BETA UNIT GEOPHYSICAL SURVEY – PROJECT DESCRIPTION

1.0 INTRODUCTION

Beta Operating Company, LLC (Beta) proposes to conduct a geophysical survey of the Beta Unit located within Federal outer continental shelf (OCS) waters located approximately eight miles offshore Huntington Beach, California (Figure 1-1).

1.1 PROJECT TITLE

Beta Unit Geophysical Survey

1.2 PROJECT APPLICANT'S NAME AND ADDRESS

Beta Operating Company, LLC (Beta)
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Long Beach, CA 90802
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1.3 PURPOSE AND OBJECTIVES

The objective of the Beta Unit Geophysical Survey is to provide subsurface imaging of the oil productive formations which lie 3,000 to 5,000 feet (914 to 1,524 meters) below the seafloor within the Beta Unit field. The enhanced imaging of the subsurface geology will enable more efficient recovery of the remaining natural resources within the field. The survey will be used to map the subsurface geology to locate remaining resources thereby reducing the number of wells required to recover the resource.

The survey is planned to be conducted in fall 2018, a time when the population of migratory marine mammals in the area is at a minimum. All appropriate mitigation measures will be taken to prevent impacts to marine resources, commerce, and recreational activity during the two weeks of equipment deployment and recovery and the three to four weeks of the survey. The people of the United States (U.S.) will benefit from increased royalty and tax revenue as a result of enhancing the recovery of the natural resources on Federal submerged lands.

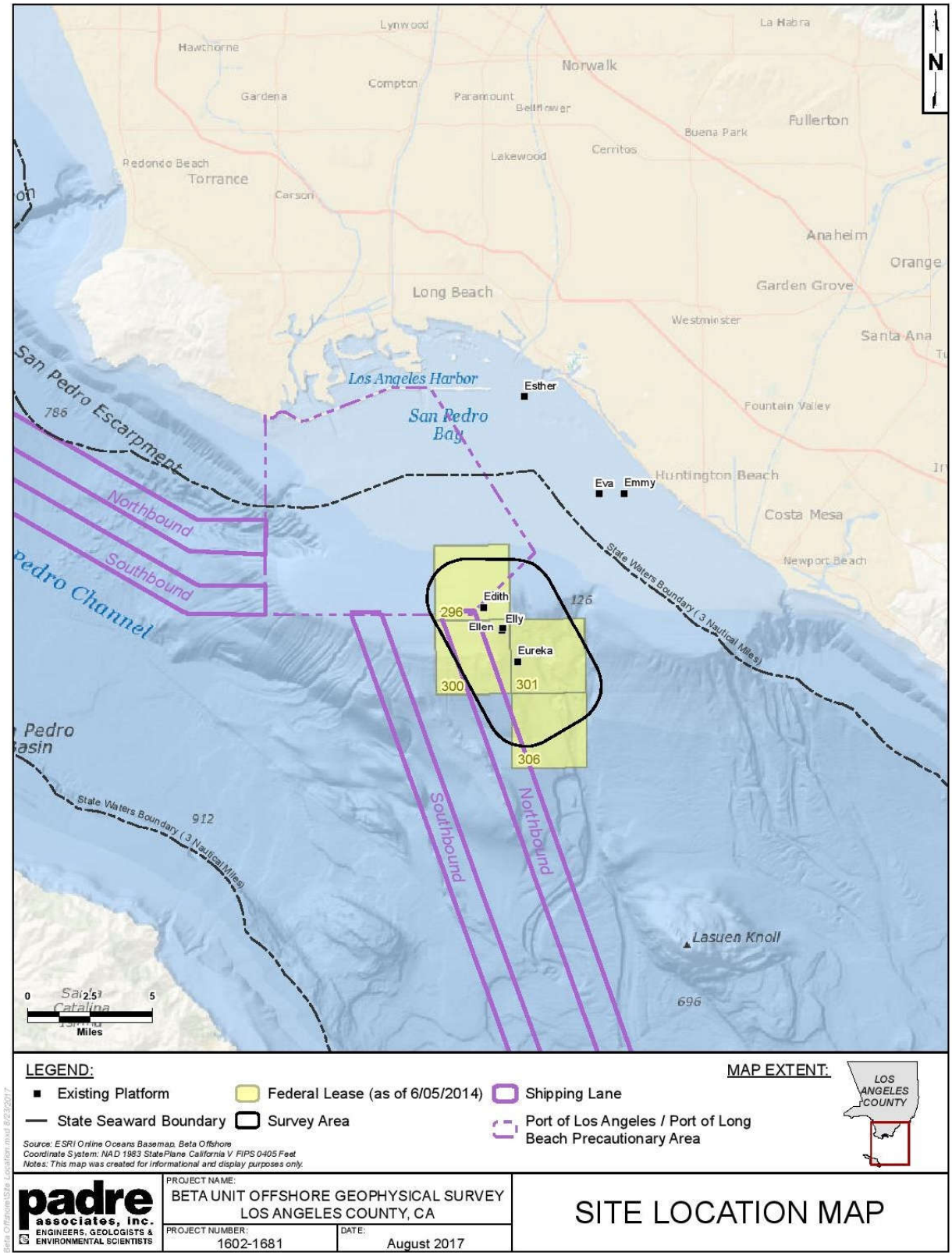

Figure 1-1. Site Location Map

1.4 PROPOSED GEOPHYSICAL SURVEY AREA

The geophysical survey area (Project area) is located approximately eight miles offshore Huntington Beach, California. Coordinates of the offshore survey area are provided in Table 1-1. The size of the survey area is approximately 18.885 square miles (48.91 square kilometers) in a North Northwest (NNW) to South Southeast (SSE) direction (Figure 1-2). Approximately 17 track lines per directional change are anticipated (approximately 68 survey loops). Water depths in the survey area range from 148 to 1,083 feet (45 to 330 meters).

A subsurface geophysical survey utilizing one source array (including 3 sub-arrays) and autonomous nodes (nodes) temporarily deployed on the seafloor is proposed to reach an estimated imaging depth of 2,500 to 5,000 feet (762 to 1,524 meters) below the seafloor in the Pliocene and Miocene aged formations, as shown in Table 1-2. The use of nodes accommodates the challenges faced when conducting a survey in the area beneath Platforms Eureka, Edith, and Ellen/Elly; and in close proximity to established shipping lanes located approximately 9,400 feet (2,850 meters) from the Beta Unit Field.

Table 1-1. Coordinates of Offshore Survey Area

Corner of Survey Area	Coordinates	
	Latitude	Longitude
Southwest	33°32'13.74"N	118°6'43.91"W
Northeast	33°36’5.55"N	118°9’13.97"W
Northwest	33°36’4.76"N	118°7”11.44"W
Southeast	33°33’0.15"N	118°5’10.89"W

Table 1-2. Geological and Geophysical Model Depths

Unit Name	Depth (feet)	Depth (meters)
Surface	0	0
Seabed	148 - 1,083	45 - 330
Miocene A sands	2,650 - 3,700	808 - 1,128
Miocene C sands	2,900 - 4,500	884 - 1,372
Miocene D sands	3,000 - 4,900	914 - 1,494
Miocene F sands	3,400 - 4,450	1,036 - 1,356

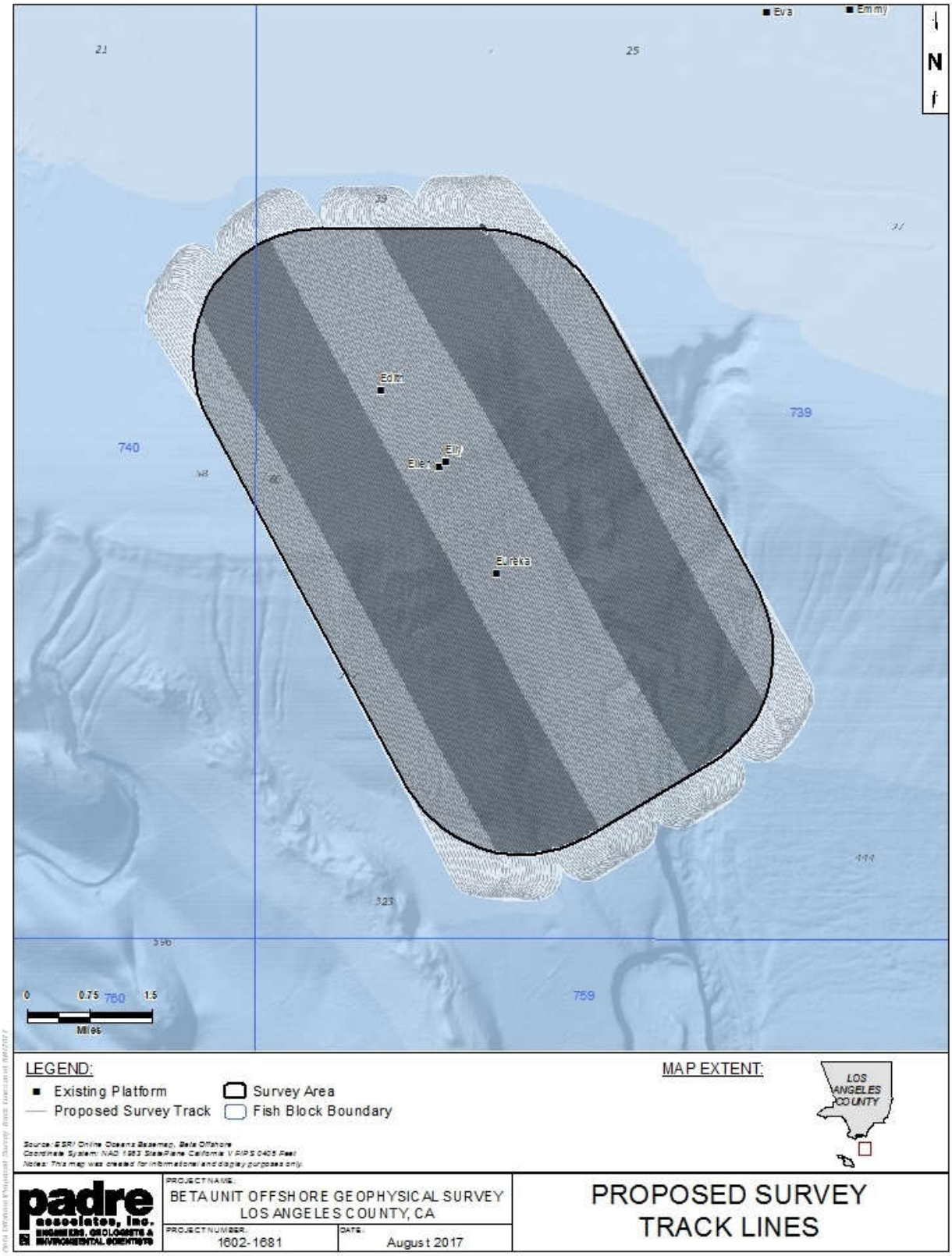

Figure 1-2. Source Vessel Track Map of Beta Unit Proposed Geophysical Survey Area

1.5 PROJECT ACTIVITIES

The proposed scope of work offshore will require operating a node installation/recovery vessel, geophysical survey vessel, support/monitoring vessels; as well as transit of the vessels between the survey area and nearby harbors (Port of Los Angeles [POLA] / Port of Long Beach [POLB]). The geophysical survey vessel will tow one source array consisting of three sub-arrays along the pre-determined transects shown in Figure 1-2 to acquire geophysical reflection data from the subsurface rock beds within the survey area.

1.5.1 Project Vessel Configuration and Mobilization

The proposed node installation/recovery vessel is the Marine Vessel (M/V) *Clean Ocean*. The M/V *Clean Ocean* is based out of the POLA/POLB and is an offshore work vessel that will be configured to support node storage, deployment, and recovery. It is expected that the M/V *Clean Ocean* will be available to support the 2018 survey activities, however if the M/V *Clean Ocean* is unavailable; an equivalent vessel will be secured.

The proposed geophysical survey vessel has not been selected at this time; however, either a locally available work vessel utilizing containerized equipment (e.g. M/V *Silver Arrow)* or specialized geophysical survey vessel (e.g. research vessel [R/V] *Marcus G. Langseth)* will be used to conduct the survey. The M/V *Silver Arrow* would function as a containerized commercial vessel outfitted on behalf of the proposed survey activities. The R/V *Marcus G. Langseth* is a research vessel that is operated by Columbia University's Lamont-Doherty Earth Observatory's Office of Marine Operations (OMO) and can be utilized if available for commercial use. It is expected that one of these vessels would be available to support the 2018 survey activities, however if they are unavailable; an equivalent vessel will be secured. For the purposes of the enclosed analysis, the equipment aboard the M/V *Silver Arrow* is referenced as a likely case scenario, but an alternative vessel would have similar equipment and equivalent (or better) effects. The M/V *Silver Arrow* would be mobilized from Seattle, Washington to Southern California POLA/POLB and Beta Unit offshore Project area. Upon completion of the offshore survey operations, the vessel would return to the POLA/POLB to be outfitted for its next work location.

The M/V *Jab* or equivalent will also provide support during the proposed geophysical survey for operations coordination and vessel preclusion activities. The M/V *Jab* will also be based out of the POLA/POLB during the proposed Project activities.

1.5.2 Offshore Survey Operations

The following sections outline the general equipment specifications and methodology proposed to complete the offshore geophysical survey. Figure 1-3 shows an illustration of the survey technique.

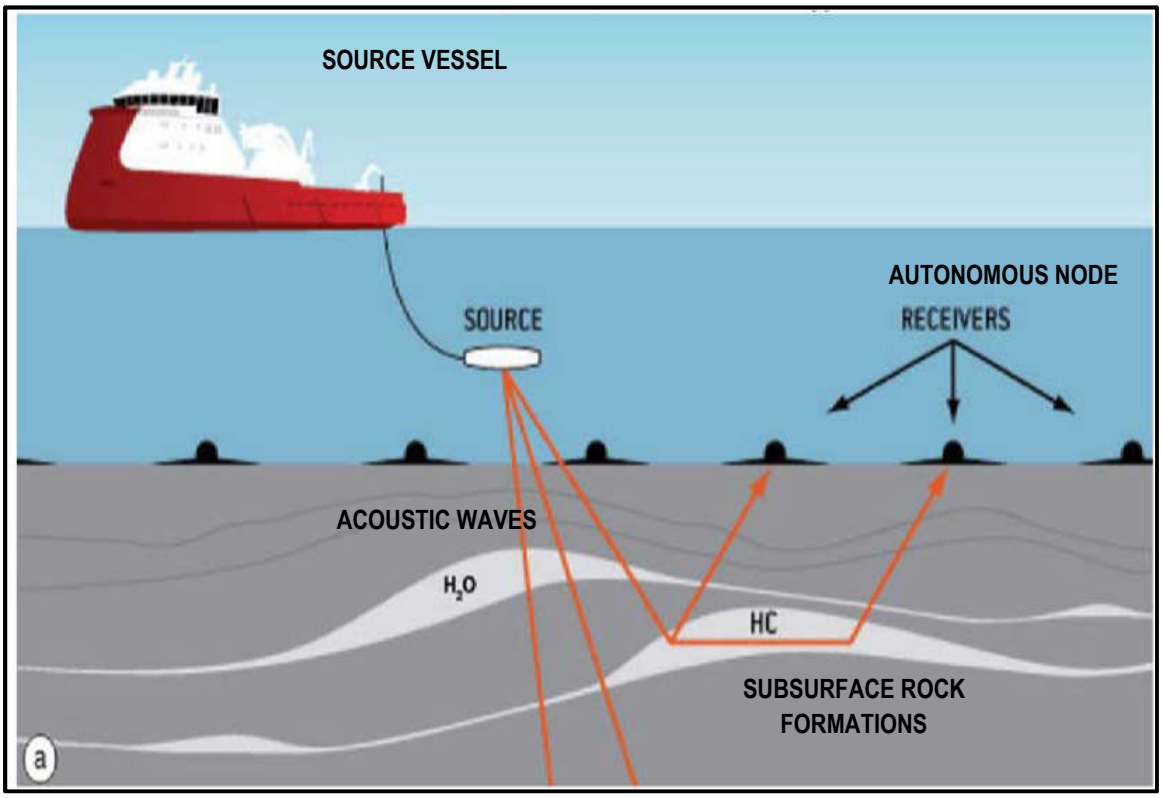

Figure 1-3. Illustration of the Nodal Marine Geophysical Subsurface Survey

1.5.2.1 Vessel Specifications and Methodology

Node Deployment/Recovery. The M/V *Clean Ocean*, or similar vessel, will be used to deploy and retrieve the ocean bottom nodes. The M/V *Clean Ocean* is a dynamically positioned vessel suitable for working near fixed structures and in deep water, where anchoring is not feasible. The ship meets all current Environmental Protection Agency (EPA) and California Air Resources Board (CARB) emission specifications, powered by two, Tier 3 Cummings QSK-19 engines with 1,500 horsepower. It has a length of 155 feet (47.24 meters), a beam of 36 feet (10.97 meters), and a maximum draft of 9.9 feet (3.0 meters). The vessel also has an 18-ton crane. The M/V *Clean Ocean* (Figure 1-4) will be configured and outfitted for the proposed Project in support of node deployment/recovery activities as further described in Section 1.5.2.3 (Autonomous Nodes) below.

Figure 1-4. M/V Clean Ocean Node Deployment/Recovery Vessel

Source Vessel Operations. The M/V *Silver Arrow* (Figure 1-5), or similar vessel, will tow the source array along predetermined survey transects. The M/V *Silver Arrow* is a DP2 ship, has a length of 240 feet (73.2 meters), a beam of 54 feet (16.5 meters), and a maximum draft of 14.10 feet (4.52 meters). The M/V *Silver Arrow* is an offshore supply vessel that will be confligured in support of the proposed activities. The ship is powered by two Caterpillar 3516C main diesel engines, each producing 4,000 horsepower, which drive the 4-blade propellers directly. The vessel also has three Caterpillar C18 primary generators. The operation speed during geophysical data acquisition is typically 4.5 knots (8.3 kilometers per hour). When not towing geophysical survey gear, the M/V *Silver Arrow* typically cruises at 10.0 knots (18.5 kilometers per hour). When the M/V *Silver Arrow* is towing the source array, the vessel would "fly" the appropriate United States Coast Guard (USCG)-approved day shapes (mast head signals used to communicate with other vessels) and display the appropriate lighting to designate the vessel has limited maneuverability.

The geophysical support vessel M/V *Jab* has a length of 43 feet (13.10 meters), a beam of 15.5 feet (4.72 meters) and a draft of 2.0 feet (0.6 meters). The ship is powered by two Cummins QSC 8.3 500 horsepower engines. It also has two 8-kilowatt (kw) generators. It has a top speed of 34 knots (63.0 kilometers per hour). The M/V *Jab* will be utilized in support of the geophysical survey including enforcement of the proposed operational Exclusion Zone.

Figure 1-5. M/V Silver Arrow Survey Vessel

1.5.2.2 Source Description

The proposed geophysical source array is comprised of 3 sub-arrays with a combined volume of 3,480 cubic inches (57 liters). An example sub-array is shown in Figure 1-6. The sub-arrays would be configured as three identical, linear arrays or "strings" (Figure 1-7). Each string will have eleven active sound sources (and one spare) in six clusters. Each of the clusters is approximately 9.18 feet (2.8 meters) apart. Each of the three sub-arrays would be towed approximately 328 to 492 feet (100 to 150 meters) behind the vessel and separated from each other by approximately 23 feet (seven meters). Depth ropes from source floats would be used to keep the sound source at a depth of 23 feet (seven meters). The vessel speed during data collection would range from 4 to 5 knots (7.4 to 9.3 kilometers per hour). Depths are monitored by depth sensors mounted on the arrays and horizontal positions are monitored using surface GPS relative to the vessel. The expected timing of the shots is once approximately every seven seconds, and/or approximately every 82.02 feet (25 meters) based on an assumed boat speed of 4.5 knots (8.3 kilometers per hour).

The discharge pressure of the array is approximately 2,000 pounds per square inch. To reduce potential noise, the sound source will be operated in "distributed or popcorn mode". During discharge, a brief (~0.1 seconds) pulse of sound is emitted. The sound source would be silent during the intervening periods. Because the actual source is a distributed sound source rather than a single point source, the highest sound levels measurable at any location in the water will be significantly less than the nominal single point source level emitted (as would be the case during other non-related "typical" geophysical surveys). Specifically, rather than activating all

sound sources at the same time to generate a sharp source peak, the sound source is initiated independently over a short period of time to generate a firing sequence with reduced peak amplitudes. As only one sound source would be firing at any given time, the effective (perceived) source level for sound propagating would be substantially lower than the nominal source level because of the distributed nature of the sound from the source array. The source array is designed to focus maximum energy downwards rather than in the horizontal directions.

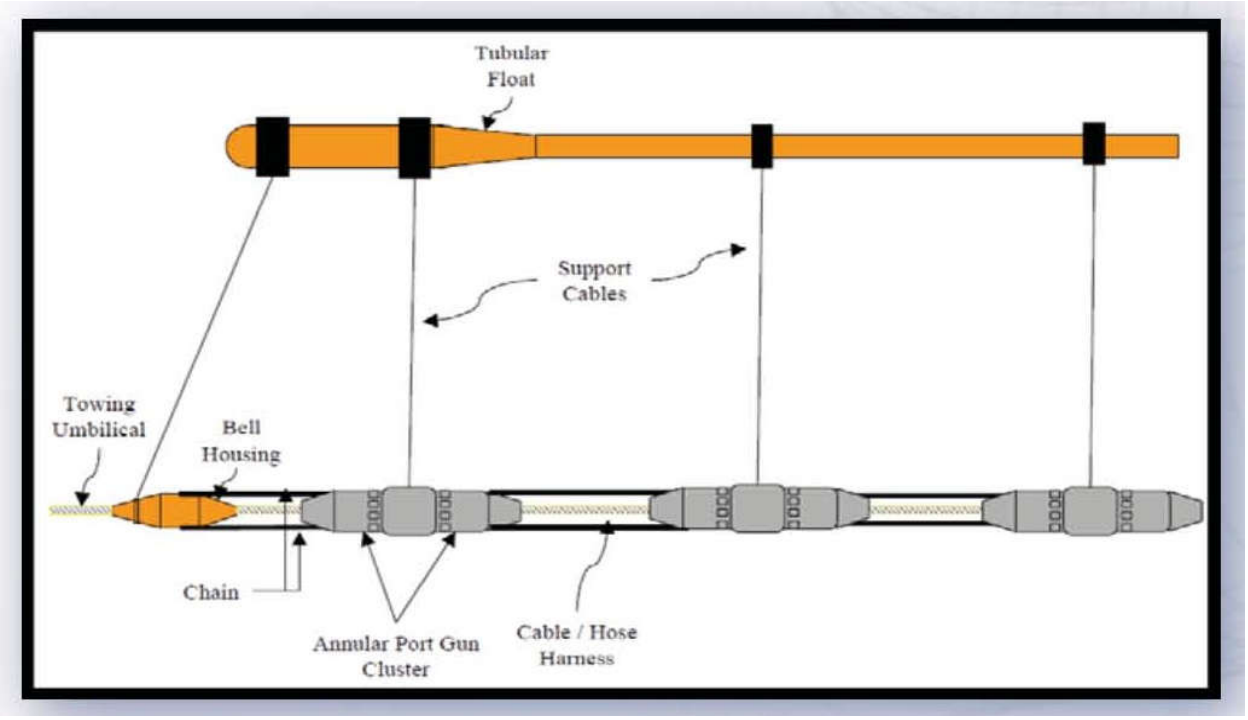

Figure 1-6. APG Sub-Array Sound Source (Example)

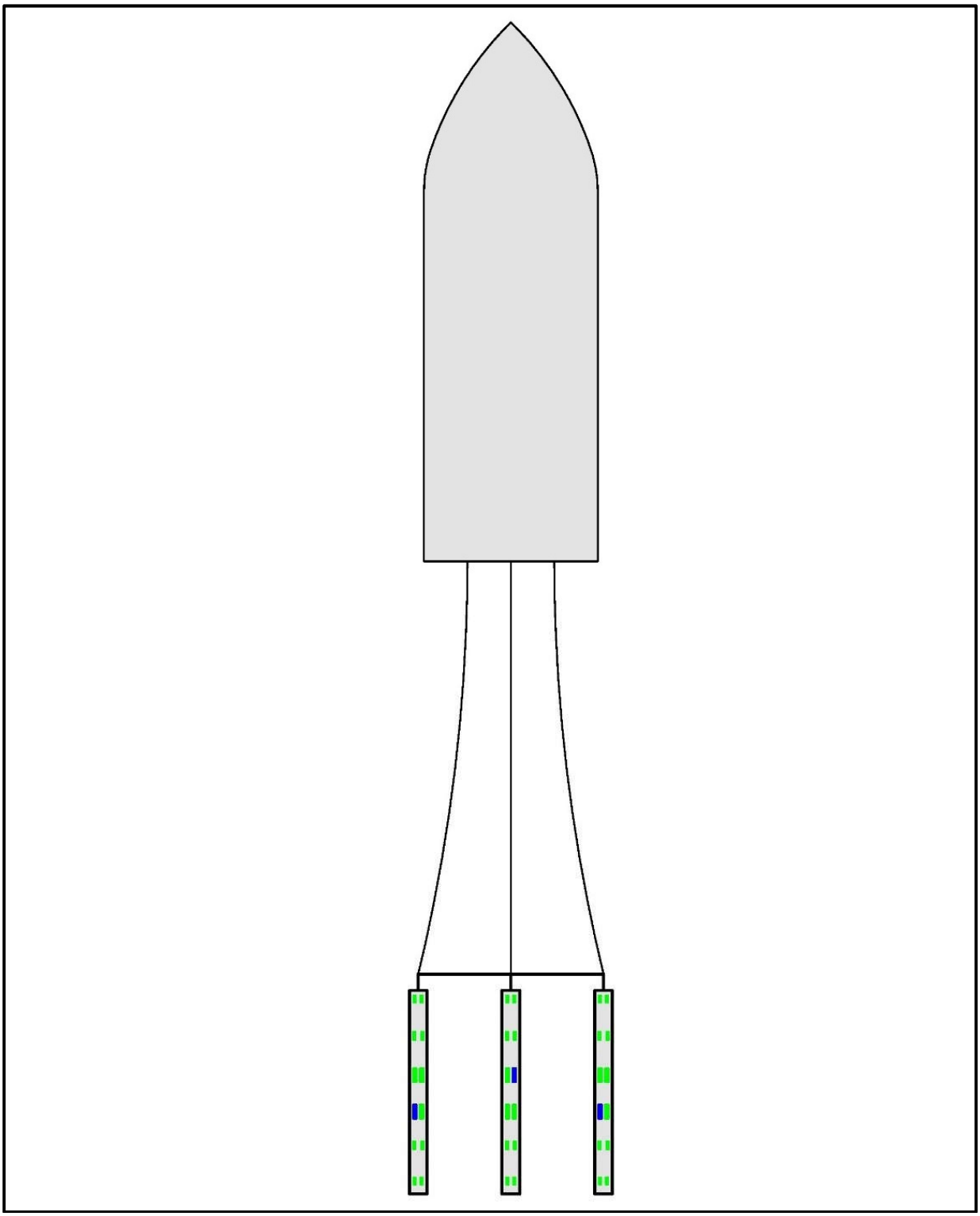

Figure 1-7. Source Array Configuration

1.5.2.3 Autonomous Nodes

The autonomous nodes are described in Table 1-3. There are 20 receiver lines proposed containing approximately 730 nodes total as shown in Figure 1-9. The survey was designed to satisfy a maximum offset consistent with the design, which is approximately 410 feet (125 meters) so node separation would be no more than 820 feet (250 meters). The system is autonomous and would not require electrical cable connection for operation, though nodes are physically tethered together by cable/rope. The nodes are circular and approximately 65 pounds (lbs.) (29.5 kilograms) in air, and are 17.0-inches in diameter by six-inches high (43.2 centimeters by 15.2 centimeters) (Figure 1-8). Typical node specifications (Example: FairfieldNodal, 2016) are provided in Table 1-4.

Table 1-3. Node Specifications

Node spacing distance	820 feet (250 meter)
Receiver line separation	820 feet (250 meter)
Number of receiver lines	20
Number of nodes total	730
Shot distance	82 feet (25 meter) inline
Shot line separation	82 feet (25 meter)
Bin dimension	41 x 41 feet (12.5 meter x 12.5 meter)
Azimuth of RL	328.84 degrees
Azimuth of SL	53.84 degrees
Shots per square kilometer	1,600
Active nodes per shot	506

Figure 1-8. Shallow Water Node (FairfieldNodal, 2016)

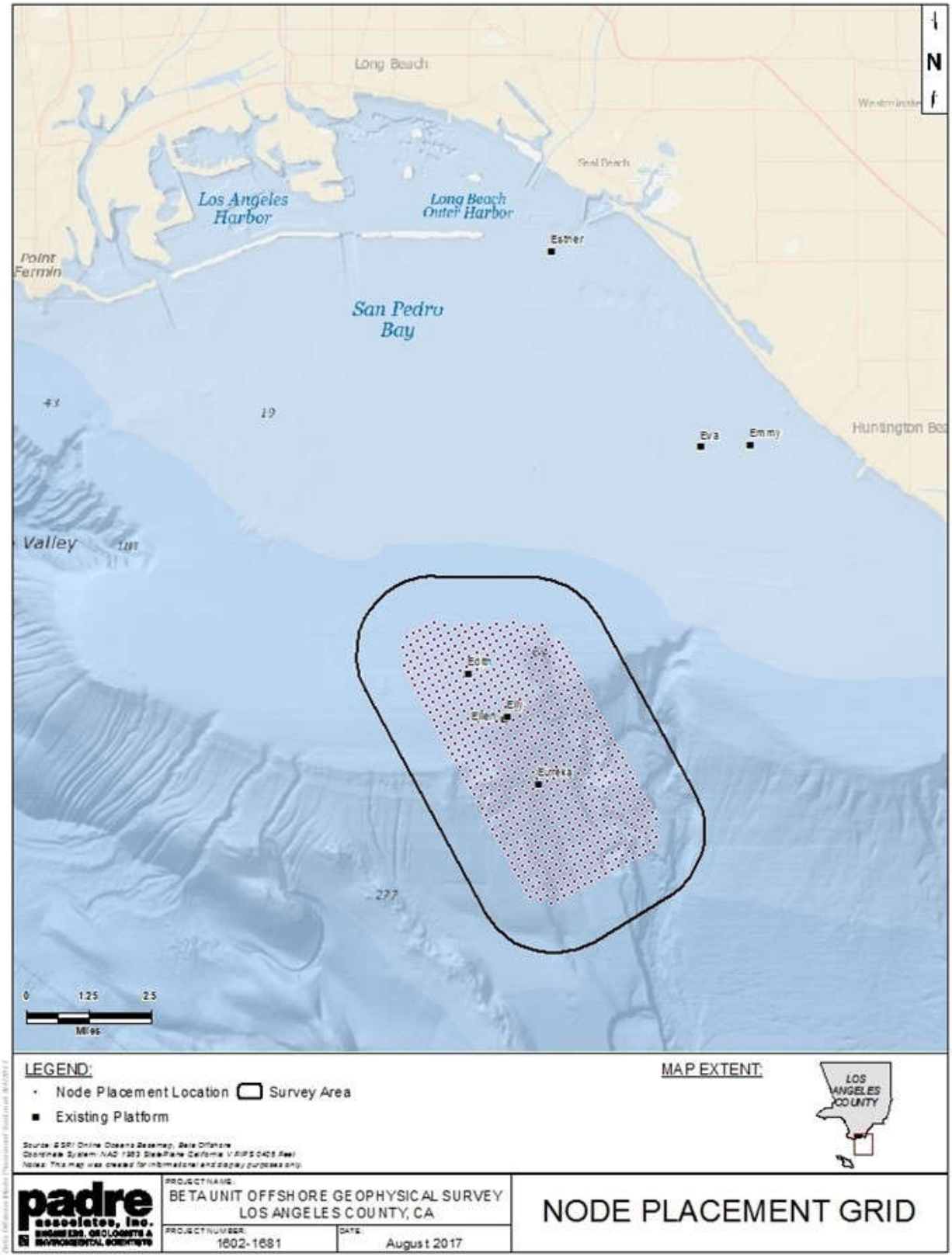

Figure 1-9. Anticipated Node Placement Grid

Table 1-4. Typical Node Specifications (FairfieldNodal, 2016)

Typical Node Specifications

Seismic Data Channels: 4

ADC Resolution: 24 bits

Sample Interval: 2, 4 milliseconds

Preamplifier Gain

0 dB to 36 dB in 6 dB steps

Anti-Alias Filter

206.5 Hz (82.6% of Nyquist) @ 2 ms, Linear Phase

DC Blocking Filter

1 Hz to 60 Hz, 6 dB/Octave, or OUT

Operating Temperature Range

-10˚C to +60˚C

Operating Life (100% Charge)

Up to 60 days continuous recording

Battery

Charging Temperature Range
+3˚C to +40˚C

Recharge Time: < 8 hours

Acquisition Channel

(2 ms sample interval, 25°C, 31.25 Hz, internal test, unless otherwise indicated)

Total Harmonic Distortion
0.0003% @ 12 dB gain, -3dB Full Scale

Equivalent Input Noise
1.0 µVrms @ 0 dB
0.4 µVrms @ 12 dB
0.3 µVrms @ 24 dB
0.3 µVrms @ 36 dB

Full Scale Input Signal
2500 mV peak @ 0 dB
625 mV peak @ 12 dB
156 mV peak @ 24 dB
39 mV peak @ 36 dB

Gain Accuracy: 0.50%*

Dynamic Range
120 dB @ 0 dB Preamplifier Gain

Crossfeed
<-100 dB Geophone Channels
<-80 dB Hydrophone Channel**

Common Mode Rejection Ratio
>+90 dB Geophone Channels
>+40 dB Hydrophone Channel**

DC Offset
<10% of Input Noise with DC Blocking Filter IN

Timing Accuracy
CSAC clock

Self Test Features

Internal Noise (preamp input terminated)

Internal THD

Internal Gain Accuracy

Internal CMRR

Internal Crossfeed

Internal Impulse

Sensor Impedance

Sensors

Geophone
3 orthogonal, omni directional, 15 Hz @ -3 dB, 70% damped 0.57 V/in/s (22.4 V/m/s)

Hydrophone
3.4 Hz @ -3 dB, 8.9 V/Bar

Orientation
±1.5° tilt indication
±5° azimuth (at Latitudes within ± 50° of the Equator)

Physical

Weight: 65 lb (29.5 kg) in air, 40 lb (18.1 kg) in water

Dimensions: 17 in (43.2 cm) diameter by 6 in (15.2 cm) high

Operating Depth: 700 meters

* Does not include high-impedance low-cut filter for directly coupled hydrophone interface.
** Channel includes high-impedance low-cut filter for directly coupled hydrophone interface.

All specifications relate to Node Part Number 221.6862.0003 only.
FairfieldNodal reserves the right to change specifications without notice to provide the best possible product.

Drawing Number 601.0002.0003 Rev. –
Z700 Node (Version 3) Specifications Sheet

August 2016

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The nodes will be loaded onto the deployment vessel, the M*/V Clean Ocean*, with the onboard crane at the POLA/POLB. The M*/V Clean Ocean* will then travel to the offshore Project site and deploy the nodes at their designated locations. The nodes will be connected to each other by a line no greater than 0.65 inches (1.6 centimeters) in diameter in accordance with National Marine Fisheries Service (NMFS) recommended protocol and manufacturer specifications. Installation of the nodes will be completed when sea state and weather conditions are conducive to safe operations and will be via "live-boat" (no anchoring is proposed), deployment being from the stern of the vessel while moving over the proposed locations at approximately 2 to 4 knots (3.7 to 7.4 kilometers per hour). Installation of the nodes is anticipated to take approximately seven operational days (one week).

After the nodes have been placed on the seafloor, recording will be conducted for the duration of the Project. At the end of the survey, the M/V *Clean Ocean* will retrieve each line of temporary nodes. Recovery of the nodes following survey activities is also anticipated to take approximately seven operational days (one week).

1.6 PROJECT PERSONNEL AND EQUIPMENT

1.6.1 Equipment Requirements

The following vessels and equipment are being evaluated for use in the proposed offshore geophysical survey.

- M/V *Clean Ocean* for node deployment/recovery;
- M/V *Silver Arrow* or R/V *Marcus Langseth* for geophysical survey;
- One source array (consisting of three sub-arrays); and
- M/V *Jab* for operations support and preclusion enforcement.

1.6.2 Personnel Requirements

It is estimated that the following personnel will be required for the proposed offshore geophysical survey. Additional Project-related personnel may also participate as needed.

- M/V *Clean Ocean* (node deployment/recovery): 10 + including monitors
- M/V *Silver Arrow* (survey): 15 + including monitors
- M/V *Jab* (support): 5
- Administrative/computer support: 3

1.7 PROJECT SCHEDULE

The proposed activities, including mobilization and demobilization, are expected to take approximately 42 operational days (six weeks) to complete. Deployment/recovery of the node units is expected to take approximately 14 days (two weeks – one week for deployment and one week for recovery), and the geophysical survey would take approximately 28 days. This estimate includes time for instrument deployment, profiling, instrument recovery, and demobilization. The survey is targeted for September 2018, following completion of all required environmental reviews and permitting. The September-November time window is the annually lowest population of marine mammals in the survey vicinity.

1.8 PROJECT REPORTS AND PLANS

The Project has been designed to minimize environmental impacts to the greatest extent feasible. The following reports and plans have been prepared to support the Project application and the measures to be implemented to reduce potential impacts as further described in Section 1.9 below. These reports and plans include the following:

- **Reports and Assessments**
  - Biological Assessment (BA)
  - Essential Fish Habitat Assessment (EFHA)
  - Air Emissions Calculations
- **Plans**
  - Marine Wildlife Contingency Plan (MWCP)
  - Fisheries Management Plan (FMP)
  - Vessel-based Oil Spill Prevention and Contingency Plan(s) (OSPCP)

1.9 APPLICANT PROPOSED MEASURES TO REDUCE POTENTIAL IMPACTS

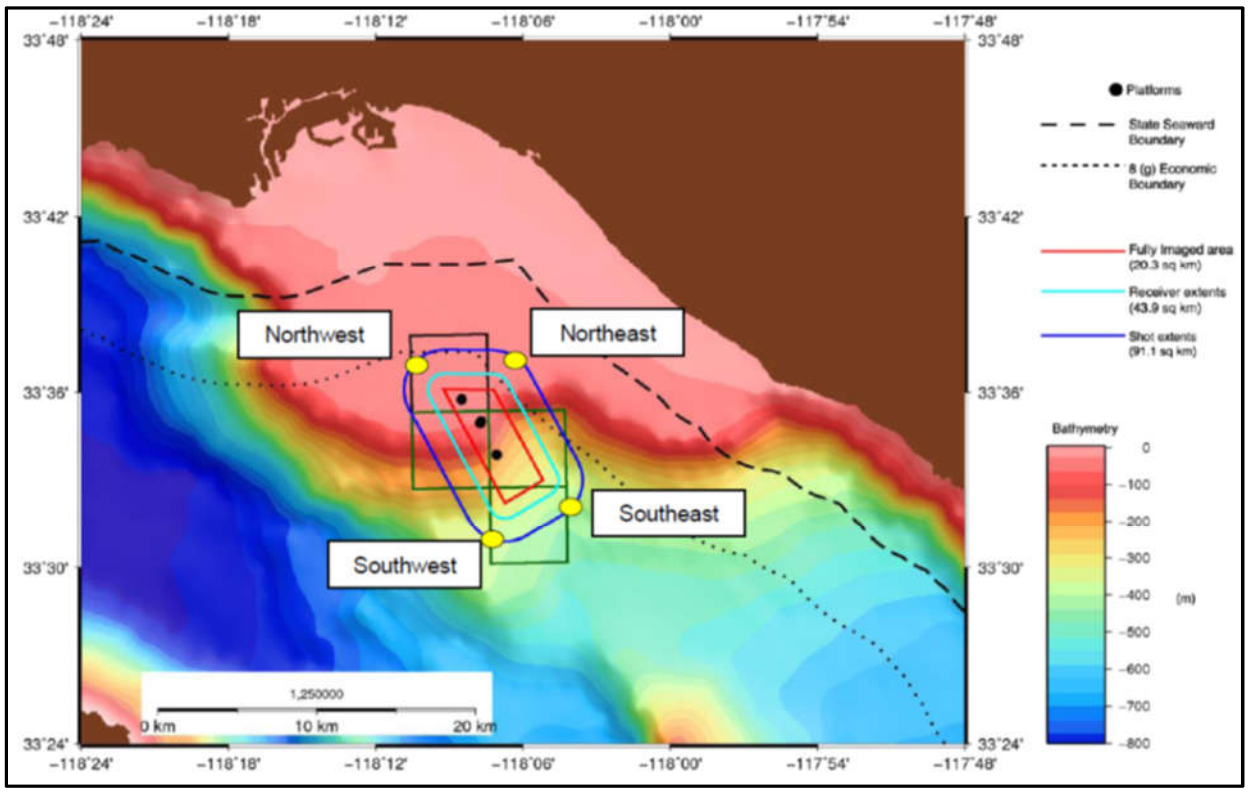
1.9.1 Measures to Reduce Potential Impacts from Marine Wildlife Exposure to Offshore Noise

During marine survey operations, a key concern is the potential impacts to marine wildlife due to exposure to sound levels of the source array and from direct collisions with the survey vessels. The proposed marine geophysical survey activities have the potential to disturb or displace small numbers of marine wildlife. However, the Project has been designed to reduce potential noise levels to the extent feasible while still fulfilling the survey objectives. To reduce potential noise, the sound source will be operated in "distributed or popcorn mode". Rather than activating all sound sources at the same time to generate a sharp source peak, the sound sources are initiated independently over a short period of time to generate a firing sequence with reduced peak amplitudes.

To estimate noise levels from proposed Project activities, acoustic modeling was conducted by Subacoustech Environmental (July 2017 – Appendix A). Offshore noise modeling locations were selected based on the four corners of the proposed survey area (Table 1-5 - Coordinates of Offshore Noise Modeling Locations), and Figure 1-10 (Modeling Locations Based on Anticipated Node Grid Placement). Acoustic modeling of the proposed Project survey included analysis of bathymetry, sound and speed profile, seafloor properties, and source levels associated with the proposed source array and survey requirements.

Table 1-5. Coordinates of Offshore Noise Modeling Locations

Corner of Survey Area	Coordinates	
	Latitude and Longitude	Water Depth (meters)
Northeast	33.6159°N, 118.0995151°W	40
Northwest	33.61633°N, 118.174126°W	40
Southeast	33.52983°N, 118.0741297°W	455
Southwest	33.52626°N, 118.1356917°W	336



Source: Subacoustech Environmental, 2017

Figure 1-10. Acoustic Modeling Locations Based on Proposed Survey Area

1.9.1.1 Project Exclusion and Buffer Zones

To avoid potential impacts to marine wildlife a proposed 500-meter (0.31 mile) Exclusion Zone and 1,000-meter (0.62 mile) Buffer Zone will extend radially from the boundaries of the survey area during any noise-inducing Project activities in accordance with previously approved NMFS monitoring zones. The Exclusion Zone will be used to keep marine mammal species, as well as commercial and recreational boaters, outside of the areas where acoustic impacts would be greatest. If protected marine mammals or turtles are detected within or about to enter the Exclusion Zone, the source array would immediately be shut down. In addition, should any threatened or endangered marine wildlife species be observed in or near the proposed Buffer Zone, the source array will be immediately shut down.

1.9.1.2 Marine Wildlife Contingency Plan (MWCP)

Beta will implement a Marine Wildlife Contingency Plan (MWCP) that includes measures designed to reduce the potential impacts on marine wildlife, particularly marine mammals, by the proposed operations. This program will be implemented in compliance with measures developed in consultation with the NMFS and will be based on anticipated Exclusion and Buffer Zones derived from modeling of the selected source levels. These proposed Exclusion and Buffer zones would be reviewed in context with the Incidental Harassment Authorization (IHA) to be issued by NMFS as part of the Project review under the Federal Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA).

Measures within the plan include the following:

- Prior to the start of survey operations, a sound source verification (SSV) will be conducted by the source vessel to ensure actual acoustic energy levels from the source array are consistent with previous modeling. The results of the SSV will be used to verify that the appropriate Exclusion and Buffer Zones are proposed.
- NMFS-certified protected species observers (PSOs) will be stationed on the primary survey vessel M/V *Silver Arrow*, and if necessary due to the level of wildlife activity or reduced visibility in the survey area additional PSO's will be positioned on one or more of the Beta Platforms. All PSOs will be equipped with reticle binoculars and the source vessel will have bigeye binoculars mounted for PSO observation purposes.
- If marine mammals or other sensitive wildlife are observed within or around the Exclusion Zone, avoidance measures will be taken including decreasing speed of the source vessel and shut down of the sound source.
- Use of ramp up and shutdown procedures will be observed for sound source operations. The ramp up (or soft start) procedures will provide a gradual increase in sound levels to "warn" marine mammals or other sensitive wildlife to leave the area and thus avoid any potential impacts. Shutdown procedures will require the immediate reduction of operations to protect wildlife that is closely approaching or at first detection within the applicable Exclusion Zone.
- Passive Acoustic Monitoring (PAM) Operators and equipment will be available to supplement visual monitoring during source operations 24 hours per day. When a vocalization is detected while visual observations are in progress, the PAM Operator will contact the PSO immediately, to alert him/her to the presence of cetaceans (if they have not already been seen), and, if necessary, to allow a shutdown to be initiated.
- Thermal imaging cameras will be utilized during hours of darkness to assist with nighttime ramp up pre-clearance searches.
- The survey will be scheduled in the Fall season when the populations of marine mammals in the survey area are annually at their lowest point.

1.9.1.3 Project Timing

The proposed survey timing (Fall 2018) has been closely coordinated in consideration of the generally lower presences of migrating grey whales in the Project area. Beta proposes to conduct surveys on a 24/7 schedule to reduce overall length of operations; thereby lessening potential impacts to marine wildlife as well as commercial and recreational fisheries.

1.9.2 Measures to Reduce Seafloor Impacts from Node Placement

- Pre-Project Seafloor Clearance
  - A pre-Project seafloor clearance will be conducted to confirm habitat type that the nodes will be placed on. In addition, this will provide information on what debris currently exists within the survey area.

- Post-Project Seafloor Clearance
  - A post-Project seafloor clearance will be completed by a remote operated vehicle (ROV) once the Project is complete and all nodes are removed from the seafloor. This seafloor clearance will aid in confirmation that no debris was left behind and to help access if damage occurred as a result of node placement.

1.9.3 Measures to Reduce Potential Oil Spill Impacts

- Vessel-based Oil Spill Prevention and Contingency Plan(s)
- Beta Unit Oil Spill Prevention and Contingency Plan (2016)

2.0 OUTREACH ACTIVITIES WITH STAKEHOLDERS

Beta's Project team have met the staff of the agencies with jurisdiction (permitting authority) over the Project and with resource agencies that will provide environmental consultation and recommendations to the regulatory agencies. Pre-application discussions have been conducted with:

- Bureau of Ocean Energy Management (BOEM) (Federal lead agency)
- National Marine Fisheries Service (NMFS)
- U.S. Army Corps of Engineers (ACOE)
- U.S. Coast Guard (USCG)
- California Coastal Commission (CCC)

2.1 SUBMITTING AND SECURING PERMITS FOR GEOPHYSICAL SURVEY

Below are a list of the permitting agencies and respective permits, consultations, and registrations that will be secured on behalf of the proposed Project:

- Bureau of Safety and Environmental Enforcement (BSEE)/Bureau of Ocean Energy and Management (BOEM)
  - National Environmental Policy Act (NEPA) Lead
  - BOEM Application (Form BOEM-0327) in Accordance with 30 Code of Federal Regulations (CFR) Parts 551 and 251
- NOAA - National Marine Fisheries Service (NMFS)
  - Incidental Harassment Authorization (IHA)
  - Endangered Species Act (ESA) Consultation
- U.S. Army Corps of Engineers (ACOE)
  - Section 10/404 Certification for Node Deployment
- U.S. Fish and Wildlife Service (FWS)
  - Section 7 ESA Consultation
- California Coastal Commission (CCC)
  - Federal Consistency Certification
- U.S. Coast Guard (USCG) – Local Notice to Mariners (NTM)
- South Coast Air Quality Management District (SCAQMD) – Air Quality Compliance including documentation of appropriate registrations for portable equipment

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