the sediment has reduced weight and volume, allowing for more cost-effective material handling. In coastal applications the structure is strategically placed before filling to provide cost effective shoreline protection or habitat creation.

GEO-SYNTHETICS, LLC.

WWW.GEO-SYNTHETICS.COM

PHONE: 800.444.5523

GEOSTRUX@GEO-SYNTHETICS.COM

GEOSTRUX™

GEOTEXTILE TUBES

FIELD PROVEN IN A WIDE VARIETY OF APPLICATIONS

APPLICATIONS

- Habitat Creation
- Coastal Protection
- Breakwaters, Groins & Jetties
- Dewatering Liquid Waste and Sludge
- Dewatering Lake and River Sediments

ADVANTAGES

- Cost Effective
- Passive Dewatering
- Improved Effluent Clarity

GEOSTRUX™ Geotextile Tube

Dimensions and Capacities

Circumference	Capacity*
22.5'**	1.3 CY/LF
30'	2.3 CY/LF
45'	4.1 CY/LF
60'	6.2 CY/LF
75'	8.3 CY/LF
90'	10.1 CY/LF

**Calculated volume – Actual capacity may vary*

***Container Tubes*

Available in either black or tan fabric

Note: Dimensions and capacities are represented as typical values. They should not be used for design purposes. GSI makes no warranties and assumes no liability in connection with the use of this information.

GSI GEO-SYNTHETICS, LLC.

WWW.GEO-SYNTHETICS.COM PHONE: 800.444.5523 GEOSTRUX@GEO-SYNTHETICS.COM

Beltech 4.5 x 6.25

2159

Product Data Sheet

June 2015

A woven geotextile fabric, produced from polypropylene slit-film tapes, which will meet or exceed the following MARV's. This fabric is produced for use in Filtration and Dewatering application. Its sand color makes it more appealing than traditional black fabrics in many applications. The fabric is designed and engineered with 4 inch reinforced selvages to insure maximum fabricated seam strength.

Property	Test Method	English Units			SI Units		
		MARV			MARV		
		MD	CD		MD	CD	
Wide Width Tensile Ultimate	ASTM D-4595	450	622	lbs/in	79	109	kN/m
Wide Width Elongation	ASTM D-4595	20	18	%	20	18	%
Wide Width @ 2% - **Typical**	ASTM D-4595	25	135	lbs/in	4	24	kN/m
Wide Width @ 5% - **Typical**	ASTM D-4595	120	320	lbs/in	21	56	kN/m
Wide Width @ 10% - **Typical**	ASTM D-4595	320	n/a	lbs/in	56	n/a	kN/m
Trapezoid Tear	ASTM D-4533	250	300	lbs	1113	1335	N
CBR Puncture	ASTM D-6241	3000		lbs	13		kN
Puncture	ASTM D-4833	225		lbs	1001		N
Permittivity	ASTM D-4491	0.27		sec^{1}	0.27		sec^{-1}
Water Flow Rate	ASTM D-4491	20		gpm/ft^2	815		$l/min/m^2$
A.O.S.	ASTM D-4751	30		U.S. Sieve	0.6		mm
UV Resistance (1400 hrs) - **Typical**	ASTM D-4355	85		%	85		%
UV Resistance (1400 hrs) - **MARV**	ASTM D-4355	70		%	70		%
Pore Size Distribution (O_{50}) ** - **Typical**	ASTM D-6767	140		U.S. Sieve	100		micron
Pore Size Distribution (O_{95}) ** - **Typical**	ASTM D-6767	40		U.S. Sieve	395		micron

**** Performed by a Third Party Laboratory**

Produced in Belton, South Carolina, U.S.A.

PO Box 127 · 1205 Hamby Road · Belton, South Carolina 29627

Phone 864.338.5711 / 800.845.8753 · Fax 864.338.5594 / 800.851.5049 · www.BeltonIndustries.com

ACCREDITED
Testing Lab - Cert 3507.01

Fabrication Procedures

Geotextile Tube production protocols to be used on all sew tags

1. **Item Number** is the Integra item number.
   Examples:
   a. TGTUBE4660100 for a 60x100' tube made from black 4x6
   b. TGTUBET60100 for a 60x100' tube made from tan 1853

2. **Product ID # or serial number is assign to a specific tube based on the date of production. Each tube is labeled as** TTYYMMDD# where:
   - TT = Type of material used (i.e.46or 53)
   - YY= two digit designation of the year (e.g. 10)
   - MM = two digit designation of the month
   - DD = date
   - # = the count of tubes manufactured on that date (e.g. the second tube made that day would be "2", even if the first one made was from a different fabric)

   Examples:
   a. 4x6 black tubes
      i. 46YYMMDD#
      ii. e.g. the first tube finished on October 20, 2010 would be 461010201
   b. 1853 Tan
      i. 53YYMMDD#
      ii. e.g. the 2nd tube finished on June 14, 2011 would be 531106142

3. **Size** is the circumference and length of the tube in feet
   e.g. 60' x 100'
4. **Ports** is the number of ports built on the Geotextile tube
5. **Weight** is the estimated weight rounded to the nearest 100 pounds
6. **Inspected by** is where the lead fabricator initials
7. The tag is sewn in a prominent location

SILTTEX

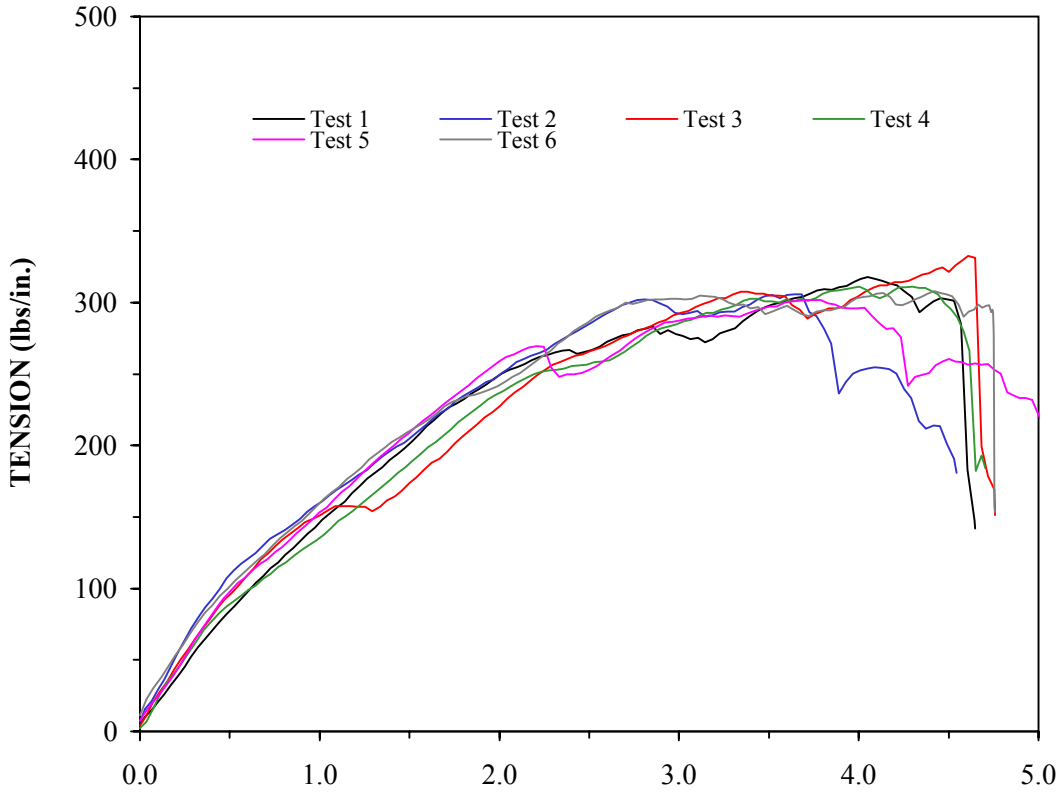
GSI - Waukesha, WI

ITEM NUMBER (1)	*PRODUCT ID #* (2)
Size (3) ____ X ____	*PORTS:* (4) ____ *WEIGHT:* (5) ____

INSPECTED BY: (6) ____

THIS INFORMATION IS PROVIDED FOR REFERENCE PURPOSES ONLY AND IS NOT INTENDED TO IMPLY A WARRANTY OR GUARANTEE. THIS PRODUCT WAS INSPECTED AT TIME OF SHIPMENT AND WAS FOUND TO BE IN GOOD QUALITY AND FREE FROM DEFECTS. GSI ASSUMES NO LIABILITY AS TO DAMAGE FROM SHIPMENT OR ON SITE HANDLING.

GEO-SYNTHETICS, INC.
SEAM STRENGTH TESTING (AST.M D 4884)
Butterfly Seam with 2 Rows of Stitches at Selvage and 3 SPI
Propex 4 x 6 Woven Geotextile
Geotextile Roll # 202255359 and 2022567984
SGI Sample ID No. S17162



Test No.	Maximum Seam Strength (lbs/in.)	Displacement at Maximum (in.)	Time to Rupture (min.)	Failure Mode (-)	Ultimate Strength in XD (lbs/in.)	Seam Efficiency (%)
1	318	4.1	10.2	Rupture of XD Yarns		
2	306	3.6	9.1			
3	334	4.6	11.6			
4	312	4.2	10.6			
5	303	3.8	9.4			
6	308	4.4	11.0			
Mean	313	4.1	10.3	NA	NA	NA
STD	11	0.4	0.9	NA	NA	NA

NOTES:

Clamp:	Roller
Padding:	None
Specimen Width (in.):	8.0
Gage Length (in.):	4.0
Strain Rate (% per minute):	10
MD:	Machine direction
XD:	Cross-machine direction
NA:	Not Applicable

DATE TESTED:	12/11/2012
FIGURE NO.	2
PROJECT NO.	SGI10012
DOCUMENT NO.	
FILE NO.	

SGI TESTING SERVICES, LLC

GEOSTRUX™ GEOTEXTILE TUBE HANDLING AND STORAGE[1]

- Product Delivery, Handling, and Storage
  - Product Delivery
    - The Geotextile tube shall be delivered wrapped in a protective wrap that consists of a nonwoven geotextile and a black plastic wrap. There will be product identification on the outside wrap as well as on the Geotextile tube itself. The identification on the wrap will be the tube size. The information on the tube proper will be the size, weight, and production date. The tube will be rolled on a steel/cardboard core depending on the size of the tube.
  - Product Handling
    - No hooks, tongs, forks, or other sharp devices shall be used to handle the Geotextile Tube. If practical use machinery fitted with poles that can be inserted into the core for moving the Geotextile tube around. Care should be taken so as to not damaging the protective wrap by sliding, dragging, or prodding the roll. Care should be taken to not damage the core with a pole that is not at least two thirds the length of the core. Straps and slings may be used to carry relatively rigid rolls of material provided the slings do not cause damage to the rolls.
  - Product Storage
    - When storing the Geotextile Tube care should be taken to elevate the tube so as to keep the product out of standing/accumulated water. Care should be taken to protect the product from environmental conditions that could reduce the performance of the Geotextile Tube. The protective wrap should remain in place until the product is to be installed on site to assure protection from sunlight and other environmental conditions over extended periods of time. Care should be taken to assure that there are no sharp objects in the storage area that may damage the tube.

Geotextile Tube Repair

It is always best to enlist an experienced geotextile tube installer on the project. They have the ability to assess the damage and provide solutions at the time of the mishap. The first step in repair of a geotextile tube should be to determine the cause for the damage to the tube, if the damage was created by internal or external forces or debris, the process for pumping should be reviewed in order to prevent further damage.

Should a hole develop in the fabric of the tube first clean the area around the hole. Cut a piece of fabric that is 6 inches wider than the hole. Insert the patch material into the hole and spread the patch out to create good contact with the inside of the tube. Then if the inside pressure does not hold the patch in place use the hook needle and thread supplied to attach the patch to the side wall of the tube. If the hole is more of a slit then use the needle and thread supplied to sew the slit together.

Nylon zip ties are also supplied to make a quick repair of a slit area in the wall of the tube. This works for damaged areas less than 18” in length. In areas that are larger then clamp the area with two pieces of wood and “C” clamps and use all weather screws and screw the wood together creating a new “seam”.

[1] ASTM D 4873-02

If the damage is in the seam there may not be a repair solution that will allow for maximum filling of the tube. A replacement may be the only solution. Working around the tube with sharp edges and mechanical equipment should warrant care and where necessary a second person to spot the activity to prevent moving too close to the geotextile tube.

The immediate filling period is when the tube will experience the greatest pressures. As consolidation develops there will be less outward pressure on the damaged area. At that time it is a matter of sealing the hole to prevent migration of the contained materials.

INSTALLATION INSTRUCTIONS

The *information, including technical and engineering* data, *figures, tables, designs, drawings, details, suggested* procedures, *and suggested specifications, presented* in *this publication are for general information only.* The *information contained* herein is subject to change without notice. While every *effort has* been made to ensure *its accuracy, this information should* not be used *or relied upon for any specific application without* independent *professional examination and verification of its accuracy, suitability*, and *applicability.*

Tube installation shall be in accordance with the following specifications:

The foundation for the placement of the geotextile tube shall be smooth and free of protrusions, which could damage the geotextile. Remnant timber piles, piers, footings, underground utilities, etc., at or below grade, shall be removed if located within 6.0 m (20 ft) of the project site. Weak or unsuitable foundation material shall be removed or stabilized. The dewatering area shall be graded to a maximum slope of 1%. The dewatering area shall have a non-erodable surface (gravel, grass, asphalt or concrete) or shall be lined with plastic sheeting.

DEPLOYMENT

Tubes shall be aligned as straight as possible. Means of assuring that the tubes are properly aligned within the specified tolerances shall be incorporated into the placement methodology presented the Plan of Construction. The geotextile tubes shall be deployed along the alignment and secured in place as necessary to assure proper alignment after filling. No portion of the tubes shall be filled until the entire tube segment has been fully anchored to the foundation along the correct alignment and pulled taut. Larger tubes may require concrete barriers to prevent the tubes from rolling during filling. All unused fill ports shall be tied closed.

FILLING

After completing the deployment and anchorage of the geotextile tube, filling with dredged material shall be accomplished in accordance with the approved Plan of Construction. The discharge line of the dredge shall be fitted with a "Y-valve" to allow control of the rate of filling. The Y-valve system shall be fitted with an internal mechanism such as a gate, butterfly valve, ball valve, or pinch valve to allow the contractor to regulate discharge into the geotextile tube. Any excess discharge shall be directed away from the tubes toward the borrow area. The dredge discharge pipe shall be free of protrusions that could that could tear the fill port. It is generally accepted practice to support the dredge discharge pipe above the fill port in a manner, which reduces stress on the fill port seams. The height to width ratio of the full-deployed tube shall not exceed a value, of 0.5. Other height and width specification may be required by the Engineer to assure sliding, overturning, bearing capacity, and global stability of the tube system. If the tube is not to be externally backfilled, the area should be left in a neat and properly graded manner. If the tube is to be externally backfilled, the lines and grade on the Plan of Construction must be followed. The tubes shall not be filled higher than the manufacturer's recommended height.

PROTECTION

No hooks, tongs or other sharp instruments shall be used for handling. The geotextile tube shall not be dragged on the ground.

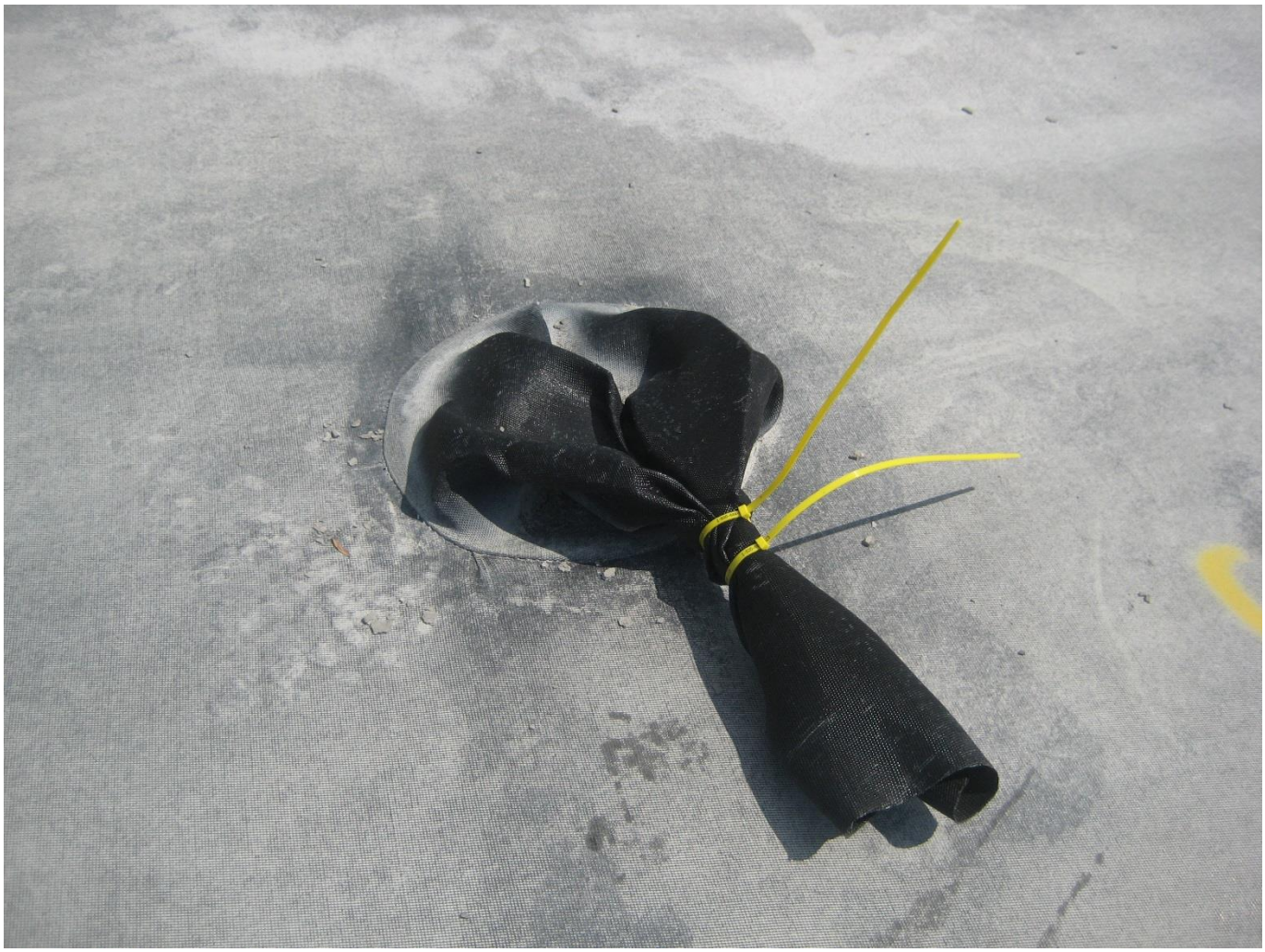
RECOMMENDED FILL HEIGHT

15'-3', 30'-4', 45'-5.5', 60'- 7.0'

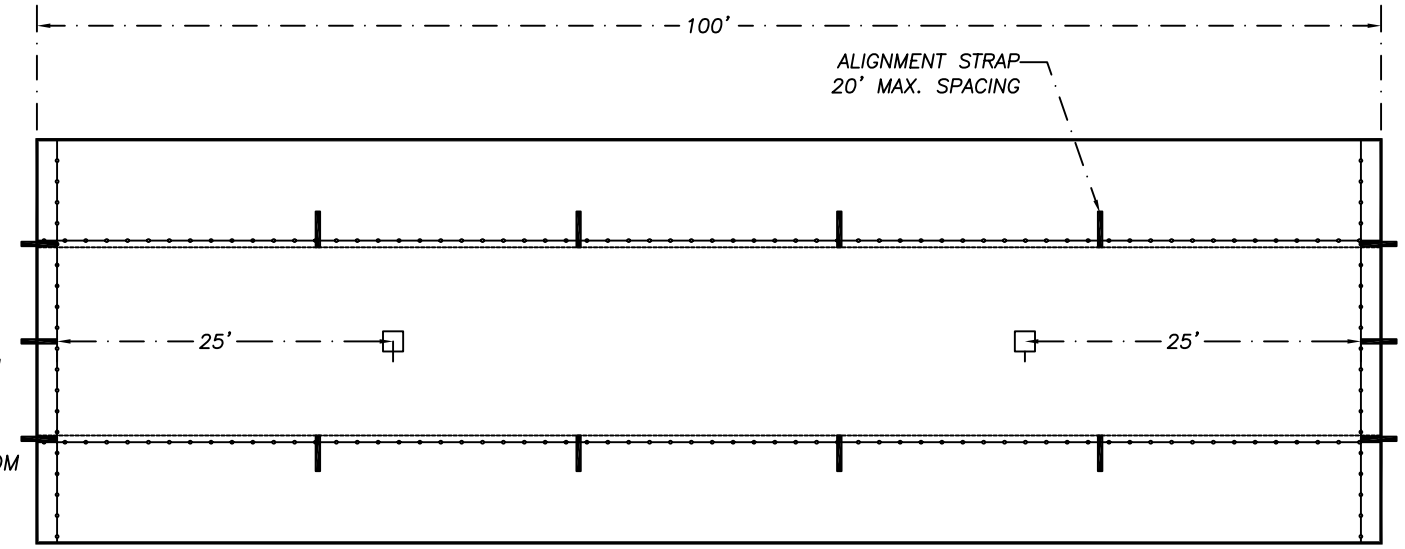
Injection Port Closing Details

1. Geotextile Tubes are shipped with zip ties to close off the port after the filling operation is complete
2. Contractor has the option to use an alternate method to achieve the same result

A closed port should resemble the following:



2401 PEWAUKEE ROAD • WAUKESHA, WI 53188-6904 • 262-524-7979 • Fax: 262-524-7961 • 800-444-5523 • www.geo-synthetics.com



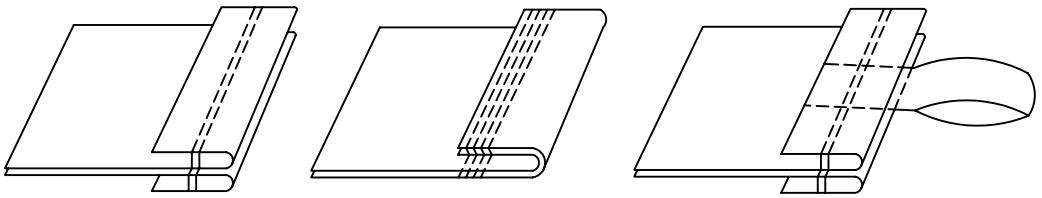
GSI RECOMMENDS AT A MINIMUM PERFORMING A HANGING BAG TEST PRIOR TO STARTING PROJECT.

TUBE TO BE PLACED ON PROPERLY PREPARED SUBGRADE. DETAILS AVAILABLE AT WWW.GEO-SYNTHETICS.COM

FILL PORTS

ALIGNMENT STRAPS

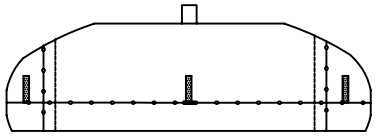
GEOSTRUX™ GEOTEXTILE TUBE PLAN VIEW



LONGITUDINAL SEAM DETAIL

END SEAM DETAIL

ALINGMENT STRAP DETAIL



GEOSTRUX™ GEOTEXTILE TUBE END VIEW

REVISIONS		
NO.	DATE	BY

NOTES:

1) GEOSTRUX™ GEOTEXTILE TUBES ARE CONSTRUCTED WITH 15' PANEL SECTIONS.
2) STANDARD FILL PORTS ARE 18" DIAMETER BY 36" LONG.

LEGEND

- PANEL OUTLINE
- SEAM
- ALIGNMENT STRAP
- FILL PORT

CUSTOMER'S APPROVAL

THE UNDERSIGNED APPROVES PRODUCTION OF GEOSTRUX™ GEOTEXTILE TUBES BY GEO-SYNTHETICS, LLC AS SHOWN.

_____
SIGNATURE

_____
COMPANY

DRAWN BY: MAR	**DATE:** 01/12/10
CHKD BY:	**DATE:**
SCALE: NTS	**DRAWING #** GT-610
FILENAME: 60100 STANDARD	

PROJECT INFORMATION:

60' X 100' GEOSTRUX™ GEOTEXTILE TUBE - STANDARD

GEO-SYNTHETICS, LLC.
2401 PEWAUKEE ROAD
WAUKESHA, WI 53188
262-524-7979

AQM

AQUAMARK 200

TECHNICAL DATA SHEET

TYPE Liquid Cationic Polymer

DESCRIPTION

AQ 200 is a highly cationic, medium to high viscosity, high molecular weight Poly-quaternary amine. It is effective as a coagulant/flocculant in raw water/waste water clarification. It is also beneficial as a filter aid in treating raw water/waste water. AQ 200is certified to ANSI/NSF Standard 60 up to 20 mg/L in potable water.

TYPICAL PROPERTIES

Appearance**:**	Viscous, Amber colored Liquid
Odor:	Amine
Product Viscosity @ 25°C:	4,000 – 9,000 cps
Density:	9.5 lbs/gal
Flash Point:	None
Boiling Point (°C @ 760 mm Hg):	>100°C
Freezing Point (°C):	< 0°C
pH, Neat (as is):	4.0 – 5.0
Shelf Life:	One Year

HANDLING, STORAGE AND FEEDING

AQ 200 should be transferred only in well-ventilated areas. As with all chemicals, care should be taken during transfer and appropriate protective equipment should be worn. Clean up spills immediately using inert absorbent materials such as clays, sand, earth or other commercially available dry sweeping compound. The product may cause a slip hazard. Store it in fiberglass, stainless steel or plastic lined vessels located in a cool area. However, avoid storage temperatures below freezing, since this product may stratify. AQ 200 is shipped either in bulk, in 55-gallon (208 liters) non-returnable drums, or in 275-gallon / 330-gallon plastic totes. Use corrosion resistant, positive displacement pump to meter the neat product to a water line for continuous dilution to 0.5% or less before application. Feed the diluted product or, in some cases, neat product at a point which ensures complete mixing, such as prior to the rapid mix zone.

SAFETY DATA SHEET
AQ 200

According to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: **AQ 200**

Type of product: Mixture

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Processing aid for industrial applications.

Uses advised against: None.

1.3. Details of the supplier of the safety data sheet

Company:
AQUAMARK Inc.
PO BOX 773
CHESTERLAND, OH 44026
United States

Telephone: 440.564.1227

Telefax: 440.564.1255

E-mail address: customerservice @aquamark.net

1.4. Emergency telephone number

24-hour emergency number: 800-424-9300 CHEMTREC (CCN 1595), Outside U.S. 703-527-3887

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to paragraph (d) of 29 CFR 1910.1200:

Not classified.

2.2. Label elements

Labelling according to paragraph (f) of 29 CFR 1910.1200:

Hazard symbol(s): None.

Signal word: None.

Hazard statement(s): None.

Precautionary statement(s): None.

2.3. Other hazards

Spills produce extremely slippery surfaces.

Ingredient(s) of unknown acute toxicity: None.

For explanation of abbreviations see Section 16.

SECTION 3. Composition/information on ingredients

3.1 Substances
Not applicable, this product is not a substance.

3.2 Mixtures
This product is a mixture.

Hazardous components
Contains no reportable hazardous substances.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Move to fresh air. No hazards which require special first aid measures.

Skin contact:
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. In case of persistent skin irritation, consult a physician.

Eye contact:
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Alternatively, rinse immediately with Diphoterine ®. Get prompt medical attention.

Ingestion:
Rinse mouth with water. Do NOT induce vomiting. Get medical attention immediately if symptoms occur.

4.2. Most important symptoms and effects, both acute and delayed

None under normal use.

4.3. Indication of any immediate medical attention and special treatment needed.

None under normal use.

Other information:
None.

SECTION 5. Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media:
Water. Water spray. Foam. Carbon dioxide (CO2). Dry powder.
Warning! Spills produce extremely slippery surfaces.

Unsuitable extinguishing media:
None.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products:
Carbon oxides (COx). Nitrogen oxides (NOx). Hydrogen chloride. Hydrogen cyanide (hydrocyanic acid) may be produced in the event of combustion in an oxygen deficient atmosphere.

5.3. Advice for fire-fighters

Protective measures:
Wear self-contained breathing apparatus and protective suit.

Other information:
Spills produce extremely slippery surfaces.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions:
Do not touch or walk through spilled material. Spills produce extremely slippery surfaces.

Protective equipment:
Wear adequate personal protective equipment (see Section 8 Exposure Controls/Personal Protection).

Emergency procedures:
Keep people away from spill/leak. Prevent further leakage or spillage if safe to do so.

6.2. Environmental precautions

Do not contaminate water.

6.3. Methods and material for containment and cleaning up

Small spills:
Do not flush with water. Soak up with inert absorbent material. Sweep up and shovel into suitable containers for disposal.

Large spills:
Do not flush with water. Dam up. Clean up promptly by scoop or vacuum.

Residues:
Soak up with inert absorbent material. After cleaning, flush away traces with water.

6.4. Reference to other sections

SECTION 7: Handling and storage; SECTION 8: Exposure controls/personal protection; SECTION 13: Disposal considerations;

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes. Renders surfaces extremely slippery when spilled. When using, do not eat, drink or smoke.

7.2. Conditions for safe storage, including any incompatibilities.

Keep away from heat and sources of ignition. Freezing will affect the physical condition and may damage the material.

7.3. Specific end use(s)

None.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits:

None.

8.2. Exposure controls

Appropriate engineering controls:

Use local exhaust if misting occurs. Natural ventilation is adequate in absence of mists.

Individual protection measures, such as personal protective equipment:

a) Eye/face protection:
Safety glasses with side-shields.

b) Skin protection:
Wear coveralls and/or chemical apron and rubber footwear where physical contact can occur.

i) Hand protection:
PVC or other plastic material gloves.

c) Respiratory protection:
No personal respiratory protective equipment normally required.

d) Additional advice:
Wash hands and face before breaks and immediately after handling the product. Wash hands before breaks and at the end of workday.

Environmental exposure controls:

Do not allow uncontrolled discharge of product into the environment.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

a) Appearance:	Clear to slightly yellow liquid.
b) Odour:	None.
c) Odour Threshold:	Not applicable.
d) pH:	4 - 7
e) Melting point/freezing point:	< 0°C
f) Initial boiling point and boiling range:	> 100°C
g) Flash point:	Does not flash.
h) Evaporation rate:	No data available.
i) Flammability (solid, gas):	Not applicable.
j) Upper/lower flammability or explosive limits:	Not expected to create explosive atmospheres.
k) Vapour pressure:	2.3 kPa @ 20°C
l) Vapour density:	0.804 g/litre @ 20°C
m) Relative density:	1.1 - 1.2
n) Solubility(ies):	Completely miscible.
o) Partition coefficient:	< 0
p) Autoignition temperature:	Does not self-ignite (based on the chemical structure).
q) Decomposition temperature:	> 150°C
r) Viscosity:	See Technical Bulletin.
s) Explosive properties:	Not expected to be explosive based on the chemical structure.
t) Oxidizing properties:	Not expected to be oxidising based on the chemical structure.

9.2. Other information

None.

SECTION 10. Stability and reactivity

SECTION 10. Stability and reactivity

10.1. Reactivity

Stable under recommended storage conditions.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

None known.

10.4. Conditions to avoid

Protect from frost, heat and sunlight.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

Thermal decomposition may produce: hydrogen chloride gas, nitrogen oxides (NOx), carbon oxides (COx). Hydrogen cyanide (hydrocyanic acid).

SECTION 11. Toxicological information

11.1. Information on toxicological effects

Information on the product as supplied:

Acute oral toxicity:	LD50/oral/rat > 5000 mg/kg
Acute dermal toxicity:	LD50/dermal/rat > 5000 mg/kg
Acute inhalation toxicity:	Testing by the inhalation route is inappropriate because exposure of humans via inhalation is unlikely: the substance has no vapour pressure and there is practically no exposure to inhalable aerosols.
Skin corrosion/irritation:	Non-irritating to skin.
Serious eye damage/eye irritation:	Slightly irritating.
Respiratory/skin sensitisation:	Not sensitizing to skin. No respiratory sensitization has been observed in the workplace.
Mutagenicity:	By analogy with similar products, this product is not expected to be mutagenic.
Carcinogenicity:	By analogy with similar substances, this substance is not expected to be carcinogenic.
Reproductive toxicity:	By analogy with similar substances, this substance is not expected to be toxic for reproduction.
STOT - single exposure:	No known effects.

STOT - repeated exposure: No known effects.

Aspiration hazard: No hazards resulting from the material as supplied.

SECTION 12. Ecological information

12.1. Toxicity

Information on the product as supplied:

Acute toxicity to fish: LC50/Danio rerio/96 hours = 10 - 100 mg/L

Acute toxicity to invertebrates: EC50/Daphnia magna/48 hours = 10 - 100 mg/L

Acute toxicity to algae: Algal inhibition tests are not appropriate. The flocculation characteristics of the product interfere directly in the test medium preventing homogenous distribution which invalidates the test.

Chronic toxicity to fish: No data available.

Chronic toxicity to invertebrates: No data available.

Toxicity to microorganisms: No data available.

Effects on terrestrial organisms: No data available. Exposure to soil is unlikely.

Sediment toxicity: No data available. Exposure to sediment is unlikely.

12.2. Persistence and degradability

Information on the product as supplied:

Degradation: Not readily biodegradable.

Hydrolysis: Does not hydrolyse.

Photolysis: No data available.

12.3. Bioaccumulative potential

Information on the product as supplied:

The product is not expected to bioaccumulate.

Partition co-efficient (Log Pow): < 0

Bioconcentration factor (BCF): ~0

12.4. Mobility in soil

Information on the product as supplied:

Exposure to soil is not to be expected.

Koc: No data available.

12.5. Other adverse effects

None.

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Waste from residues / unused products:

Dispose in accordance with local and national regulations.

Contaminated packaging:

Rinse empty containers with water and use the rinse-water to prepare the working solution. If recycling is not practicable, dispose of in compliance with local regulations.

Recycling:

Store containers and offer for recycling of material when in accordance with the local regulations.

SECTION 14. Transport information

Land transport (DOT)

Not classified.

Sea transport (IMDG)

Not classified.

Air transport (IATA)

Not classified.

SECTION 15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Information on the product as supplied:

TSCA Chemical Substances Inventory:

All components of this product are either listed on the inventory or are exempt from listing.

US SARA Reporting Requirements:

SARA (Section 311/312) hazard class:
Not concerned.

SARA Title III Sections:

Section 302 (TPQ)- Reportable Quantity:
Not concerned.

Section 304- Reportable Quantity:
Not concerned.

Section 313 (De minimis concentration):
Not concerned.

Clean Water Act

Section 311 Hazardous Substances (40 CFR 117.3)- Reportable Quantity:
Not concerned.

Clean Air Act

Section 112(r) Accidental release prevention requirements (40 CFR 68)- Reportable Quantity:
Not concerned.

CERCLA

Hazardous Substances List (40 CFR 302.4)- Reportable Quantity:
Not concerned.

RCRA Status:

Not RCRA hazardous.

California Proposition 65 Information:

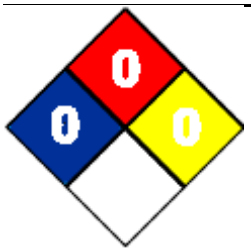
WARNING! This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm, Epichlorohydrin, 1,3-Dichloro-2-propanol (1,3-DCP), 3-Monochloropropane-1,2-diol (3-MCPD)

SECTION 16. Other information

NFPA and HMIS Ratings:

NFPA:

Health:	0
Flammability:	0
Instability:	0



HMIS:

Health:	0
Flammability:	0
Physical Hazard:	0
PPE Code:	B

This data sheet contains changes from the previous version in section(s):

SECTION 5. Fire-fighting measures, SECTION 8. Exposure controls/personal protection, SECTION 15.Regulatory information, SECTION 16. Other Information.

Key or legend to abbreviations and acronyms used in the safety data sheet:

Acronyms

STOT= Specific target organ toxicity

Training Advice

Do not handle until all safety precautions have been read and understood.

This SDS was prepared in accordance with the following:

U.S. Code of Federal Regulation 29 CFR 1910.1200

Version: 17.01.a

LDCC002

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 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.

Revision date: 6/18/2018
Revised by: av

Appendix 3

Safety & Health Program

Dredge America

9555 NW HIGHWAY N
Kansas City, MO 64153
www.dredgeamerica.com

Combined Health & Safety and Accident Prevention Plans (CHS&APP)

February 2020

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REFERENCES

1.) Corps. Of Engineers, Health and Safety Manual 385-1-1, section 01.A.07

2.) NAVFAC guide specifications, section 01525 paragraph 1.6 Accident Prevention Plan

3.) NAVFAC guide specifications, section 01525 paragraph 1.5.4.2 Activity Hazard Analysis

4.) FAR Clause 52.236-13 Accident Prevention

5.) OSHA 29 CFR 1910.120

6.) MSHA Part 46

7.) U.S. Department of Homeland Security, United States Coast Guard, Navigational Rules, section 88.13, section 88.15

ACRONYMS

AHA	Activity Hazard Analysis
APP	Accident Prevention Plan
CON. REP.	Construction Representative
CQC	Contractor Quality Control
COM	Corporate Operations Manager
EM	Engineering Manual
HSM	Health & Safety Manager
MSHA	Mine Safety & Health Administration
NAVFAC	Naval Facilities Engineering Command
NAS	Naval Air Station
OSHA	Occupational Safety and Health Administration
PM	Project Manager
PTL	Project Team Leader
ROICC	Resident Officer in Charge of Construction
SS	Site Supervisor, Superintendent
SDS	Safety Data Sheet
SSO	Site Safety Officer
USACE	United States Corps. Of Engineers
USCG	United States Coast Guard

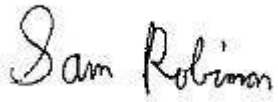
SIGNATURE SHEETS

Plan Prepared By:

Name:	Sam Robinson
Title:	Vice President (VP)
Company:	Dredge America
Telephone:	(816)-330-3100
Fax:	(816)-330-3103

This Health and Safety Plan/Accident Prevention Plan has been prepared by

Signature:



Plan Approved By:

Name:	Dan McDougal
Title:	President (PRES)
Company:	Dredge America
Telephone:	(816)-330-3100
Fax:	(816)-330-3103

I hereby acknowledge that I have received and reviewed the tenets of this Health and Safety/Accident Prevention Plan and have approved this plan as noted.

Signature:

Plan Concurrence:

Name: Tommy McBride
Title: Operations Manager (OM), Health and Safety Manager (HSM)
Company: Dredge America
Telephone: (816)-330-3100
Fax: (816)-330-3103

I hereby acknowledge that I have reviewed and fully understand the tenets of this Health and Safety/Accident Prevention Plan and my responsibilities as they are specified herein.

Signature:

Plan Concurrence:

Name: Tommy McBride/Brad Miller
Title: Site Safety Officer (SSO)
Company: Dredge America
Telephone: (816)-330-3100
Fax: (816)-330-3103

I hereby acknowledge that I have reviewed and fully understand the tenets of this Health and Safety/Accident Prevention Plan and my responsibilities as they are specified herein.

Signature:

PROJECT SPECIFIC BACKGROUND INFORMATION

1.) Contractor: Dredge America. Dredge America's office location is 9555 NW Highway N, Kansas City, Mo 64153. On the internet at www.dredgeamerica.com

2.) Project No.: TBD

3.) Project Name: TBD

4.) Project Description: TBD

Phase 1: Mobilization of Dredge and Support Equipment
Phase 2: Dredging Sediment/Support Piping Operation
Phase 3: Demobilization Dredge Equipment

STATEMENT OF HEALTH AND SAFETY POLICY

Objective

To integrate the general tenets and policies of the Dredge America Health and Safety Program with this project's specific requirements as an active Health and Safety Plan (HASP) by which Dredge America can administer the project in order to provide a Safe Work Place for all Dredge America employees, subcontractors' workers, visiting customers, and the general public.

Purpose (2014 EM 385-1-1 page 1-1)

This HASP describes the responsibilities of the supervisors, employees, and subcontractors involved with the work processes required to provide the specified goods and services of the contract. It will address applicable United States Occupational Safety and Health Administration (OSHA) standards set forth in 29 CFR 1910 and 29 CFR 1926 as well as various consensus standards and TMS policies by the use of referenced procedures.

Primary Health and Safety Plan Functions (2014 EM 385-1-1 page 1-1)

The primary functions of the Health and Safety Plan are:

Define the health and safety responsibilities of Dredge America personnel.
Administration of the medical surveillance program, if applicable.
Preparation of the site safety plans
Providing safety training/maintaining training records
Providing safety procedures and protocols to be used at project sites, shops, and offices
Conduct accident investigations and maintaining records
Verifying OSHA compliance under 29 CFR 1910 and 1926
Providing guidance and assistance with preparation of safety protocols for specific tasks
Promoting safety and health consciousness within the company
Designating the functional organization of safety committees to serve corporate and project specific safety and health program needs

Safety Organization and Responsibility (2014 EM 385-1-1 page 1-3)

At Dredge America the safety and protection of employees, clients, and the community is our ***First Priority***. This concern for safety is not restricted to field operations but extends to the offices, and shop facilities. ***If an activity or condition is unsafe, the task will not proceed until the situation is corrected.***

The Company President (PRES) is the primary safety official in the company.

The Operations Manager/Health and Safety Manager (OM)/(HSM) monitors and integrates safety, quality control, and operating procedures and administers health and safety plan. The (OM)/(HSM) reports to the (PRES). The (OM)/HSM) or his designee, shall support and assist superintendent (SSO) in executing the Health and Safety Program.

The Site Safety Officer (SSO) *(2014 EM 385-1-1 page 1-13 thru 1-14)* is responsible for administration and enforcement of the safety procedures and protocols on project sites. The designated SSO for this project is Jeremy Burch. The SSO is the primary safety official at the working level. The responsibility for safety is delegated and shared by project managers, site safety officers, crew leaders, and subcontractor supervisors. At a minimum, the SSO must perform, or otherwise supervise the performance of, the following:

A. Motivating employees and supervisors of subcontractors to adhere to Dredge America's safety policy in each work situation.

B. Schedule, organize, and lead preparatory phase meetings prior to all activities relevant to definable features of work and have a working knowledge of the safe procedure for all jobs and tasks under their supervision. When in doubt, they shall seek assistance prior to initiating a task. This is the only acceptable manner in which to perform the task. If the task cannot be accomplished safely, it will not be attempted.

C. Explain the safety procedure involved with a task to each employee and check frequently to see that the employee understands and works as instructed.

D. Allocate sufficient time for the training and coaching of all employees to insure that everyone knows the correct procedure for safely accomplishing required tasks. New employees will not be allowed to perform any task until required training is completed.

E. Immediately correct unsafe conditions.

F. Ensure that employees are outfitted with and wear personal protective equipment as specified by this plan, EM385-1-1, and other Dredge America procedures.

G. Set a good safety example.

H. Obtain the cooperation of employees, sub-contractors, customers, and visitors. Sub-contractor safety performance records will be verified prior to contract award and will be continually monitored during operations.

I. Report all accidents, near misses and property damage.

J. Call a Weekly Toolbox Safety Talk *(2014 EM 385-1-1 page 1-20 thru 1-21)* to review safety procedures and potential risks on the project. Daily tailgate meetings will be performed each morning to identify that any hazards that could arise during that day's activities.

Every Employee, regardless of job title, shares the responsibility for safety and should report any unsafe work condition without fear of reprisal. It is imperative that employees observe the following minimum requirements in order to achieve a safe and healthful workplace:

A. Each employee must be familiar with this Accident Prevention Plan and the general safety rules herein.

B. Each employee shall practice safe procedures and follow all safety rules and regulations for the successful completion of any job task.

C. All employees shall wear the necessary personal protective equipment required for the job or task as specified by this plan, EM385-1-1, and other TMS procedures.

D. The employee shall notify the immediate supervisor of any potential hazard or unsafe work practice that could result in injury or destruction of property.

E. The employee shall report all accidents to an immediate supervisor regardless of whether injury or property damage resulted. This includes all near misses (accidents without injury or damage). This requirement serves to bring unsafe conditions to the attention of management.

F. Each employee shall be subject to contraband search for safety purposes and for the safety of fellow employees.

G. Violations of published safety policies and procedures may be cause for disciplinary actions up to and including dismissal.

H. All employees who are taking prescribed medications that could affect work performance or might alter the manner in which they could be treated in an emergency shall so advise their supervisor prior to beginning work.

Regulatory Compliance Policy (2014 EM 385-1-1 page 1-1)

The policy of Dredge America will be to comply with all federal, state, local, and client regulations. It is the responsibility of all personnel to perform all work in full compliance with appropriate regulations. Safety and health personnel will immediately bring any condition regarding safety and health compliance to the attention of supervisory operating personnel.

Dredge America will insure regulatory compliance by all of its subcontractors, including OSHA 300 forms, safety records, OSHA training, and medical surveillance, when applicable.

Safety Goals (2014 EM 385-1-1 page 1-1 + page 1-2)

The goal of the safety and health program is to ensure a safe working environment, protect workers from harm, and protect the company from liability associated with an unsafe working environment.

Other goals are to eliminate workplace accidents, gain worker acceptance through cooperation and training, and provide our clients with a responsible, well-trained, safety-oriented work force.

Dredge America has adopted a “zero accidents” goal for all operations. All activities will be planned and performed with this goal foremost.

Safety Training (2014 EM 385-1-1 page 1-24 thru page 1-25)

Dredge America engages in dredging, and other services, and must comply with numerous health and safety training requirements, mandated by governmental agencies, clients, and internal policies. The Health and Safety Manager (HSM) will primarily be responsible for determining and coordinating these training requirements.

All personnel will be provided sufficient training to execute their jobs in a safe and healthy manner.

Direct supervisors are responsible to determine the training requirements of a task and ensure employees have the necessary training to complete the task safely. Environmental health and safety personnel will assist with this determination and training.

The corporate personnel department will maintain training records and documentation.

Medical Surveillance (2014 EM 385-1-1 page 1-21)

All employees who perform work at hazardous waste sites or perform emergency response will be subject to the Dredge America medical surveillance program. This program conforms to the requirements established by 29 CFR 1910.120/1926.65 (f) Medical Surveillance.

Accident Investigation (2014 EM 385-1-1 page 1-22)

All accidents will be thoroughly investigated by the supervisor of the person(s) involved in the accident. The employee and the site supervisor will forward a signed copy of the accident investigation form to the health and safety office to comply with Dredge America requirements. Any of this information can also be found on the HCSS Safety App.

All accidents must be reported to the OM within 24 hours and the appropriate documentation completed and submitted.

The HSM may investigate serious accidents, such as those involving hospitalization or injuries requiring more than one visit to a physician. The HSM may also request that a specific written accident investigation be conducted in case of an unusual or serious injury or accident.

Position Statement on Modified Work (2014 EM 385-1-1 page 1-20)

Dredge America will attempt to eliminate all accidents through strict compliance with OSHA regulations and Dredge Americas health and safety procedures, as well as supervisor and employee safety training, safety audits, and constant attention to safety. Should an employee be injured or become ill in the course of and arising from his employment, Dredge America will attempt to provide modified work. Modified work (light duty) will be made available in order to bring the injured employee back to the work environment, for the benefit of the employee and the company, whenever medically appropriate.

Employees are expected to return to modified work when medically capable. The work assigned to the injured employee will meet the restrictions set forth by the treating and/or company

physician. Examples of modified work include but are not limited to office work, dispatching, and light shop work.

Field Safety Inspections (2014 EM 385-1-1 page 1-8)

Weekly safety inspections will be made of the work area. The inspection will be made by the HSM, Project Manager and/or the SSO, or a designated representative. Discrepancies found during inspections will be corrected as soon as practicable. Serious safety violations will be corrected immediately. Inspection records will be maintained on site.

Additionally, the HSM or his designated representative may make periodic unannounced inspections of work sites on their own discretion or at the request of an employee, supervisor, manager, or client.

First Aid (2014 EM 385-1-1 page 3-1 thru 3-7)

Each facility and work location must be evaluated to determine the potential requirement for medical emergencies. At a minimum, an industrial first-aid kit will be provided. An adequate number of employees with current certification in first aid and cardio-pulmonary resuscitation (CPR) will be maintained on the project sites.

The SSO shall ensure that emergency medical attention is readily available. For emergency response and remediation operations, the SSO shall establish the requirement for medical emergency response and identify an emergency medical facility. If site conditions require, a subcontract emergency medical technician (EMT) and/or the availability of ambulance service on site will be implemented.

Review of Health And Safety Statistics

The HSM, and Personnel Department will review and tabulate safety statistics as necessary:

Specific Written Safety Procedures / Permits (2014 EM 385-1-1 page 1-19)

In order to provide a safe work place and communicate specific work requirements for regulatory compliance, specific tasks are incorporated by reference to this procedure. These procedures deal with specific areas such as confined space, hot work, lock out tag out, etc.

All Dredge America personnel who may be subject to these procedures will receive appropriate training and will be held accountable for compliance with procedure requirements.

State, OSHA, and Other Regulations

Where state regulations differ from federal regulation cited in this manual, the more stringent regulation will apply.

Changes

Any user of this plan is welcome to recommend changes. Changes normally result from finding errors, regulatory changes, equipment modification, new equipment purchases, and changes to operation procedures or site conditions. The format for making a recommended change is:

A. Submit a written recommendation to the HSM via your immediate supervisor.

B. The HSM will review the recommendation.

C. After review, the HSM will determine if the suggestion should be included as an amendment or new procedure in this plan. Changes to this plan will be distributed immediately upon approval.

HCSS SAFETY POLICY AND PROCEDURES

Objective

HCSS Safety is a state of the art safety management software that allows both field and office users to access critical safety data, while documenting daily safety trends throughout the company. This software is designed to help our crews better manage safety, while creating a comprehensive safety culture within our organization. Users will be able to access safety documents at any time in the field, log inspection reports on equipment, access pre-built activity hazard analysis documents, report near misses, job site incidents, fill in daily reports, and much more. The application also allows all employees to participate in the safety program by submitting observation reports via cell phone or tablet. These anonymous observations, coupled with our company specific safety statistics, will help ensure a safe working environment for everyone at Dredge America.

Purpose

Proper safety protocols and procedures start with a program that enables each individual the opportunity to participate and be heard. Dredge America's safety policy and procedures outlined below are designed to keep everyone engaged, while maintaining a safe and efficient work place.

Safety Training and Expectations

Before beginning work on any Dredge America job site, each crew member must go through Dredge America's safety orientation program. The safety training programs can be found on Dredge America's online training platform.

When arriving to a jobsite for the first time, all personnel are to review and sign the Onsite Safety Plan. After being countersigned by a Superintendent, the document should be uploaded to HCSS.

New arrivals to all job sites should review and sign the Safety Data Sheet (SDS) list of approved chemicals onsite.

All previously completed training certifications and documents should be provided to the superintendent or office staff so they can be uploaded to the certification database.

Project Meeting Requirements

Daily Huddles will be held each morning at the project site by the site superintendent or site manager.

Tool Box Talks will be hosted every Monday morning at each job site by the superintendent or site manager.

A new job hazards analysis (JHA) will be reviewed every Wednesday at each job site by the superintendent or site manager.

A JHA meeting/review will be held each time new crew members arrive onsite or when a new task is being performed that has not previously been reviewed.

Once per month a companywide safety meeting will be held, where a specific topic will be discussed on all jobsites throughout Dredge America. This meeting will be hosted on the third Friday of each month by the superintendent or site manager.

Forms and Inspections

There are two distinct types of document reporting sections in the HCSS app. The first is the forms section. Under this section is all our daily reports and other Dredge America specific documents. See below for a list of forms.

A. Superintendent and operator daily shift report

B. Daily grade check sheets (excel)

C. Critical lift form; This is to be used for crane picks exceeding 50,000 lb or if required by the owner or project inspector

D. Crane lift safety checklist; This is to be used for crane picks less than 50,000 lb

E. Turbidity monitoring form

F. Superintendent monthly checklist

G. Invasive Species checklist; Must be signed by superintendent or site manager

H. Site safety plan; Must be signed by each employee and superintendent

I. SDS approved chemicals list; Must be signed by each employee and superintendent

J. And many more preloaded forms

* The second type of document reporting is the inspection section in the HCSS app. This section includes all equipment inspections from dredges, to boats, boosters, trucks, forklifts, and more. All of Dredge America's equipment has been uploaded into the HCSS app and corresponding inspection reports have been created for each piece of equipment. Some forms are general that will apply to multiple vehicles and others are specific to a dredge or booster pump. See below for a list of inspection documents.

A. All equipment inspections; Inspections are named specifically for a type or size of equipment. The dredges are typically listed by the name of the vessel.

B. Operator performance evaluation checklists; To test and qualify operators on specific equipment.

C. Crane pre-lift planning checklist should be completed prior to the first lift onsite; This is in addition to a critical lift form or crane lift safety checklist in the forms section.

Reporting

All near misses should be reported each day in the HCSS safety software. All near misses should be reported to the site superintendent or site manager for input into HCSS. There is no penalty for reporting a near miss. Reporting near misses will only help the entire company to maintain a safe working environment on all jobsites. Even if you are not sure if the incident should be considered a near miss report it anyway.

If an incident should occur onsite, begin by filling out the basic information in the incident report section of the HCSS app. Once you have reported the basic information, gathered the necessary photos, and statements, submit the incomplete report and notify the company safety officer. At that time, the company safety officer will take over the investigation and complete the incident report form.

Observation reports are a critical aspect of the HCSS safety app. These observations can be completed by any member of the crew and can be done so from a cell phone or tablet. Each observation will remain anonymous and will be documented for future reference. Observations can be both positive and negative things onsite and it is encouraged to provide feedback in both categories. The daily observations allow everyone the ability to speak out about how best to ensure the safety of themselves and the entire company.

Job hazard analysis (JHA) reports should be filled out on a weekly basis or as needed when changing tasks. The JHA documents can be accessed through JHA section in the HCSS app. The app is preloaded with over 50 dredging specific JHA documents. These documents should be used to help navigate hazardous tasks onsite, but can be modified as needed to fit your specific task. New JHA's can also be created from the base template if a task is being performed that is not included in the preloaded templates.

Roles and Responsibilities

Superintendent/Site Manager

A. Responsible for hosting all daily, weekly, and monthly site safety meetings.

B. Conducting JHA reviews when new tasks are performed or new crew members arrive.

C. Conduct additional safety meetings as necessary to ensure a safe working environment.

D. Filling out daily shift reports, monthly checklists, critical lift forms, turbidity forms, etc.

E. Ensuring that new members sign and review Dredge America's site safety policies.

F. Instructing new and existing crew members on how to use HCSS software and make sure each crew member on their site can submit safety observations.

G. Submit at a minimum of (3) safety observations each week.

H. Ensure all operators and deckhands are properly executing all necessary inspection reports and forms.

I. Submitting near misses that occur on their job site.

J. Submitting any incidents that occur on their job site and notifying the company safety officer immediately after.

Dredge Operator

A. Filling out all daily operator's report.

B. Filling out dredge inspection form if a dedicated deckhand is not assigned to that vessel.

C. Filling out daily probe depth chart to ensure adequate project depths are being met.

D. Notify the superintendent or site manager if a near miss occurred at any time during each shift.

E. Submit at a minimum of (1) safety observation each week.

Deckhand

A. Filling out daily inspection reports for all equipment onsite. This includes boats, dredges, barges, forklifts, etc.

B. Assisting operator with probe depth chart if you are the dedicated deckhand to that vessel.

C. Notify the superintendent or site manager if a near miss occurred at any time during each shift.

D. Submit at a minimum of (1) safety observation each week.

RESPONSIBILITIES AND LINES OF AUTHORITY

Dredge America has appointed a, Site Safety Officer (SSO), under direct supervision of Tommy McBride, Corporate Operation Manager, Health and Safety Manager (OM)/(HSM) to be accountable to monitor and enforce the policies and procedures as set forth in this Health and Safety/Accident Prevention Plan

Any and all Dredge America employees shall have the authority to intervene and suspend work in the interest of safety policy procedures.

Dan McDougal,
Company President

SUBCONTRACTORS AND SUPPLIERS

Subcontractors and Suppliers List: ***See (Attachment A)***

Objective

When it is necessary for Dredge America to hire contractors, all contractor personnel will adhere to all policies and procedures outlined in this Accident Prevention Plan. Subcontractors and suppliers that must coordinate on-site deliveries are encouraged to develop and submit to the HSM for approval their own project specific Accident Prevention Plan. Such plans must meet or exceed the requirements of the Dredge America Accident Prevention Plan.

In lieu of a formal plan submitted by a contractor or supplier, the contractor or supplier must subscribe to the tenets of the Dredge America Accident Prevention Plan. All contractor and supplier personnel that work or visit at the project site shall be required to acknowledge the Dredge America HASP and accept as the governing site authority the Dredge America Superintendent/SSO. A copy of this plan will be provided upon request to all contractors.

The term Contractor, as used in this plan, shall be understood to include any and all persons, sole proprietorships, partnerships, corporations, or other business ventures under contract, oral or written to provide goods or services to Dredge America.

The Contractor is responsible for informing its lower tier subcontractors and suppliers of these requirements, for directing and supervising work of subcontractors, and for assuring that its subcontractors adhere to the requirements herein. Dredge America may request the Contractor to provide proof of its subcontractors' adherence to all rules and regulations and will prohibit access to Dredge America property or job sites or our client's property for those contractors not in compliance.

Purpose

It is the responsibility of Dredge America contractors to work in a manner so as not to endanger themselves, fellow employees, Dredge America employees, authorized work site visitors and customers, the general public, the environment and Dredge America equipment or property.

Procedure

Safety is a prime consideration in all work operations conducted by Dredge America. With regards to contractors, Dredge America is equally interested in their safe operations. The detailed means employed by the contractor to meet that end are the contractor's sole responsibility.

Contractors performing work at Dredge America facilities and work sites are required to comply with all federal, state and local environmental, safety and health laws and regulations and to equal or exceed Dredge America safety rules and regulations.

General Requirements (2014 EM 385-1-1 page 1-4)

Where the Dredge America SSO deems appropriate, the contractor will provide a safety representative to monitor work practices. The contractors' safety representative may be required to remain on site at all times while work is in progress.

Contractors noting any unsafe practices, dangerous or unsafe conditions, must immediately report the unsafe practice or condition to the Dredge America Site Safety Officer, or Site Supervisor, before commencing or continuing work.

Contractors and their employees working at the site are required to comply with Dredge America's Accident Prevention Plan, Occupational Safety and Health Administration (OSHA), COE 385-1-1, or their own site specific approved accident prevention plan, whichever is most stringent.

Training and Orientation (2014 EM 385-1-1 page 1-2)

Each Contractor or subcontractor selected for a project will be responsible for informing their respective employees of Dredge America's safety rules and any other applicable health-and-safety rules. The Dredge America Site Safety Officer is responsible for ensuring contractor compliance with this plan.

Hazard Communications (Right-To-Know) (29 CFR 1910.1200) (2014 EM 385-1-1 page 1-3)

Each Contractor must have a Hazard Communication Program in compliance with 29 CFR 1910.1200 or 29 CFR 1926.59.

Dredge America SSO will be responsible for ensuring that hazard communication training for the contractor is part of the site safety orientation.

Contractors will provide Dredge America with SDS's for all chemicals or otherwise hazardous materials they introduce to the project site.

Dredge America will provide the following information to the Contractor supervisor who will be responsible for Contractor crew training.

A. A description of hazardous materials that exist in the area in which they will be working.

B. A copy of the Safety Data Sheet (SDS) for the hazardous materials in the work area.

C. Training on the SDS and the hazardous material labeling system in effect at the location.

D. Training on the local emergency response procedures.

Emergency Response Plan (2014 EM 385-1-1 page 1-24 thru 1-25)

The Dredge America SSO will be responsible for ensuring that Contractor supervisors are properly trained regarding alarms, evacuation plans, location of area rally points, and personnel accounting. Contractor supervision shall be responsible for training their employees and ensuring their compliance.

Safety Plan (2014 EM 385-1-1 page 5-1)

Safety glasses/goggles with side shields, hard hats and steel-toed safety shoes, personal floatation devices, and appropriate work clothing shall be worn in all Dredge America locations by the Contractor and his employees. No tennis shoes, tank top shirts or shorts will be permitted. Failure to wear the necessary equipment will result in the immediate removal of the employee from the work location. Continued failure to comply with this rule will result in the Contractor being removed from the site.

Contractor Tool Policy

All contractors working at Dredge America facilities and project sites shall provide adequate tools and equipment for the safe performance of the work. Such conformity shall be considered mandatory and pursuant to the Contractor's agreement to comply with such standards as a consideration of the contract.

Dredge America will not normally provide or loan tools or safety equipment to Contractors except in cases of emergency. Contractor's equipment will ***NOT*** be loaned to Dredge America employees.

Housekeeping (2014 EM 385-1-1 page 2-1)

Contractor work areas must be clean and orderly at all times, especially at the conclusion of each day's work. Oily or greasy rags must be kept in metal containers. All combustible waste material will be controlled and disposed of in Contractor supplied hoppers. Nails in scrap lumber must be controlled immediately. Debris and particles on deck will be strictly prohibited and enforced by all supervisors. ***If the work is being conducted on or near a flight line and debris is found on deck, all work will stop and a sweep of the area will be executed.***

Combustible materials and construction debris shall be cleaned up daily and placed in a trash container or hauled away from the job site. Trash containers shall be emptied off site periodically to keep from over filling.

Fire Alarm (2014 EM 385-1-1 page 9-24)

The Dredge America SSO will explain the procedure for activating emergency alarms. Contractors, as well as Dredge America personnel, shall be responsible for activating alarms in the event of a fire.

Flammable and Combustible Liquids (2014 EM 385-1-1 page 9-25)

Flammable liquids must be dispensed from safety cans with flash arresters bearing a Factory Mutual or Underwriters Laboratories approval. These containers must be clearly identified as to their contents.

Material Safety Data Sheets for materials used by the Contractor shall be maintained by the Contractor and a copy provided to the Dredge America SSO. All flammable and combustible liquids must be dispensed in OSHA approved safety cans and properly labeled in compliance with OSHA standards.

Compressed Gas (2014 EM 385-1-1 page 20-1 thru 20-8)

Gas cylinders shall not be used or stored in operating buildings except by permission of the Dredge America SSO. All compressed gas cylinders shall be securely fastened in the upright position. The safety cap shall be secured in place on the gas cylinder if the cylinder is not in use. Empty and full cylinders must be stored separately. All cylinders should be permanently marked or stenciled to identify the type of gas in the cylinder.

If a cylinder must be transported a short distance by an employee, the following requirements must be followed:

- A suitable vehicle, such as a truck, must be used to transport the cylinder.
- The valve cap must be on the cylinder to protect the valve stem.
- The cylinder must be secured in an upright position in the back of the truck to prevent cylinder damage, especially the valve stem, during transport. Inspect the cylinder for existing damage prior to attempting transport.
- The cylinder must be secured in the back of the truck by racks or straps.
- The cylinder must be located in the back of the truck to provide adequate ventilation in event of a leak. Direct sunlight or excessive temperatures can result in a release of the cylinder contents.
- Do not smoke during transport.
- Take a direct route to the new location and do not make any intermediate stops along the way. Avoid heavy traffic routes.
- Remove the cylinder from the vehicle as soon as you have reached your destination. Place it in proper storage.

Driving On Site (2014 EM 385-1-1 page 18-1)

Parking will be permitted in designated areas only as assigned by Dredge America
Contractors will not ride on tractors, forklifts, or similar vehicles unless specific seats and safety belts are provided.

Operators of mobile equipment on the site must observe all site traffic rules such as speed limits and the right-of-ways of pedestrians.

First Aid (2014 EM 385-1-1 page 3-7)

The contractor is solely responsible to arrange for his employees' first aid and hospital requirements. In an emergency, Dredge America first-aid supplies and personnel will be made available for Contractor use.

Injury Reports (2014 EM 385-1-1 page 1-21)

The Contractor must notify the Dredge America SSO as soon as possible after an incident at a Dredge America project or facility. Copies of completed incident investigation reports shall be provided to the Dredge America HSM within 24 hours of the occurrence of an injury.

Floor Openings / Elevated Work (2014 EM 385-1-1 page 21-32)

Floor openings must be barricaded by a rigid barrier capable of supporting all anticipated loads. All such openings will be made safe and inspected by the Dredge America SSO upon creation or at the end of each working day. The opening will be permanently closed as soon as possible.

Dropping or throwing materials or equipment from elevated work areas will not be permitted. Contractors and subcontractors will be required to use appropriate fall protection when working on roofs or elevated work areas and display a "Men Working Overhead" sign at the work site. All ladder work will be performed with OSHA approved ladders, and all straight and extension ladders will be tied off.

Respiratory Protection (2014 EM 385-1-1 page 5-18)

Any contractor who has employees working in an area that requires respiratory protection must have a respiratory protection program as required by 29 CFR 1910.134. All contractor personnel who may be required to wear a respirator which relies on a tight fitting face piece, are required to successfully pass a fit test, in accordance with 29 CFR 1910.134 (e)(5) and provide written certification to Dredge America. Facial hair that lies along the sealing area of the respirator, such as beards, sideburns mustaches, or even a few days' growth of stubble, will not be permitted on persons who may be required to wear respirators that rely on a tight face piece fit to achieve maximum protection.

Security Requirements (2014 EM 385-1-1 page 1-21)

Firearms, alcoholic beverages, drugs, and cameras are not permitted on Dredge America facilities.

The Contractor is responsible for the security of his equipment, all necessary sanitary facilities, and for the necessary changing and locker facilities unless provided by Dredge America. Dredge America assumes no liability for lost or stolen equipment or supplies of the contractor or personal property of contractor's employees. Additional safety rules may be added by the Dredge America SSO as required by a specific job or situation.

General Safety Rules

Contractor employees will be expected to follow all other General Safety Rules outlined in this Accident Prevention Plan.

Pre-Construction Requirements (2014 EM 385-1-1 page 1-12)

Contractors are required to provide to Dredge America the following information prior to beginning work at a Dredge America project site:

Scope of Work. A synopsis of the contracted scope of work shall be submitted to the Dredge America Project Manager. The scope of work should outline the work that is intended to be accomplished, the tools and equipment necessary to affect the work, and the general types of materials that the contractor expects to use.

Activity Hazard Analyses. Contractors and subcontractors are required to submit to the Dredge America Project Manager appropriate Activity Hazard Analyses, a Phased Safety Plan, or Job Safety Analysis (JSA) for the intended Scope of Work. The selected analysis format is not as important as the content of the analysis. In general, the scope of work is to be broken down into specific tasks (definable features of work), the hazards associated with each task are to be identified, and the methods the contractor intends to use to control each of the hazards are proposed. The forms and the records of previous AHA can be found on the HCSS application through the site supervisor.

Equipment Inspections. Contractors are expected to provide documentation that all necessary inspections of equipment, such as cranes, earth moving equipment, process equipment, and vehicles, have been performed. The forms and the records of previous inspections can be found on the HCSS application through the site supervisor.

Rented Equipment: If the Contractor utilizes rented equipment he shall be responsible for daily safety inspections of such equipment and operator training and certification.

Additional Project Requirements (2014 EM 385-1-1 page 1-20)

Contractors are required to address the following while working on a Dredge America project site:

Regular Safety Meeting: Contractors are required to hold regular Safety Meetings and document the subject matter, as well as the attendance record. These meetings shall be held at intervals no longer than weekly and may be required to be more frequent by the Dredge America SSO. Contractors may be required to attend the weekly Safety Meetings conducted by the Dredge America Site Safety Officer. Depending on the safety matters discussed at the meeting held by the Dredge America SSO and at the sole discretion of the SSO, the meeting may take the place of the Contractor's regular meeting. These meetings and attendance records can be found on the HCSS application Through the site manager. Hard copies can be provided upon request.

Daily Equipment Inspections. Contractors are required to inspect their equipment on a daily basis. Inspections for heavy, lift, or scaffolding equipment are to be documented. Deficiencies found during the inspection, which have a direct impact on safety, must be corrected immediately. These inspection forms can be found on the HCSS application through the site manager and hard copies can be provided upon request.

Project Inspections. Contractors shall periodically inspect their work-sites to identify poor employee safety performance, hazardous conditions, or unsafe equipment. Deficiencies noted during these inspections shall be corrected immediately. Observations can also be noted through the HCSS application at any time by any employee.

TRAINING

Safety Indoctrination Requirements (2014 EM 385-1-1 page 1-13)

Dredge America employees shall be provided safety and health indoctrination at the beginning of their employment, and shall receive periodic training to enable them to perform their work in a safe manner.

Employees shall receive an overview of this accident safety plan with emphasis on medical facilities and their location, emergency response procedures, activity hazard analysis, and the availability of Safety Data Sheets (SDS).

Mandatory Training Requirements (2014 EM 385-1-1 page 6-1)

All personnel entering active work zones will be trained in the provisions of this Accident Prevention Plan and be required to sign an acknowledgement form ***(See Attachment H).*** Site-specific training for, Hazard Communication as per 29 CFR 1910.1200/1926.59, site physical and environmental hazards, emergency response and evacuation procedures, and emergency telephone numbers will be held at the site location by the SSO before any site work activities begin. Site specific training, including rescue procedures, and health and safety indoctrination as described in COE 385-1-1 will be conducted before any confined space entry is performed.

Emergency Response Training (2014 EM 385-1-1 page 6-1)

Selected Dredge America personnel who have completed 40 hour HAZWOPER Training are qualified as emergency responders per 29 CFR 1910.120/1926.65 (e)(3)(iv). Site Specific Emergency Response Procedures will be reviewed with all site personnel as a part of site indoctrination.

Supervisory and Employee Safety Meetings (2014 EM 385-1-1 page 1-20)

The SSO will conduct safety meetings weekly for on-site personnel and will require subcontractors to follow similar meeting procedures or participate in the Dredge America safety meetings. All of Dredge Americas safety meetings can be found on the HCSS Application through the SSO or Superintendent of the job site. Safety meetings will comply with COE 385-1-1(01.B.05).

Licenses/Certifications

All Dredge America employee licenses and certifications can be found in the HCSS application and hard copies can be provided upon request. ***(Attachment D)***.

HEALTH AND SAFETY INSPECTIONS

Safety Inspections (2014 EM 385-1-1 page 1-3)

The Dredge America OM/HSM, and/or SSO are required to conduct periodic inspections of their sites. The SSO will discuss any necessary corrective actions with the OM and review new procedures.

The OM/HSM or his designated representative will periodically conduct site visits and perform Site Safety Assessments. These reports are kept on our HCSS Application Cloud.

External Inspections / Certifications (2014 EM 385-1-1 page 11-2)

Dredge America does not anticipate, but may consider the use of outside sources, to provide safety inspections on an as necessary basis.

As required, Dredge Americas safety equipment will comply with appropriate OSHA (Occupational Safety and Health Administration), NIOSH (National Institute for Occupational Safety and Health), ANSI (American National Standards Institute), ASTM (American Society for Testing and Materials), and US Coast Guard or other recognized certification organizations.

SAFETY AND HEATH EXPECTATIONS, INCENTIVE PROGRAMS AND COMPLIANCE

Goals & Objectives

The goals & objectives of Dredge America are to provide a safe and healthful work environment for all employees. Dredge America considers no phase of operations or administration to be of greater importance than injury and illness prevention. Safety takes precedence over expediency and shortcuts. At Dredge America, it is believed all accidents and injuries are preventable. Dredge America will take every reasonable step to reduce the possibility of injury, illness, or accident.

Safety Procedures / Non-Compliance (2014 EM 385-1-1 page 1-10,13-16)

Employees and supervisors are informed through training and administrative correspondence that safe behaviors and practices are required on all jobs and during all Dredge America activities. Failure to work safely could affect the offending individual, coworkers, the environment or Dredge Americas assets, and supervisors are authorized to discipline workers who compromise safety by ignoring or attempting to defeat safety requirements. The H&S department along with superintendents are authorized to stop unsafe work practices, if necessary, until risks of severe injury or illness are adequately mitigated.

Exposure Data (Man Hours Worked)

The HSM and Dredge America Personnel Department track and maintain incident records on site through the HCSS Application.

Accident Investigations, Reports, and Logs

The SSO conducts Accident/Incident investigations. The forms for accident investigation can be found on the HCSS Application. A report is completed by the SSO and is required to be reviewed and signed by the Project Manager. The report must be forwarded to the HSM within 24 hours.

Immediate Notification of Major Incidents

Dredge America will immediately notify the owner of any major incident, including injury, fire, equipment/ property damage and environmental incident. Dredge America will also report same to other vested parties as soon as possible but no later than 24 hours after the occurrence. A full report will be provided within 24 hours. In addition, fatal accidents will be reported to both parties immediately. The following procedure will be followed in response to any major personal injury:

A. The nearest workers will immediately assist a person who shows signs of medical distress or who is involved in an accident. The work crew supervisor will be summoned.

B. The work crew supervisor will immediately determine the following:

- Location of the victim at the work site
- Nature of the emergency
- Whether the victim is conscious
- Specific conditions contributing to the injury, if known

C. The following actions will then be taken depending on the severity of the incident:

- **Life-Threatening Incident** If an apparent life-threatening condition exists, the crew supervisor will immediately contact local Emergency Response Services (EMS) and the Site Safety Officer. An on-site person will be appointed who will meet the (EMS) and have him/her quickly taken to the victim. Dredge America personnel will evacuate injured personnel, injury permitting, within the active work zone to a clean area for treatment by (EMS) personnel.

- **Non Life-Threatening Incident** If it is determined that no threat to life is present, the crew supervisor will immediately contact the Site Safety Officer who will direct the injured person through procedures appropriate to the nature of the illness or accident. Appropriate first aid or medical attention will then be administered.

*NOTE: The area surrounding an accident site must not be disturbed until the SSO has cleared the scene.

Any personnel requiring emergency medical attention will be evacuated from active work zones if doing so would not endanger the life of the injured person or otherwise aggravate the injury. ***Personnel will not enter the area to attempt a rescue if their own lives would be threatened***.

In addition the superintendent will fill out the Contractor Emergency Contact Form (ECF), located in ***(Attachment G).***

MEDICAL SUPPORT (2014 EM 385-1-1 PAGE 3-1 THRU 3-7)

Prior to the start of work, Dredge America shall arrange for medical facilities personnel to provide timely attention to any injured person at the work site. A detailed map with the directions to, and contact numbers of the primary medical facility can be found in (***Attachment B***).

If first responder EMT or medical treatment is needed short of going to the hospital, the local fire department locations have been provided below as well.

Primary Medical Facility

TBD

Fire Department Locations

TBD

Emergency* Cell or Non-Base Phone Dial*

911

Emergency response information will be conspicuously posted on the job site identifying, fire response, hot work permit contact, ambulance, military police, and directions to the secondary medical facility. Other State and federal Employee Notices such as, but not limited to; Right to Work, Equal Opportunity is the Law, Minimum Wage, and Workers Compensation carrier identification, etc., will be posted along with other data required for emergency response.

No less than two first aid CPR trained personnel certified to render aid in the event of an injury shall be provided on the job site at all times. Copies of current personnel first aid and CPR certificates shall be retained on file by the Dredge America personnel department and on the HCSS application.

PERSONAL PROTECTIVE EQUIPMENT (2014 EM 385-1-1 PAGE 5-1 THRU 5-33)

Dredge America will oversee the proper use of protective equipment (PPE), including PPE for eyes, face, head, and extremities, protective clothing, protective shield and barriers, and fall protection by Dredge America personnel as the job dictates. The Dredge America SSO and/or any supervisors designated by the SSO shall be responsible to oversee the proper use of safety equipment by their respective personnel.

All personnel shall wear hard hats on the job site, as per EM 385-1-1.

Safety glasses with side shields are required. Specific tasks may require goggles or face shields to be worn in addition to safety glasses with side shields. The Activity Hazard Analysis for each definable feature of work will dictate such usage.

Minimum foot protection required on the job site are work boots with ankle support. Steel toed boots should be worn by persons exposed to hazards of the feet. Rubber boots should be worn when working in saturated areas, where it is not practical to wear normal work boots.

The use of respirators will only be used by personnel medically qualified and monitored under a respirator program.

For levels of PPE the following will be defined as:

- LEVEL A

  Positive pressure, full face-piece self-contained breathing apparatus (SCBA, or positive pressure supplied air respirator (SAR) with escape (SCBA), approved by the National Institute for Occupational Safety and Health (NIOSH).
  Totally encapsulating, chemical protective suit (TECP) with inner and outer chemical resistant gloves and chemical resistant steel-toe and shank boots.

- LEVEL B

  Positive pressure, full face-piece self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator (SAR) with escape (SCBA), approved by the National Institute for Occupational Safety and Health (NIOSH).
  Hooded chemical-resistant clothing (overalls and long sleeved jacket; coveralls; one or two piece chemical-splash suit; disposable chemical-resistant overalls).
  Chemical resistant inner and outer gloves with chemical-resistant, steel shank and steel toed boots.

- LEVEL C

  Full-face or half-mask, air purifying respirator with hooded chemical-resistant clothing. Inner and outer chemical resistant gloves with steel toed, steel shank, chemical resistant boots.

- LEVEL D

  Coveralls or normal work clothes steel-toed boots, hard hat, gloves, safety glasses.
  Level D personal protective equipment will be the designated level of protection for this project.

Hazard Communication Program (2014 EM 385-1-1 page 6-1 thru 6-37)

The Dredge America Hazard Communication Program complies with 29 CFR 1926.59/1910.1200. Safety Data Sheets (SDS) can be obtained from the Superintendent/SSO. The SDS Inventory and Site Map will be gathered and updated as the job unfolds. These items will be located on site throughout the contract.

Chemical and hazardous material containers shall be properly labeled or tagged. Chemicals and hazardous materials transferred to other containers shall be properly labeled to indicate the product stored within.

Safety Data Sheets (SDS) for all chemicals and hazardous materials used on the project shall be maintained on the job site and made available to all personnel and interested parties.

All personnel shall be provided training in reading and interpreting SDS and labels. Personnel working with chemicals and/or hazardous materials shall consult the SDS and labels prior to using these materials.

Each sub-contractor shall be responsible for maintaining its Hazard Communications Program, list of chemicals and hazardous products, SDS, and training.

Fuel Containment and Spill Prevention Plan

Dredge America understands the importance of protecting our environment and will take all the necessary precautions to contain any and all fluid spills during the course of the dredging project. We will take into consideration our normal spill prevention plan, along with additional safeguards specifically for this site.

Our normal prevention plan includes the use of a double contained fuel barge, which will be used to transfer fuel from the shore to the dredge. This vessel and all our other vessels, including the dredge, will be equipped with spill prevention kits that contain oil absorbent pads and booms.

Spill kits are readily available on all of our jobsites and can be found on the dredge, boat, fuel barge, on shore fueling stations, and extra absorbent products are located in the job conex.

In order to prevent spills, Dredge America utilizes backflow prevention fuel nozzles when fueling equipment. Also, at every fueling station a steel containment is installed around the fuel port to contain any leaks that may occur during the refueling process. Lastly, Dredge America runs only biodegradable oil in our dredges to minimize the impact potential spills would have on the surrounding environment.

As an added precaution, 5’ turbidity barriers will be kept onshore near the refueling station. The turbidity curtains will be used in the event of a large spill that needs immediate containment. Once the barriers are installed and the spill is contained, the owner will be notified and the job will be shut down until all petroleum based fluids are removed. In the event of a spill while refueling the

dredge, the spill response kits located on both the dredge and the fuel barge will provide sufficient containment until additional assistance can arrive.

To prevent spills within the dredge itself, Dredge America will perform daily inspections of all hoses, fittings, and equipment. These inspections aid us in identifying leaks or spills before they happen.

In order to prevent fuel spills on land, Dredge America makes sure all fuel storage tanks are surrounded by a sealed secondary containment cell. Oil absorbent pads and booms will be located near all land based fuel tanks, as well as on all water based equipment. Extra absorbent products will be stocked in the job trailer onsite in case of an emergency or to restock current spill kits.

For added precaution the location of the fuel storage area will be set up as follows:

Location of Fuel Storage Areas: (2014 EM385-1-1, page 6-6 Hazardous or Toxic Agents and Environments)

- Transportation, use, and storage of hazardous or toxic agents shall be planned and controlled to prevent contamination of people, animals, food, water, equipment, materials, and environment.
- All storage of hazardous or toxic agents shall be in accordance with the recommendations of the manufacturer, OSHA and NFPA requirements and accessible only to authorized personnel.

Dredge America's fuel storage area for dredging activities will be located at a designated staging area that is on solid ground above normal water level. Both diesel and gasoline fuel tanks will be located approximately 30' from the water's edge for refueling operations. These tanks will be surrounded by containment cells and will be used to transfer all fuel to the double walled fuel barge and work boats in the lake.

If an oil spill occurs, Dredge America will immediately contact the On-Site Safety and Health Officer (OSSHO), who will assume control of the incident. The following procedures will be put into action.

In event of oil-spill: (2014 EM 385-1-1 page 6-3 Hazardous or Toxic Agents Handling):

- Whenever possible, first stop the source of the spill. For example, turn off a valve or return a container to an upright position.
- Determine the nature of the spilled material. If you are not comfortable cleaning up a small spill for any reason, contact 911 for assistance.
- Put on appropriate personal protective equipment, isolate the affected area from pedestrian traffic, and retrieve an oil spill kit and / or oil containment booms as necessary.
- Apply an appropriate absorbent material to the spill or neutralize the spill with a suitable absorbent from a spill kit. Distribute the absorbent over the affected area by working from the outside of the spill, circling to the inside. Exercise care to contain the spill to the smallest area possible. Deploy oil containment booms as necessary to contain oil spill.

- When the spill has been absorbed or neutralized:
    1. Use a brush and pan to pick up the material
    2. Place the material in a bag that is supplied with the spill kit
    3. Close the bag
    4. Place the bag in a secondary container.
- Decontaminate affected surfaces with a mild detergent and water.
- OSSHO shall notify owner and home office of incident and dispose of oil.
- OSSHO shall conduct an investigation as soon as possible following the event to gather all the necessary facts, determine the true causes of the event, and develop recommendations to prevent a recurrence.

In the event of a petroleum spill the following steps should be taken:

Procedures in Event of Petroleum Spill: (2014 EM 385-1-1 page 6-3 Hazardous or Toxic Agents Handling)

- Immediately contact the On-Site Safety and Health Officer (OSSHO), who will assume control of the incident
- Whenever possible, first stop the source of the spill. For example, turn off a valve or return a container to an upright position.
- Determine the nature of the spilled material. If you are not comfortable cleaning up a small spill for any reason, contact 911 for assistance.
- Use appropriate personal protective equipment, isolate the affected area from pedestrian traffic, and retrieve an oil spill kit and / or oil containment booms as necessary.
- Apply an appropriate absorbent material to the spill or neutralize the spill with a suitable absorbent from a spill kit. Distribute the absorbent over the affected area by working from the outside of the spill, circling to the inside. Exercise care to contain the spill to the smallest area possible. Deploy oil containment booms as necessary to contain oil spill.
- When the spill has been absorbed or neutralized: 1) use a brush and pan to pick up the material; 2) place the material in a bag that is supplied with the spill kit; 3) close the bag; and 4) place the bag in a secondary container.
- Decontaminate affected surfaces with a mild detergent and water.
- OSSHO shall notify owner and home office of incident and dispose of oil.
- OSSHO shall conduct an investigation as soon as possible following the event to gather all the necessary facts, determine the true causes of the event, and develop recommendations to prevent a recurrence.

In the event an oil or petroleum spill occurs and the OSSHO is unavailable or not on site for any reason, the Dredge America OSSHO will take control of the situation and follow above appropriate procedure '*In event of oil-spill: (2014 EM 385-1-1 page 6-3 Hazardous or Toxic Agents Handling)' or* Procedures in Event of Petroleum Spill: (2014 EM 385-1-1 page 6-3 Hazardous or Toxic Agents Handling)'. Repeated attempts should be made to get to contact with the OSSHO, if the project OSSHO differs from the Dredge America OSSHO.

Emergency Response Plan (2014 EM 385-1-1 page 1-24)

Prior to engaging in construction/project activities at the job site, Dredge America will plan for possible emergencies and have available adequate supplies and manpower to respond. In addition, site personnel will be instructed on their duties and responsibilities by the SSO. All personnel will be instructed on where to find the emergency response information. The following situations would warrant implementation of the emergency response plan; Fire/Explosion, Spill or Release of Hazardous Materials, Natural Disaster, and/or Medical Emergencies.

Emergency response information required to be located on the job site at all time is as follows:

- Name of medical facilities
- Address of the medical facilities
- Map/directions to the medical facilities
- Fire response contacts
- Military police contacts
- Base emergency numbers (ambulance)
- Hot work permit contact

This information can be found in **(*Attachment B).***

The emergency coordinator for all activities will be the Site Safety Officer. No single recommendation can be made for evacuation or safe distances because of the variety of emergencies that could occur. Safe distances can only be determined at the time of an emergency based on a combination of site and incident-specific criteria. The SSO will know the layout of the job site and its surrounding areas. The SSO will notify the proper authorities depending on the emergency situation

The SSO will notify the construction representative of all incidents that occur for the duration of the contract within 24 hours.

The job site shall be equipped with a conspicuously located, large capacity first aid kit. The job site shall be equipped with an ABC-rated fire extinguisher.

Any person observing a spill or release of possible chemical or hazardous materials will act to remove and/or protect injured/contaminated persons from any life-threatening situation. First aid and/or decontamination procedures will be implemented as appropriate.

The Site Safety Officer will be notified of the spill/release, including information on material spilled, quantity, personnel injuries and immediate life threatening hazards. Notification procedures will be followed to inform on-site personnel and off-site agencies. The Site Safety Officer will make a rapid assessment of the spill/release and direct confinement, containment and control measures. Depending upon the nature and size of the spill/release, measures may include;

- Construction of temporary containment berms utilizing on-site materials.

- Digging a sump, installing a polyethylene liner and diverting the spill/release material into the sump.

- Placing drums or containers under the leak to collect the spilling material before it flows over onto the ground.

- Transferring the material from its original container to another container.

The Site Safety Officer will notify the construction representative of the spill/release as soon as the emergency response measures are in place, and will then seek direction from the construction representative for further actions.

All firefighting equipment shall be conspicuously located and access to such equipment shall be kept clear at all times.

All firefighting equipment shall be periodically inspected and maintained in operational condition. All defective equipment shall be removed from the job site and replaced with equipment in good working order.

The numbers for base fire response units will be located with the emergency response information along with hot work permit contacts. A hot work permit shall be required daily for all hot work operations. All hot work operations shall provide a fire watch for the duration of the hot work.

Contingency Plan for Severe Weather ***(See Attachment F)***

Dredge America shall be responsible for regular monitoring of job site weather conditions in an effort to avoid hazardous conditions caused by severe weather. In the event of severe weather conditions, procedures shall be done in a timely manner to reduce job site danger. Dredge America, will insure all personnel are made aware of base severe weather procedures. Based upon the type of weather condition, action measures may include but are not limited to the following;

- Immediate evacuation of job site.
- Notification to personnel, in transit or prior to, of hazardous job site conditions.
- Securing of all equipment and materials in place or stored on the job site.
- Use of hazardous condition protection facilities as required, e.g., shelters.
- Notification of contracting agencies and project representatives.
- The dismantling and removal of all tools and equipment located at the work site.

Working Near or Over Water Plan

Employees working over or near water will be provided training on the hazards. Employees working over or near water must be adequately trained in their responsibilities and the safe work practices associated with this task and the identified hazard for the site and equipment they are working with.

Dredge America requires a JHA to be completed for all employees who may be working over or near water before employees may begin to work over or near water. The following items will be included:

- Discussion of work to be perform
- Review of required PPE
- Review of emergency procedures and contact numbers
- Reminder that employees with together at least in two man teams in case of man overboard emergency

Employees working over or near water shall be provided with a U.S. Coast Guard approved life jacket or buoyant work vest when the danger of drowning exists.

If the deck of a barge or work platform is not equipped with an OSHA-compliant railing system, employees walking or working on deck must wear a U.S. Coast Guard approved life jacket or buoyant work vest, also called a life preserver or personal flotation device (PFD). These PFDs should be fully buckled, snapped, or zipped whenever there is a hazard of falling into the water, regardless of the size of the barge. While a PFD is not required to be worn while an employee is inside an enclosed cab or equipment compartment on a barge, each employee should have a PFD accessible to them at all times. This safety precaution will allow employees the opportunity to don a PFD in a reasonable amount of time during an emergency (i.e., vessel sinking, fire, etc.).

- Employees shall inspect buoyant work vests or life preservers for defects which could alter their strength or buoyancy prior to and after each use. Defective units shall not be used.

Man Overboard Prevention

- Employees are not permitted to work alone when performing work over or near water. Employees, who will be performing work over or near water, where the danger of drowning exists, are not permitted to work alone at any time.
- Railing should be continuous around the deck. The ends should be secured with lashings or quick release slips so that you can cut or release them to recover a person from the water.
- Treat any slippery areas with either non-skid paint or stick on strips. Pay particular attention to the tops of hatches and sloping sides which become walkways when the deck is heeled.
- Wear suitable protective clothing and a USCG approved lifejacket fitted with reflective tape and a light.

Environmental Sustainability Plan

Dredge America wants to be a leader in environmental sustainability within our industry and through a focused effort to become more aware of the effects our business practices, workers, business partners, subcontractors and vendors have on the environment.

Dredge America cares about the environment and we are doing our part to make Dredge America sustainable for future generations. We realize the process of becoming more "Green" is one that continuously evolves and by initiating our program we will make a positive difference to the environment, step by step.

All initiatives taken at each work site will be reported to Dredge America.

Measures in Place for Energy Conservation
Energy conservation measures should be used whenever possible. This can include shutting down equipment when it's not in use, use of energy efficient light bulbs, using new energy efficient technology, using equipment with the ENERGY STAR mark, etc. This can also include the reduction in the use of generators and using more local electrical supply, etc.

Measures in Place for Water Conservation
Each Dredge America work site will develop measures to be in place for water conservation. Water conservation measures should be used whenever possible. This can include repair on any equipment leaking water, upgrade equipment efficiency, educate employees, etc.

Efficient Use of Vehicles and Equipment to Minimize the Impact to the Environment
Dredge America will make efficient use of vehicles and equipment to minimize the impact to the environment. Vehicles and equipment should be kept in good condition with up-to-date preventative maintenance, should not be left idling unnecessarily, should use alternative fuels when possible, etc. The most efficient vehicles and equipment should be used when possible.

Minimizing Environmental Impacts on the Local Habitant When Activities May Affect Them
Dredge America will always work towards minimizing environmental impacts on the local habitat when activities may affect them. When activities may affect the local animal or plant population or habitat, a plan shall be in place to minimize any environmental impact to them. The plan is to be reviewed and approved by the site manager prior to work beginning. Adherence to any client specific requirements shall also be followed.

Efficient Use of Materials In Order to Minimize Waste
We must make efficient use of materials in order to minimize waste. An efficient material management system should be used to reduce the impact on the environment by limiting the amount of materials that are used, left over as waste, or transported.

Dredge America will emphasize purchasing products with minimal impact on the environment when available. Dredge America should take into consideration the impact a product has on the environment before purchasing. Preference should be given to products that minimally impact the environment, made of recycled, renewable material, energy-efficient, etc. Local purchasing will also reduce the amount of emissions and fuel used as compared to purchasing involving shipment from more distant locations.

Disposal of Waste
Dredge America understands the importance of keeping a clean and neat jobsite. Clean jobsites not only provide aesthetic benefits, but both safety and environmental returns as well. From a safety standpoint, clean jobsites help prevent trips, slips, and falls. This also helps in identifying the location of equipment or items onsite and increases operational efficiency. The environmental benefit of keeping a clean site is that all waste or chemicals are properly maintained, contained, and disposed of on a regular basis. Dredge America keeps portable dumpsters on all of our jobsites to contain trash and debris from daily operations. All chemicals, oils, and greases are properly stored and labeled onsite in cabinets, containers, barrels, and have the necessary spill containments surrounding them. A

master SDS book is kept in the office trailer onsite and is also available online from any location. All oil or grease will be disposed of offsite using a third-party waste removal company. Used oil, grease, or oil absorbent pads/products will be temporarily stored onsite in specialized containment bags or drums labeled "used oil". These items will be picked up and disposed of at the proper offsite facilities on a regular basis.

Each Dredge America work site will develop measures to be in place for recycling. Besides recycling paper, cardboard, fluids, tires and plastics at our facilities we also want to recycle used engine oil, scrap metal, treat or recycle solvents etc.

Measures in Place for Limiting Greenhouse Gas Emissions/Climate Change Strategy
Each Dredge America work site should develop a program for limiting greenhouse gases. The program should address implementing procedures to protect the climate. This includes limiting the amount of greenhouse gases by use of low-emission technologies, driving less or carpooling, and use of renewable energy.

Site managers are responsible to take steps at each project to help reduce greenhouse gas emissions, fuel consumption, decrease wasted expenditures in fuel and maintenance and improve efficiency.

At our corporate headquarters, Dredge America's commitment to reduce our carbon footprint is also a high priority. Some ways we work to achieve this goal is by utilizing smart thermostats, using motion-activated lights in our warehouse, and in 2017 we completed a full conversion of all light fixtures to LED.

Respiratory Protection Plan
Not applicable

Lead Abatement Plan
Not applicable

Asbestos Abatement Plan
Not applicable

Abrasive Blasting Plan
Not Applicable

Confined Space Entry Plan
A confined space plan will be submitted if needed.

Critical Lift Procedures
A critical lift plan will be submitted separately if the need arises.

Access And Haul Road Plan
An access and haul road plan will be submitted separately if needed.

Emergency Rescue Plan (Tunneling)
Not Applicable

Underground Construction Fire Prevention And Protection Plan
Not Applicable

Compressed Air Plan
Not Applicable

Navigational Marker Plan (Vessels and Pipelines)
Dredge America will follow sections 18.13 and 18.15 in the U.S. Department of Homeland Security, United States Coast Guard, Navigation Rules.

Form Work And/Or Shoring Erection And Removal Plan
Not Applicable

Lift Slab Plan
Not Applicable

Blasting Plan
Not Applicable

Diving Plan
Not Applicable

MEETING THE MAJOR REQUIREMENTS OF EM385-1-1

In addition to this Accident Prevention Plan, a subcontractor or independent company for Dredge America will prepare an Asbestos Control and Lead Abatement Plan, if applicable or requested by the client to meet the major requirements of USACE Manual 385-1-1.

An Activity Hazard Analysis (AHA) will be prepared to outline safe practices and procedures for the various phases of work involved in this project. If project scopes of work change or if new hazards are identified, additional or revised AHA's will be developed and added to this plan.

Copies of the AHA's shall be retained on the job site for personnel review. Personnel shall have free access to the AHA's to review specific safe practices and procedures outlined for hazardous activity contemplated.

A record of these completed forms can be retrieved from the HCSS application through the site manager or main office.

MISCELLANEOUS SAFETY REQUIREMENTS

Drinking Water (2014 EM 385-1-1 page 2-1)

An adequate supply of potable water will be supplied to all employees on site.

A typical water cooler with lid and dispenser will be used on site.

Cups will be made available to all employees on the job site. No one will be permitted to drink directly from the dispenser and the sharing of cups will be prohibited.

Toilets (2014 EM 385-1-1 page 2-3)

The placement of temporary toilets will coincide with the number of employees on the job site.

The rental supplier for the toilet will perform the cleaning and servicing of the toilet.

Head Protection (2014 EM 385-1-1 page 5-15)

All employees on the job site will wear a hard hat that meets the requirements of COE 385-1-1(05.D.01).

All entryways to the work zone will have proper signage requiring that hard hats be worn.

Fire Extinguisher (2014 EM 385-1-1 page 9-19)

A fire extinguisher will be maintained on the job site, and the number of extinguishers will be evaluated according to COE 385-1-1(09.E.01).

The SSO will be responsible for training TMS employees on site, in the use of a fire extinguisher and its functions.

Flammable Liquids (2014 EM 385-1-1 page 9-5)

The SSO will supervise the storage, handling, and use of flammable and combustible liquids.

The SSO will ensure that fuel is carried in and stored in containers that meet the requirements of COE 385-1-1(09.B).

Grounding (2014 EM 385-1-1 page 11-8)

Ground Fault Circuit Interrupters will be used with applicable cords and tools.

House Keeping (2014 EM 385-1-1 page 2-1)

Daily clean-up will be performed to ensure the job site and its entryways are safe and orderly.

Machinery and Mechanized Equipment (2014 EM 385-1-1 page 18-1 thru 18-12)

All machinery and mechanized equipment will be inspected and tested before it is put into use. All machinery and mechanized equipment will be inspected prior to work every morning and inspection log turned into the HCSS application immediately upon completion.

Ladders (2014 EM 385-1-1 page 21-24)

Ladders will be inspected prior to use. Defective ladders will be tagged not for use or placed in the trash. Folding ladders must be fully deployed prior to using. Employees must face the ladder for ascent and descent. ***Ladders are not to be used in front of doors unless the door is secured.***

ATTACHMENT A

Subcontractors and Suppliers:

TBD

ATTACHMENT B

Emergency Response Facilities

Primary Medical Facility

TBD

PRIMARY MEDICAL FACILITY *(2014 EM 385-1-1 page 3-7)*

TBD

DIRECTIONS TO HOSPITAL

TBD

PRIMARY FIRE DEPARTMENT *(2014 EM 385-1-1 page 9-1)*

TBD

ATTACHMENT C (2014 EM 385-1-1 PAGE 1-12)

Activity Hazard Analyses – Site Specific

Activity Hazard Analysis

Activity: Working over the water, laying pipe, and dredging.	**Date:** TBD
	Project: TBD
Description of the work: All work on the project will involve working over water from either a boat, barge, or the dredge. A portion of the project will involve working around heavy equipment and next to a busy road.	**Site Supervisor:** TBD
	Site Safety Officer: TBD
	Review for latest use: Before the job is performed.

Activity C-1

WORKING OVER THE WATER		
1 Work Activity Sequence (Identify the principal steps involved and the sequence of work activities)	**Potential Health and Safety Hazards** (Analyze each principal step for potential hazards)	**Hazard Controls** (Develop specific controls for each potential hazard)
Working over water on a daily basis for the duration of the project.	Drowning	Wear a personal flotation device (PFD) at all times while working over or near the water. Ring buoys are located on all in water vessels. Also, one lifesaving boat will be available where employees are working over or adjacent to the water.
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
Boats, Barges, Dredges, and PFD	Make sure PFD is Coast Guard Approved and all snaps and zippers are functional. Ring buoys are located with at least 90 feet of line will be readily available. Distance between ring buoys shall not exceed 200 feet.	Make all personnel aware of policy that PFD is required at all times while working over or near the water and must be worn properly. Also, make crew aware of throw rings on all vessels..

2	**Work Activity Sequence** (Identify the principal steps involved and the sequence of work activities)	**Potential Health and Safety Hazards** (Analyze each principal step for potential hazards)	**Hazard Controls** (Develop specific controls for each potential hazard)
Equipment will be pushed in place with boat and anchored in work area.		Storms could create rough water and high waves.	Make sure all floating equipment has multiple anchors and all equipment on barges are secured. Superintendent (SSO) will monitor weather and water level on a daily basis. If necessary tow dredge to protected area or tie off at nearest shoreline. All compartments are sealed so splashing across deck will not cause equipment to take on water.
Equipment to be Used		**Inspection Requirements**	**Training Requirements**
Boats, Barges, and Dredge.		Inspect all anchor lines, ropes, etc.	Train all personnel on securing equipment in case of high winds. All deckhands and operators will also be trained to secure multiple anchor lines for boats, barges, and dredges in the event of a change in water elevation.
3	**Work Activity Sequence** (Identify the principal steps involved and the sequence of work activities)	**Potential Health and Safety Hazards** (Analyze each principal step for potential hazards)	**Hazard Controls** (Develop specific controls for each potential hazard)
Protecting the public at night		Boats running into work area and floating equipment	All floating equipment will be lighted at night as well as have lighted buoys surrounding the equipment. All floating equipment will have a minimum of six buoys spaced no further than 100' apart.
Equipment to be Used		**Inspection Requirements**	**Training Requirements**
Barges, boats, lighted buoys, anchors, dredge discharge pipeline		Inspect all lights daily to ensure all are in working order	Deckhand will be trained on how to ensure all lights are in place and in working order
4	**Work Activity Sequence** (Identify the principal steps involved and the sequence of work activities)	**Potential Health and Safety Hazards** (Analyze each principal step for potential hazards)	**Hazard Controls** (Develop specific controls for each potential hazard)
In the event of an oil spill during the course of dredging.		Oil spill could reach water.	Hydraulic oil is biodegradable. As an added protection, spill containment booms and oil absorbent pads will be placed on all barges, boats, and the dredge. In the event of a spill, oil absorbent booms and or turbidity barriers will be used to contain spill. All work will be stopped when fueling dredge or boat. Land based fuel tanks will be double walled and confined to a containment area. Oil spill kits can also be found on board the dredge.

Equipment to be Used	Inspection Requirements	Training Requirements
Oil boom, Oil Absorbent Pads, Floating Turbidity Barrier, Barges, Boats, and Dredge.	Inspect hoses daily for signs of wear.	Train all personnel on procedures in event of a spill.
5 **Work Activity Sequence** (Identify the principal steps involved and the sequence of work activities)	**Potential Health and Safety Hazards** (Analyze each principal step for potential hazards)	**Hazard Controls** (Develop specific controls for each potential hazard)
Boat approaching dredge or barge	Dredge or backhoe operator not aware of approaching boat and possible collision	Boat operator will radio backhoe or dredge operator each time they are approaching. If the boat operator is not employed by Dredge America, or does not have a radio, they will stay 100 feet away from the dredge or backhoe and give a hand signal until the operator is aware of their approach.
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
Boat barge, dredge, radios, cell phones	Make sure all communication devices are functioning priority start of work each day	Train everyone employed by Dredge America to use radios correctly and train all operators to be aware of their surroundings at all times. If there is a specific contractor we are working with we will train everyone to use certain hand signals when approaching operating vehicles or vessels..
6 **Work Activity Sequence** (Identify the principal steps involved and the sequence of work activities)	**Potential Health and Safety Hazards** (Analyze each principal step for potential hazards)	**Hazard Controls** (Develop specific controls for each potential hazard)
excavator working on barge	Sliding or tracking off barge	Tracks will be chained down to barge when excavating
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
excavator, barge	Make sure machine is secured with chains to barge	Train operator to inspect daily
7 **Work Activity Sequence** (Identify the principal steps involved and the sequence of work activities)	**Potential Health and Safety Hazards** (Analyze each principal step for potential hazards)	**Hazard Controls** (Develop specific controls for each potential hazard)
General handling of anchor lines, rope, and overhead hazards throughout project	Ropes, or cable cutting hands and overhead object hitting head or hitting head on overhead objects	Wear hard had at all times on project and wear gloves when handling rope or anchor line
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
Hard hat and gloves	Ensure gloves are free of wear and holes	Advise all personnel prior to start of policy

Activity C-2

WORKING WITH HEAVY EQUIPMENT/NEAR ACTIVE ROAD		
1 Work Activity Sequence (Identify the principal steps involved and the sequence of work activities)	**Potential Health and Safety Hazards** (Analyze each principal step for potential hazards)	**Hazard Controls** (Develop specific controls for each potential hazard)
Construct settling basin	Hitting a crew member or piece of equipment. Busting/breaking a live pipeline or cable.	Crew members should wear yellow/orange reflect vets when walking on site. Radios should be present on all operators so as to communicate with ground crews.
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
Dozer, Scraper, Excavator, Sheeps-foot Roller.	Inspect radios and make sure windows in equipment are clean and visible to see through. Ensure sufficient vests are present on site.	Advise all personnel of policy prior to start
2 Work Activity Sequence (Identify the principal steps involved and the sequence of work activities)	**Potential Health and Safety Hazards** (Analyze each principal step for potential hazards)	**Hazard Controls** (Develop specific controls for each potential hazard)
Fusing pipe	Burn hands on heating plate or pipe roll onto toes	Crew members should wear gloves and steel toe boots at all times
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
Fusing machine, Pipe, Forklift, Heating Plate	Ensure gloves are free of wear or holes, boots are in good condition (steel toe).	Advise all personnel of policy prior to start
3 Work Activity Sequence (Identify the principal steps involved and the sequence of work activities)	**Potential Health and Safety Hazards** (Analyze each principal step for potential hazards)	**Hazard Controls** (Develop specific controls for each potential hazard)
Working/laying pipe next to roadway	Crew members could be struck by passing vehicles	Implement a traffic control plan using road construction signs, cones, and barriers. Crew members should wear orange/yellow reflective safety vests.
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
Forklift, Mini Excavator, Pipe	Ensure enough vests for all crew members and inspect signage location and traffic cone locations before commencing work.	Advise all personnel of policy prior to start

Activity Hazard Analysis

Activity:	**Date:**
	Project:
Description of the work:	**Site Supervisor:**
	Site Safety Officer:
	Review for latest use:

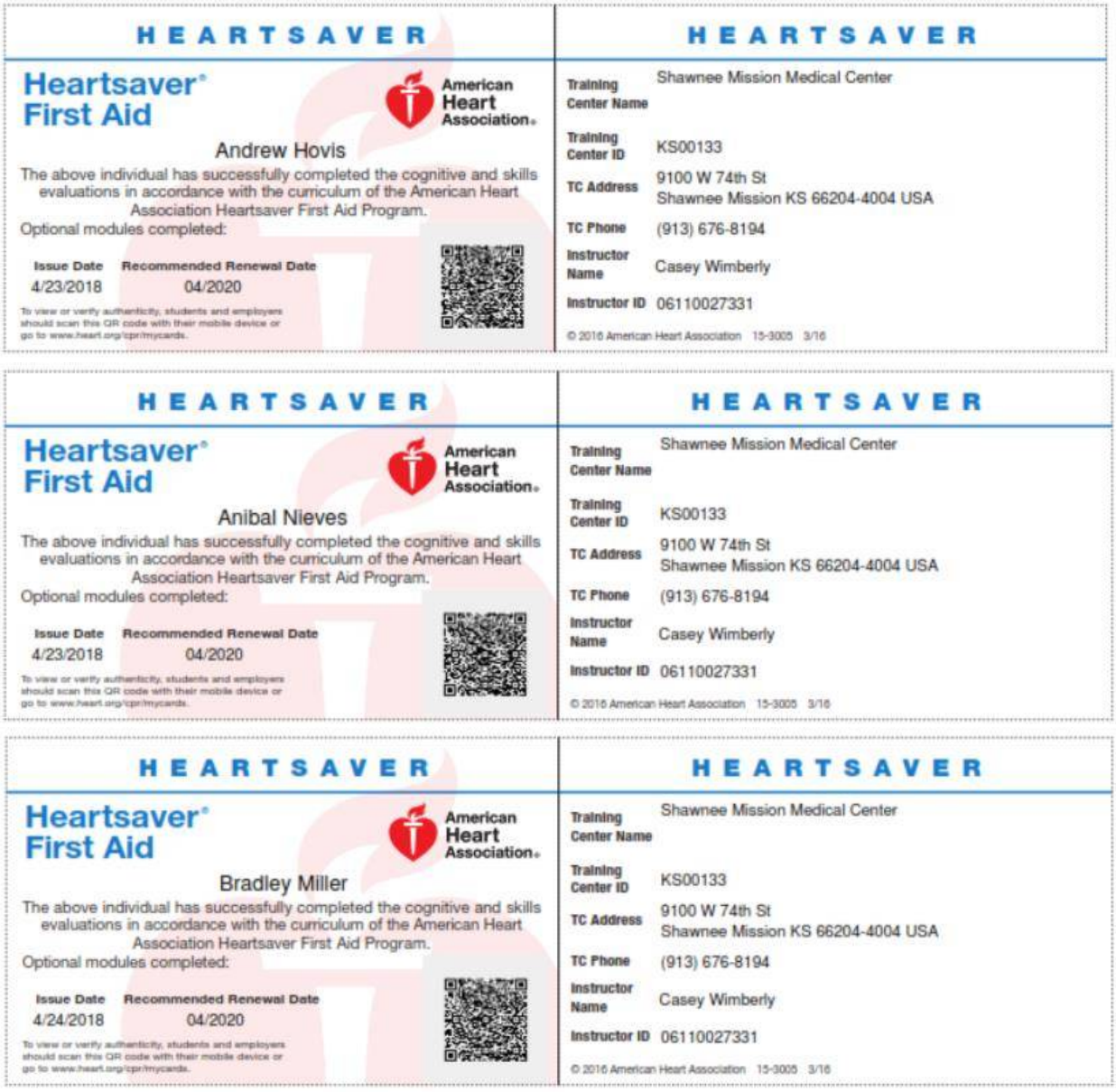
Activity C-1

1	**Work Activity Sequence** (Identify the principal steps involved and the sequence of work activities)	**Potential Health and Safety Hazards** (Analyze each principal step for potential hazards)	**Hazard Controls** (Develop specific controls for each potential hazard)
Equipment to be Used		**Inspection Requirements**	**Training Requirements**
2	**Work Activity Sequence** (Identify the principal steps involved and the sequence of work activities)	**Potential Health and Safety Hazards** (Analyze each principal step for potential hazards)	**Hazard Controls** (Develop specific controls for each potential hazard)

Equipment to be Used	Inspection Requirements	Training Requirements
3 **Work Activity Sequence** (Identify the principal steps involved and the sequence of work activities)	**Potential Health and Safety Hazards** (Analyze each principal step for potential hazards)	**Hazard Controls** (Develop specific controls for each potential hazard)
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
4 **Work Activity Sequence** (Identify the principal steps involved and the sequence of work activities)	**Potential Health and Safety Hazards** (Analyze each principal step for potential hazards)	**Hazard Controls** (Develop specific controls for each potential hazard)

ATTACHMENT D

Red Cross Certifications/ Certificates Enclosed



HEARTSAVER

Heartsaver® First Aid

American Heart Association.

Andrew Hovis

The above individual has successfully completed the cognitive and skills evaluations in accordance with the curriculum of the American Heart Association Heartsaver First Aid Program.

Optional modules completed:

Issue Date	Recommended Renewal Date
4/23/2018	04/2020

To view or verify authenticity, students and employers should scan this QR code with their mobile device or go to www.heart.org/cpr/mycards.

HEARTSAVER

Training Center Name	Shawnee Mission Medical Center
Training Center ID	KS00133
TC Address	9100 W 74th St Shawnee Mission KS 66204-4004 USA
TC Phone	(913) 676-8194
Instructor Name	Casey Wimberly
Instructor ID	06110027331

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HEARTSAVER

Heartsaver® First Aid

American Heart Association.

Anibal Nieves

The above individual has successfully completed the cognitive and skills evaluations in accordance with the curriculum of the American Heart Association Heartsaver First Aid Program.

Optional modules completed:

Issue Date	Recommended Renewal Date
4/23/2018	04/2020

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HEARTSAVER

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American Heart Association.

Bradley Miller

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4/24/2018	04/2020

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HEARTSAVER

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American Heart Association.

Charles Lake

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HEARTSAVER

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American Heart Association.

Israel Hernandez

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Optional modules completed:

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4/24/2018	04/2020

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Instructor ID	06110027331

HEARTSAVER

Heartsaver® First Aid

American Heart Association.

Jacob Feldmann

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Optional modules completed:

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Instructor Name	Casey Wimberly
Instructor ID	06110027331

HEARTSAVER

Heartsaver® First Aid

American Heart Association.

Jake McDaniel

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Optional modules completed:

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Instructor Name	Casey Wimberly
Instructor ID	06110027331

HEARTSAVER

Heartsaver® First Aid

American Heart Association.

Justin McDougal

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HEARTSAVER

Heartsaver® First Aid

American Heart Association.

Sam Robinson

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Optional modules completed:

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Instructor ID	06110027331

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HEARTSAVER

Heartsaver® First Aid

American Heart Association.

Thomas McBride

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Optional modules completed:

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Instructor Name	Casey Wimberly
Instructor ID	06110027331

© 2016 American Heart Association 15-3005 3/16

HEARTSAVER

Heartsaver® First Aid

American Heart Association.

Tyler Russell

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Optional modules completed:

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4/24/2018	04/2020

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TC Phone	(913) 676-8194
Instructor Name	Casey Wimberly
Instructor ID	06110027331

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ATTACHMENT E

Workers' Compensation Experience Rating Log

Date	***Exp Mod***	***Effective Date***
2/7/2005	0.81	1/14/2005
1/14/2006	0.83	1/14/2006
12/26/2006	0.84	1/14/2007
10/23/2008	0.96	1/14/2009
11/21/2008	0.85	1/14/2009
11/25/2008	1.14	1/14/2009
8/6/2009	1.16	1/14/2010
12/9/2009	1.19	1/14/2010
11/29/2010	1.16	1/14/2011
12/05/11	0.87	1/14/2012
9/6/2012	0.85	1/14/2013
11/08/2013	0.80	1/14/2014

WORKERS COMPENSATION EXPERIENCE RATING

Risk Name: DREDGE AMERICA INC **Risk ID:** 917659656

Rating Effective Date: 04/01/2018 **Production Date:** 01/10/2018 **State:** INTERSTATE

State	Wt	Exp Excess Losses	Expected Losses	Exp Prim Losses	Act Exc Losses	Ballast	Act Inc Losses	Act Prim Losses
AL	.12	0	0	0	0	32,200	0	0
CO	.09	184	266	64	0	33,250	0	0
CT	.11	0	0	0	0	35,650	0	0
FL	.12	316	508	192	0	31,650	0	0
GA	.11	0	0	0	0	37,500	0	0
IL	.10	0	0	0	0	49,950	0	0
IA	.11	39,039	50,707	11,668	0	33,900	0	0
KS	.13	2,164	3,092	928	0	30,625	0	0
KY	.13	0	0	0	0	26,525	0	0
LA	.10	0	0	0	0	51,750	0	0
MD	.11	261	353	92	0	33,000	0	0
MA	.10	1,019	1,228	209	0	29,400	0	0
MN	.13	802	1,162	360	0	30,975	0	0
MS	.11	0	0	0	0	34,200	0	0
MO	.11	25,666	35,631	9,965	130,269	35,400	146,769	16,500
MT	.12	0	0	0	0	32,900	0	0
NE	.12	873	1,213	340	0	36,050	0	0
OK	.11	1,653	2,264	611	0	40,200	0	0
TX	.12	1,536	2,480	942	0	34,650	103	103

(A) Wt	(B)	(C) Exp Excess Losses (D - E)	(D) Expected Losses	(E) Exp Prim Losses	(F) Act Exc Losses (H - I)	(G) Ballast	(H) Act Inc Losses	(I) Act Prim Losses
.11		73,515	98,906	25,391	130,269	35,502	146,600	16,531

	Primary Losses	Stabilizing Value	Ratable Excess	Totals
Actual	(I) 16,531	C * (1 - A) + G 100,930	(A) * (F) 14,330	(J) 131,791
Expected	(E) 25,391	C * (1 - A) + G 100,930	(A) * (C) 8,087	(K) 134,408

	ARAP	FLARAP	SARAP	MAARAP	Exp Mod
Factors	1.04	1.05		1.00	(J) / (K) .98

Severe Weather and Emergency Response Plans

Lightning Storm Plan Statement

Superintendents and all crew members are responsible for checking the weather every evening for the next day's forecast. If it looks like there will be a lightning storm the following day, proper preparations will be made in order to safely operate or to delay work until the storm has passed.

In the event of a lightning storm while operations are in progress all crew members will stop operations and promptly anchor the dredge. Once the dredge is anchored crew members will evacuate to their cars to get to a large, safe indoor location. Do not take shelter under trees or somewhere not protected from the lightning. Stay inside at least 30 minutes after the last strike.

If the crew cannot get back to shore safely they are to drop anchor and get as low as possible and retreat to the cabin of the dredge. Once in the dredge cabin, crew members will try to stay away from metal surfaces and off of the radio unless it's an emergency.

Flooding and Intense Rainfall Plan Statement

Similar to the Lightning Storm Plan, Superintendents should be checking the weather on a daily basis to prepare for any upcoming extreme weather conditions. In the event of a high percentage of rainfall for the upcoming days certain precautions should be taken in order to ensure the safety of all crewmembers.

If the forecast predicts a flood/flash flood watch, or a flood/flash flood warning prior to coming onsite, crews will not report to the jobsite and instead will stay at their place of residence and listen to the National Weather Service or the National Oceanic and Atmospheric Administration (NOAA) for critical information on evacuation procedures and current updates of the weather condition.

If the forecast suddenly changes and predicts a flood/flash flood while operations are in progress crewmembers should quickly and calmly anchor the dredge and evacuate to shore on designated boats. Once they get to shore the crew should tie the boat and promptly evacuate to their vehicles. In their vehicles they should drive cautiously to the nearest safe location on high ground. If while driving, they encounter more than 6 inches of water on the road, or on a bridge, they should turn around a look for an alternate route. If the vehicle becomes surrounded by water, crewmen should get out and seek higher ground.

Wind Storm and Tornado Plan Statement

The Superintendent and all crewmembers are responsible for monitoring the weather for any hazardous weather on a daily basis. If the weather calls for extreme high winds or a tornado watch/warning the crew is advised to stay in their place of residence, shut all blinds, and seek shelter away from any windows.

If onsite when high winds occur the crew should promptly anchor the dredge and evacuate to land on designated boats. Once on land, personnel should continuously monitor the weather and seek shelter in vehicles, as needed, and in worst case scenario retreat to the closest secure building or tornado shelter.

In Event of Tornado: (2014 EM385-1-1 page 1-24, 1-25 – Emergency Planning and Operations)

- Operators are to secure equipment and evacuate to either vehicles located onshore or, in the worst-case scenario, retreat to the closest secure building or tornado shelter.

Fire Plan Statement

In the event there is a fire onboard the dredge it can be put out rapidly if acted upon immediately. If a fire starts, the nearest crew member should grab the fire extinguisher on board, activate it and direct it at the base of the flames. Water should never be used to try and put out a fire on board because if it was started electrically, by gasoline, oil, or grease, water will spread the fire further. If the motor catches fire, the fuel supply should be shut off immediately.

Freezing Weather Plan Statement

Freezing weather presents hazards such as slippery roads/surfaces, potential injuries, and illnesses. If the weather drops below freezing the Superintendent is to use his discretion on whether or not road conditions are safe enough to travel. The crews will be outfitted with the proper cold weather gear including boots, hats, and gloves. Extra salt and heaters will be equipped on the dredges when there are freezing temperatures. If at any time the weather advisories suggest staying inside due to below freezing temperatures the job will be shut down until warmer temperatures allow for safe working conditions.

Wildlife Hazards Plan Statement

Wildlife can be a hazard when threatened in their environment. It is essential that all of our crew is very respectful and aware of their surroundings at all times. If at any time our crewmembers feel threatened by wildlife, they should stop their current activity and remove themselves from the situation if possible. If the threat is eminent most larger animals are scared away by loud noises. The best way to avoid dangerous wildlife is to know your surroundings and always be on alert.

Proper clothing such as steel toed boots and long pants will also protect against wildlife threats on the ground.

Traffic Land Accidents Plan Statement

In the event of an equipment accident follow the below procedures:

Procedures in Event of Equipment Accident: (2014 EM 385-1-1 page 1-21, 1-24, 1-25)

1. The On-Site Safety and Health Officer (OSSHO) shall assume control of incident.
2. OSSHO shall ensure area is safe to enter.

3. Make sure injured person has first-aid or medical attention required, plus call 911 if assistance is required.
4. Once incident and victims are stabilized, OSSHO shall notify Covia.
5. OSSHO shall interview witnesses.
6. OSSHO shall record the scene with photos (ideally date and time printed) or sketches.
7. OSSHO shall safeguard any evidence.
8. OSSHO shall conduct an investigation as soon as possible following the event to gather all the necessary facts, determine the true causes of the event, and develop recommendations to prevent a recurrence.

In the event that the OSSHO is not on site the Dredge America OSSHO should assume responsibility and take action following the above procedures. Repeated attempts should be made to get in contact with the OSSHO.

When leaving the jobsite each day, and while running for supplies, it is important to be very cautious on the roadways as to avoid accidents in vehicles.

All crewmembers are advised to follow all traffic signs and signals, posted speed limits, and always drive with extreme caution around the jobsite. Equipment and pedestrians cause unsafe conditions and all personnel are to be on high alert at all times.

If a crewmember is involved in an accident it is important to stay at the scene and remain calm. After you have assessed that it is okay to get out of the vehicle you should check all drivers and passengers for injury. Next, call the police. After the authorities are on their way, if no one is hurt, exchange information and take pictures of the accident. Send all reports into the office to notify the insurance company. If any passengers are seriously injured wait for the ambulance to arrive and report to the police regarding the accident.

Boating Water Accidents Plan Statement

If any persons have been involved in a boating accident there are certain procedures to follow. First, make sure everyone is okay. All Dredge America employees are equipped with life vests and should be wearing them at all times while on the water. If there is an accident and someone is seriously hurt call 911 to seek immediate medical attention. An Incident Report should also be filled out promptly and filed with the office.

If no one is injured in the accident the vessel involved should be taken ashore to assess damage and ensure it is safe to take back on the water. If not, proper repairs shall be made.

Equipment Delays or Malfunctions Plan Statement

Equipment delays and malfunctions are common in the marine industry. If there is a delay or malfunction it should be addresses promptly and appropriately as not to further the problem or put any employee in a dangerous situation.

Encountering Hazardous, Toxic, or Radiological Substances Plan Statement

SDS binders are located on all dredges for all of our substances used onboard that are hazardous. This information is also stored onsite in the HCSS safety app. All sheets include what to do when encountered with hazardous substances. Emergency services should be called if any situation proves life threatening.

Site Specific Evacuation Plan

TBD

ATTACHMENT G
EMERGENCY CONTACT FORM (ECF)

Dredge America (816) 330-3100 (Office)

TBD

ATTACHMENT H
SAFETY PLAN ACKNOWLEDGEMENT FORM

I, _____ have read and will comply with all requirements of the Dredge America Health and Safety Accident Prevention Plan.

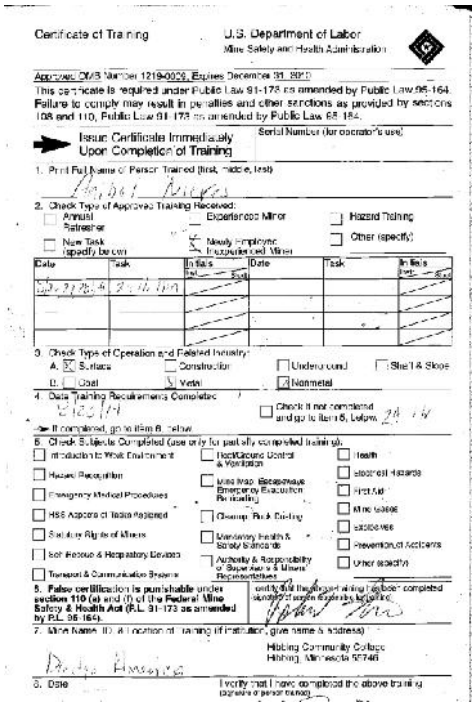
_____

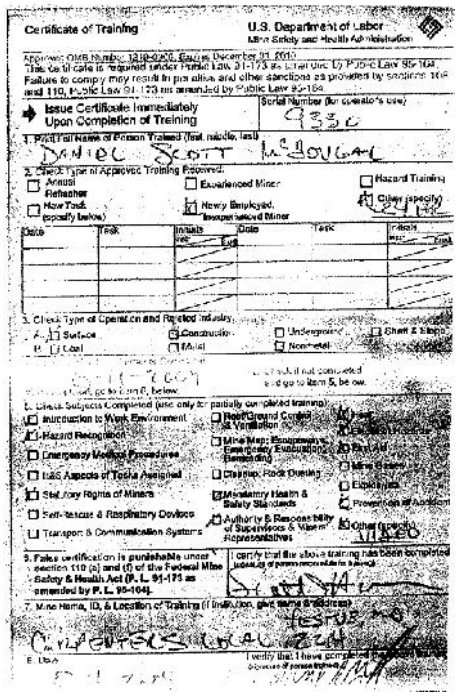
Print Name/Date

_____

Signature

ATTACHMENT I
MSHA CERTIFICATES


Certificate of Training — U.S. Department of Labor, Mine Safety and Health Administration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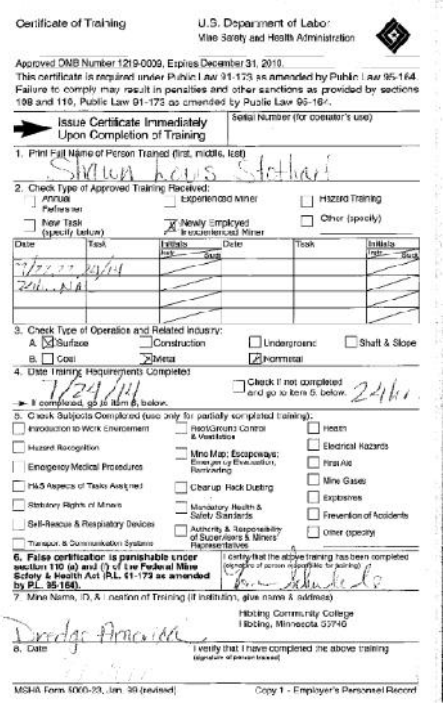
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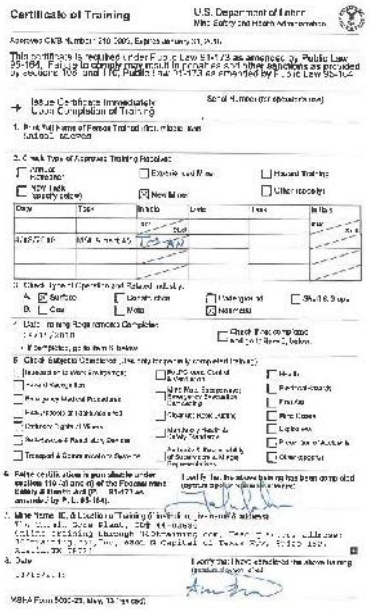
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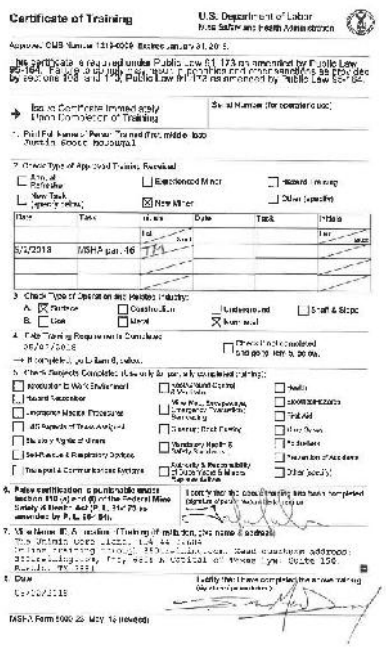
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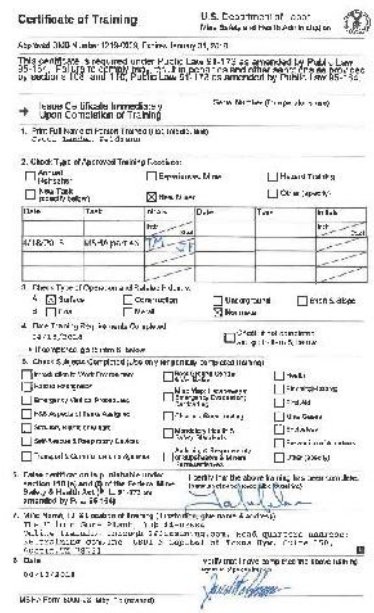

Certificate of Training — U.S. Department of Labor, Mine Safety and Health Administration

ATTACHMENT J
MISCELLANEOUS FORMS

Dredge America's daily safety meeting form is located on the following 2 pages. Note, all safety forms for Dredge America will be filled out electronically each day through the HCSS software. Signatures are captured electorincally as well and are stored with each individual form. Emailed pdf copies of these forms can be provided upon request.

DREDGE AMERICA JOB SAFETY BRIEFING FORM

Facility: _____

Job Description(s)/Work Order(s): _____

Discussed **Applicable Hazard Categories & Controls**

☐ **JOB SPECIFIC PERSONAL PROTECTIVE EQUIPMENT**
- ☐ Respiratory Protection. Face shield. Goggles. Gloves. FR clothing.
- ☐ Welding equipment (leathers, shield, etc.)
- ☐ Chemical protective gear (chemical face shield, goggles, coat, pants, boots & gloves)
- ☐ Sharp edges noted, covered/removed where practical (blades, corners, metal burns, etc)
- ☐ Life vest donned when working over water
- ☐ Other: _____

☐ **WORK AREA PROTECTION, HOUSEKEEPING, or ENVIORNMENTAL FACTORS**
- ☐ If job site will be left unattended, adequate barriers, covers, etc. are required
- ☐ Power cords, hoses, ropes, etc. are tied up and out of the way
- ☐ When working near openings or obstructions signals such as barricades, warning signs, flags, or cones shall be effectively displayed
- ☐ Slips, trips, fall hazards: standing water, ice or snow conditions, unsecured ledge materials
- ☐ Other: _____

☐ **BODY POSITIONING**
- ☐ Position of strength, bend at the knees when lifting, keep material close to body, and exhale into exertion
- ☐ Line of fire; maintain safe distance from lines and slings in tension, no work under suspended loads
- ☐ Moving equipment hazards (shafts, gears, rotation hazards, etc.: exposed clothing, hair)
- ☐ Other: _____

☐ **PORTABLE TOOLS AND EQUIPMENT**
- ☐ Inspect tools and equip. prior to use. Guards installed. Cords in good conditions and have a ground plug
- ☐ Extension cords shall be positioned to prevent damage and used with GFCI's in wet/damp environments
- ☐ Other: _____

☐ **ELECTRICAL HAZARDS**
- ☐ Ground Fault Current Interrupters used and tested in damp/wet areas
- ☐ Adequate safe work clearances when using equip. and machinery around energized equip. & conductors
- ☐ Switching, FR clothing, rubber gloves inspected and tested with current inspection frequency
- ☐ Switchgear and electrical components nomenclature identified and double checked
- ☐ Other: _____

☐ **LADDERS**
- ☐ Inspected for damage, adequately sized
- ☐ Straight ladders tied-off, side rails supported, on secure base with safety feet, ladder locks
- ☐ Work positioning required for extension/straight (when 3 pts. of contact cannot be maintained)
- ☐ Switchgear and electrical components nomenclature identified and double checked
- ☐ Other: _____

☐ **HAZARDOUS AND TOXIC MATERIALS** (flammable/combustible liquids)
- ☐ Material Safety Data Sheet (MSDS)
- ☐ Work area and protection needs, i.e. forced ventilation, natural ventilation, etc.
- ☐ Eye wash/shower station available for immediate use
- ☐ Other: _____

☐ **LIFTING AND MATERIAL HANDLING/ HOISTING AND RIGGING**
- ☐ Crane operator qualified
- ☐ Slings & hoisting devices sized for intended loads & inspected for damage, knots, makeshift devices
- ☐ Anchorages for attaching lifting devices sized & inspected (for sharp edges softeners are required)
- ☐ Driver certified, forklift inspected prior to use and appropriately sized for the intended load
- ☐ Other: _____

DA Job Safety Brief Form 9555 NW Hwy N Kansas City, MO 64153 Page 1 of 1

☐ **FALL PROTECTION SYSTEMS** (fall potential 6 ft or more from an unprotected side or edge)
- ☐ Determine anchorage and attachment, inspect
- ☐ Full body harness and appropriate lanyard (retractable, rip stitch or straight)
- ☐ Inspect fall protection equipment prior to use
- ☐ Other: _____

☐ **SCAFFOLDS**
- ☐ Footing or anchorage stable, level, sound, rigid capable of carrying max. intended load
- ☐ Mid-rails, top-rails, and kickboards. Approved decking / planks and cleated
- ☐ Inspected and okay for use
- ☐ Other: _____

☐ **LO/TO HAZARDOUS ENERGY CONTROL**
- ☐ Other: _____

☐ **CONFINED SPACES**
- ☐ Other: _____

☐ **HOT WORK**
- ☐ Other: _____

☐ **EXCAVATIONS, TRENCHING, and SHORING**
- ☐ **Call DigSafe**
- ☐ **Call Before You Dig**
- ☐ Other: _____

☐ **EMERGENCY RESPONSE PLAN**
- ☐ Work Location/Physical Address: _____
- ☐ Emergency Phone Number(s) _____
- ☐ Muster Point (in the event of an evacuation or stand-down) _____
- ☐ Communication devices to be used:
  - ☐ Radio or Company Phone – Are operating instructions understood?
  - ☐ Cell Phone – Does the work location have adequate cell phone coverage?
- ☐ Is a First Aid kit readily available?
- ☐ Other: _____

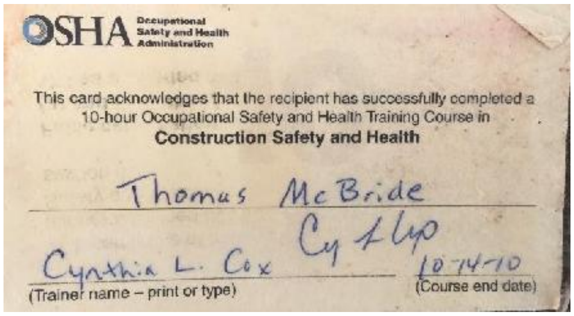
OTHER PRE-JOB DISCUSSION ITEMS:

REMINDER: ***When in doubt, call TIME OUT.*** EVERYONE is expected to call TIME OUT if they have a question or concern, the job scope changes of something unexpected occurs.

A job briefing is a key element of our overall safety program and is required by OSHA. Your signature below indicated your participation in a discussion which covered the associated hazards and, that you understand the procedures and/or precautions involved with the above job description(s).

DA Job Safety Brief Form 9555 NW Hwy N Kansas City, MO 64153 Page 1 of 1

ATTACHMENT K
OSHA CERTIFICATES

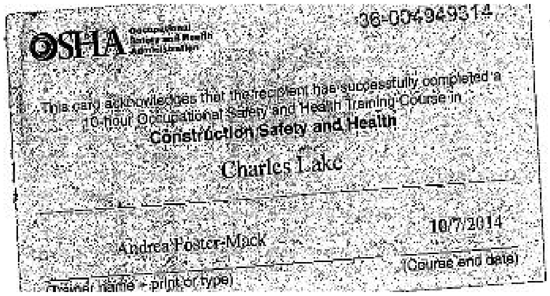

OSHA Occupational Safety and Health Administration

This card acknowledges that the recipient has successfully completed a 10-hour Occupational Safety and Health Training Course in
Construction Safety and Health

Thomas McBride

Cynthia L. Cox 10-14-10

(Trainer name – print or type) (Course end date)


36-004949314

OSHA Occupational Safety and Health Administration

This card acknowledges that the recipient has successfully completed a 10-hour Occupational Safety and Health Training Course in
Construction Safety and Health

Charles Lake

Andrea Foster-Mack 10/7/2014

(Trainer name – print or type) (Course end date)


Certificate of Completion

360training.com

This Certifies That

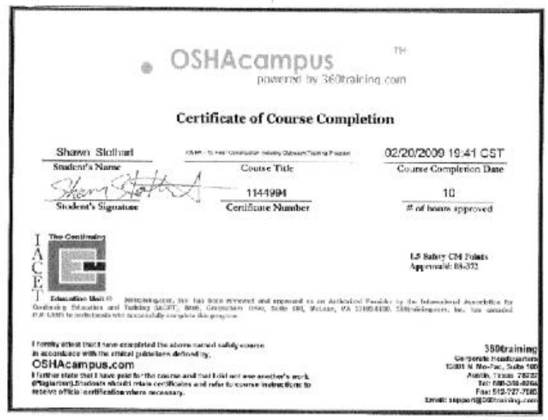
Andrew Hovis

is awarded this certificate for

OSHA 10 Hour Outreach Training Program - Construction

Credit Hours: 10.00

Completion Date: 09/15/2018


OSHAcampus powered by 360training.com

Certificate of Course Completion

Shawn Stothard		02/20/2009 19:41 CST
Student's Name	Course Title	Course Completion Date
	1144994	10
Student's Signature	Certificate Number	# of hours approved

OSHAcampus.com


Certificate of Completion

OCCU-TEC

This Certifies That

Anibal Nieves

is awarded this certificate for

OSHA - 10 Hour Construction Industry Outreach

Credit Hours: 10

Completion Date: 06/21/2011 17:01 CST

Certificate Number: 1981421

Student Signature

Michael Millsap, Trainer C 0004819 and G 0021414


Certificate Of Completion

OSHA Training Center | At Chabot-Las Positas Community College District

American Safety Council

BRADLEY MILLER

Chabot Las Positas


Certificate of Completion

360training.com

This Certifies That

Jacob Feldmann

is awarded this certificate for

OSHA 10 Hour Outreach Training Program - Construction

Credit Hours: 10.00

Completion Date: 09/15/2018


Certificate of Completion

360training.com

This Certifies That

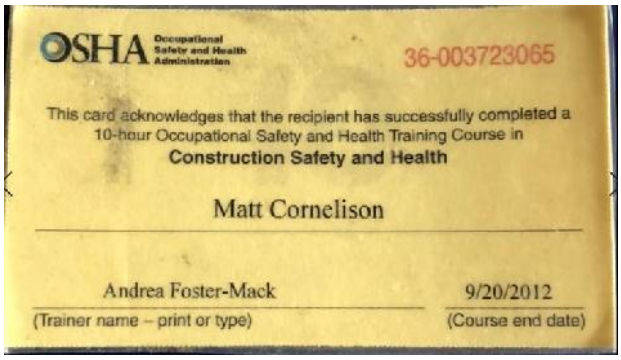
Bradley Miller

is awarded this certificate for

OSHA 30 Hour Outreach Training Program - Construction

Credit Hours: 30.00

Completion Date: 07/27/2018



OSHA Occupational Safety and Health Administration

36-003723065

This card acknowledges that the recipient has successfully completed a 10-hour Occupational Safety and Health Training Course in

Construction Safety and Health

Matt Cornelison

Andrea Foster-Mack — (Trainer name – print or type)

9/20/2012 — (Course end date)

Certificate of Completion

360training.com

This Certifies That

Tommy McBride

is awarded this certificate for

OSHA 30 Hour Outreach Training Program - Construction

Credit Hours: 30.00

Completion Date: 09/15/2016

Curtis Chambers, Trainer C-26-0108073 and O-26-0079775

"As an OSHA authorized trainer, I certify that I have conducted this OSHA outreach training class in accordance with OSHA Outreach Training Program requirements. I will document this class to my authorizing OSHA training organization. Upon successful review of my documentation, I will provide each student their completion card within 60 days of the end of the class."

4801 N Capital of Texas Hwy, Suite 150 • Austin, TX 78731 • 877.881.2255 • www.360training.com

ATTACHMENT L
BOAT HANDLING LICENSES