AMENDMENT 5

TO AGREEMENT BETWEEN COUNTY OF MONTEREY AND KENNEDY/JENKS CONSULTANTS

THIS AMENDMENT 5 is made to the AGREEMENT, by and between Kennedy/Jenks Consultants, hereinafter "CONTRACTOR", and the County of Monterey, a political subdivision of the State of California, hereinafter referred to as "COUNTY", for the providing of environmental consulting services for the Lake San Antonio Resort/Marina site.

WHEREAS, the COUNTY and CONTRACTOR previously entered into the original AGREEMENT on March 1, 2016, in an amount not to exceed $36,000 through February 28, 2017; and

WHEREAS, the COUNTY and CONTRACTOR amended the AGREEMENT, to increase the amount of the AGREEMENT by $21,000, from $36,000 to $57,100, and extended the term by two years through February 28, 2019; and,

WHEREAS, the COUNTY and CONTRACTOR further amended the AGREEMENT to increase the amount of the AGREEMENT by $13,500, from $57,000 to $70,500, with no extension of time; and,

WHEREAS, the COUNTY and CONTRACTOR further amended the AGREEMENT to increase the amount of the AGREEMENT by $8,000, from $70,500 to $78,500, with no extension of time; and,

WHEREAS, the COUNTY and CONTRACTOR further amended the AGREEMENT to increase the amount of the AGREEMENT by $110,000, for a new total amount not to exceed $188,500, with a revised scope of services and extending the AGREEMENT to September 1, 2020; and,

WHEREAS, the COUNTY and CONTRACTOR desire to amend the AGREEMENT to increase the amount of the AGREEMENT by $495,000, for a new total amount not to exceed $683,500, and extending the AGREEMENT to September 1, 2022.

NOW THEREFORE, the County and CONTRACTOR hereby agree to amend the AGREEMENT in the following manner:

1. Section 2, "PAYMENTS BY COUNTY," shall be amended by removing "The total amount payable by County to CONTRACTOR under this Agreement shall not exceed the sum of $118,500" and replacing it with: "The total amount payable by COUNTY to CONTRACTOR under this Agreement shall not exceed the sum of $683,500."

2. Section 3, "TERM OF AGREEMENT," shall be amended by removing "The term of this Agreement is from March 1, 2016 to September 1, 2020" and replacing it with: "The term of this Agreement is from March 1, 2016 to September 1, 2022."

3. Exhibit A – Scope of Services, is amended to include those services set forth in the enclosed Exhibit A. Tasks 1 – 7 will be completed under this AMENDMENT 5.

4. Except as provided herein, all remaining terms, conditions and provisions of the AGREEMENT are unchanged and unaffected by this AMENDMENT 5 and shall continue in full force and effect, as set forth in the AGREEMENT.

5. A copy of the AMENDMENT 5 shall be attached to the original AGREEMENT executed by the COUNTY on March 30, 2016.

IN WITNESS WHEREOF, the parties have executed this AMENDMENT 5 on the day and year written below.

COUNTY OF MONTEREY

By_____
Charles J. McKee
County Counsel

Dated:_____

APPROVED AS TO FISCAL PROVISIONS:

_____
Deputy Auditor/Controller

Dated:_____

APPROVED AS TO LIABILITY PROVISIONS:

_____
County Counsel/Risk Management

Dated:_____

CONTRACTOR

By_____
[Chair, President, or Vice-President]

_____
[Print name and title]

Dated:_____

By_____
[Secretary, Asst. Secretary, CFO, Treasurer or Asst. Treasurer]

_____
[Print name and title]

Dated:_____

APPROVED AS TO FORM
CHARLES J. MCKEE, County Counsel

By_____
Leslie J. Girard
Chief Assistant County Counsel

Dated:_____

EXHIBIT A

Exhibit "A"

Scope of Services for Lake San Antonio Resort/Marina Site
Bioventing Oversight Activities
K/J 1265005*08

The following provides Kennedy/Jenks Consultants' (Kennedy/Jenks) scope of services to provide Monterey County (County) with environmental consulting services for the Lake San Antonio Resort/Marina Site (Site) consistent with the following:

- The *Additional Remediation Work Plan for LNAPL Bioventing System* (Work Plan) dated 23 March 2018 approved by the California Regional Water Quality Control Board Central Coast Region (Water Board) on 12 April 2018.

- The implementation requirements identified in the Water Board's approval, which require submittal of an additional remediation report by 19 April 2019.

- Our conversation on 12 April 2018.

Note that the scope of services proposed herein are specifically developed to comply with Water Board requirements, especially as they pertain to implementation of the Water Board-approved Work Plan, which includes a remedial action plan involving the installation of a bioventing system designed to reduce the residual hydrocarbon in the vadose zone (particularly in regards to the LNAPL detected in Wells MW-10D and MW-11D), and is not anticipated to address existing groundwater impacts or the upper soil formation (clayey soil with low permeability).

The Exhibit A contract terms will be the same as set forth in the Agreement with the County dated 30 March 2016.

Scope of Services

We will assist the County in providing environmental consulting services for the Site located in Monterey County, California. The consulting services will include preparing a Request for Proposal (RFP) to solicit bids from remediation contractors for installation of the bioventing system described in the Work Plan, construction management during installation of the bioventing system, startup testing as described in the Work Plan, and system monitoring and reporting for one year.

Task 1 – Project Management

This task includes routine project communications with the County, monitoring and communicating the status of the schedule and budget. This task also includes Kennedy/Jenks quality assurance procedures. For purposes of this scope of services, it is assumed that the construction duration will be four weeks and that ongoing communications will be provided for that duration. Project management will be provided through completion of one year of system monitoring and reporting. Project management will only be provided for the tasks included in this scope of services.

Task 2 – Groundwater Monitoring and Reporting

In accordance with the Water Board's email dated 12 April 2018, semi-annual groundwater monitoring should continue at the Site. Kennedy/Jenks will subcontract with Blaine Tech Services to conduct the groundwater monitoring, and Kennedy/Jenks will prepare and submit the groundwater monitoring report to the Water Board. Three monitoring events (October 2018, April 2019, and October 2019) and the associated reports are included in this scope of services.

An electronic version of the report will be submitted to the County for review and comment. The County's comments will be incorporated into the final version of the report, which will be submitted to the Water Board via GeoTracker.

Task 3 – Contractor Procurement

Kennedy/Jenks solicited cost estimates from three contractors, two attended a bid walk and responded with proposals. Based on the responses Kennedy/Jenks provided the County with a recommendation to select Environmental/Remediation Resources Group, Inc. (ERRG), based on their technical qualifications and lowest qualified and responsive bid. Following contract execution with ERRG, no further activities are expected under the Contractor Procurement Task.

Task 4 – Construction Management

Kennedy/Jenks will subcontract with ERRG for construction of a bioventing system for the Site. We have assumed a construction duration of approximately four weeks to install the bioventing system as described in the Work Plan, including the following:

- Coordination with local County stakeholders at the Site, including the Parks Department (Site logistics) and Building Department (permitting).
- Mobilization of contractor resources to the Site and implementation of construction impact mitigation measures (e.g. health and safety, traffic, erosion and dust control, etc.)/
- Modification of existing wellheads.
- Installation of the air distribution system.
- Equipment and electrical installation.
- Roadway restoration

We will be onsite to document installation of the bioventing system. For budgeting purposes, we have assumed four weeks (with per diem) with one Kennedy/Jenks personnel in the field to document and coordinate the contractor's construction activities. We have also assumed office support during that same (4-hours per week).

We will also observe the contractor's equipment shakedown and testing activities prior to startup of the system and document conformance with the following:

- Pre-commissioning check to verify installation per the Work Plan

- Functional performance testing of individual bioventing system components in accordance with manufacturer's recommended procedures

- Pre-startup functional performance system testing of the combined components of the bioventing system.

We will coordinate with the contractor to resolve identified system deficiencies requiring corrective actions before moving on to the startup testing activities described in Task 5. For budgeting purposes, we have assumed one week with one Kennedy/Jenks personnel in the field to document and respond to the contractor's shakedown and testing activities.

Kennedy/Jenks will contract ERRG on behalf of the County on a time and materials basis based on the content of their proposal. As such changes in conditions or scope may result in changes to the budget and schedule.

Task 5 – Startup Testing

We will perform startup testing as described in the Work Plan.

- **Baseline:** Baseline vapor sampling and analysis will be performed at each of the three vent wells and at up to nine monitoring points using rented field instruments to monitoring total hydrocarbons, oxygen, and carbon dioxide. No samples will be collected for offsite laboratory analysis. For budgeting purposes, we have assumed one day with one Kennedy/Jenks personnel in the field to perform the baseline testing.

- **One-Hour:** A one-hour extraction test will be performed at each of the three vent wells, both with the monitoring points capped and uncapped. Rented field instruments will be used to monitor flow and pressure at each vent well. For budgeting purposes, we have assumed one day with one Kennedy/Jenks personnel in the field to perform this testing.

- **Stepped-Rate:** A stepped-rate test will be performed at each of the three vent wells in four pressure steps, both ascending and descending with the monitoring points capped and uncapped. Rented field instruments will be used to monitor flow and pressure at each vent well. For budgeting purposes, we have assumed three days with one Kennedy/Jenks personnel in the field to perform this testing.

- **Constant-Rate:** Following the completion of the stepped-rate test, the bioventing system will be shut down for two days to allow re-equilibration of the subsurface. Then, a constant-rate test will be performed individually at each of the three vent wells, both ascending and descending with the monitoring points capped and uncapped. Rented field instruments will be used to monitor flow and pressure at each vent well and up to nine monitoring points. For budgeting purposes, we have assumed three days with one Kennedy/Jenks personnel in the field to perform this testing.

- **Respirometry Testing:** Following the completion of the constant-rate test at each vent well, the bioventing system will be shut down and respirometry testing performed for five days. Rented field instruments will be used to monitoring total hydrocarbons, oxygen, and carbon dioxide. No samples will be collected for offsite laboratory analysis. For budgeting purposes, we have assumed fifteen days with one Kennedy/Jenks personnel in the field to perform this testing.

The startup testing will be performed in the following sequence:

- Day 1: Baseline testing performed at three vent wells and up to nine monitoring points.
- Day 2: One-hour testing performed at three vent wells.
- Days 3 through 5: Stepped-rate testing performed at three vent wells.
- Day 6 and 7: System off to re-equilibrate the subsurface.
- Day 8: Constant-rate testing performed at the first vent well.
- Days 9 through 13: Respirometry testing performed at the first vent well and up to three monitoring points.
- Day 14: Constant-rate testing performed at the second vent well.
- Days 15 through 19: Respirometry testing performed at the second vent well and up to three monitoring points.
- Day 20: Constant-rate testing performed at the third vent well.
- Days 21 through 25: Respirometry testing performed at the third vent well and up to three monitoring points.

The results of the startup testing will be evaluated in the office following the completion of the startup testing field activities and documented in the Bioventing Remediation System Installation and Startup Completion Report (see Task 6 below). Based on observations during the startup and testing, Kennedy/Jenks will communicate unexpected conditions or changes to the County and, if necessary, the Water Board. Based on the nature and effect of the unexpected condition and in agreement with the County and the Water Board (if necessary) the testing procedure may be modified to achieve the data and information needed to confirm acceptable operation of the system.

Task 6 – Installation and Startup Completion Report

We will prepare a Bioventing Remediation System Installation and Startup Completion Report (Completion Report) for submittal to the Water Board, as required in their approval correspondence dated 12 April 2018. The Completion Report will be certified by a California Registered Professional Engineer or Geologist. Data collected during installation and startup of the bioventing system will be summarized and presented in the Completion Report, including:

- Detailed summary of the bioventing system installation and startup activities.
- Photographic documentation of the field work.
- As-built site drawings of the bioventing system installation.
- Tabulated startup testing data.
- Calculations of vent well system curves using the stepped-rate testing results.
- Calculations and plots of the area of influence using the constant-rate testing results.
- Calculations of the subsurface air permeabilities using the constant-rate testing results.
- Calculations of the baseline rate of oxygen depletion and corresponding rate of biodegradation using the respirometry testing results.

For budgeting purposes, we have assumed that a single electronic draft deliverable will be provided to the County for review and comment. We have also assumed that the County's feedback will be conveyed in a single unified set of comments. Upon receipt of the County's single unified set of comments, we will revise the Completion Report, providing the County with an electronic copy, which will be submitted to the Water Board via electronic mail and upload to the GeoTracker system.

Task 7 – Operation, Maintenance, Monitoring, and Reporting for One Year

We will perform one year of operation, maintenance, monitoring, and reporting for the bioventing system as described in the Work Plan.

- **Weekly Operation, Maintenance, and Monitoring:** The operation of the mechanical and electrical components of the bioventing system will be observed and documented. Equipment oil may be changed once during the annual operation and maintenance period. For budgeting purposes, we have assumed 52 days with one Kennedy/Jenks personnel in the field to perform this testing.
- **Monthly Operation, Maintenance, and Monitoring:** Pressure and flow will be measured at the blower system and air distribution manifold to facilitate re-balancing of the bioventing system injection flow rates, as necessary. For budgeting purposes, we have assumed 12 days with one Kennedy/Jenks personnel in the field to perform this testing.
- **Quarterly Operation, Maintenance, and Monitoring:** Vapor monitoring will be performed at each of the three vent wells and at up to nine monitoring points using rented field instruments to monitoring pressure, total hydrocarbons, oxygen, and carbon dioxide. Monitoring will initially be performed while the bioventing system is running, then the bioventing system will be shut down and respirometry testing performed for five days. Rented field instruments will be used to monitoring total hydrocarbons, oxygen, and carbon dioxide. No samples will be collected for offsite laboratory analysis. For budgeting purposes, we have assumed twenty days (five

days per quarter) with one Kennedy/Jenks personnel in the field to perform this testing.

We will prepare a four quarterly Performance Monitoring Reports to summarize bioventing system measurements, quarterly monitoring data, field observations, and operating system modifications (if any), including but not limited to, the following:

- Individual well operation duration and estimated injection flow rates.
- Oxygen and pressure radius of influence estimates to evaluate the bioventing area of influence.
- Calculation of oxygen utilization and biodegradation rates for representative Site wells.
- Calculation of petroleum hydrocarbon mass removal through bioventing.

For budgeting purposes, we have assumed that a single electronic draft deliverable will be provided to the County for review and comment. We have also assumed that the County's feedback will be conveyed in a single unified set of comments. Upon receipt of the County's single unified set of comments, we will revise the Performance Monitoring Report, providing the County with an electronic copy, which will be submitted to the Water Board via electronic mail and upload to the GeoTracker system.

Assumptions and Limitations

The following assumptions and limitations have been incorporated into this scope of services and estimated budget:

- The total mass of target constituents and the in-place effectiveness of the proposed remedial system are unknown. The scope of services includes startup testing procedures typically implemented as part of field pilot studies used to inform remedial system design. Potential revisions and/or adjustments to the remedial design, including, but not limited to, the installation of additional wells, additional piping, or upsizing the blower system, that may be recommended based on the results of the startup testing are not included.
- Operation, maintenance, and monitoring are only proposed for one (1) year.
- Excepting Task 2, Groundwater Monitoring and Reporting, laboratory analysis is not anticipated or included in the scope of services.
- Operation and maintenance activities included in the scope of services are limited. Specifically, operation involves routine adjustment to valves to maintain balanced air flow, and maintenance involves one routine oil change of the blower motor. Major repairs or replacement of remediation infrastructure and/or equipment are not anticipated or included.
- Remote monitoring and control of the remediation system are not included. We assume that onsite County staff will observe the system regularly to confirm that the

system is continuing to operate. Observations to the contrary will be communicated to Kennedy/Jenks and a response plan developed as needed and appropriate.

- For purposes of this scope of services, it is assumed that the construction duration will be four weeks and that ongoing communications will be provided for that duration. Project management will be provided through completion of one year of system monitoring and reporting. Project management will only be provided for the tasks included in this scope of services.

- It is assumed that the County will arrange for access to the Site for construction, startup testing, and operational, maintenance, and monitoring site visits.

- We have assumed a construction duration of approximately four weeks to install the bioventing system as described in the Work Plan. For budgeting purposes, we have assumed four weeks (with per diem) with one Kennedy/Jenks personnel in the field to document and coordinate the contractor's construction activities. We have also assumed office support during that same (4-hours per week).

- For budgeting purposes, we have assumed one week with one Kennedy/Jenks personnel in the field to document and respond to the contractor's shakedown and testing activities.

- For budgeting purposes, we have assumed 23 days (with per diem) with one Kennedy/Jenks personnel in the field to perform the startup testing in accordance with the Work Plan.

- For budgeting purposes, we have assumed 52 one-day weekly site visits, 12 one-day monthly site visits, and four 5-day quarterly site visits to perform routine operation, maintenance, and monitoring of the remediation system.

- Permits are not expected to be required to perform the work described in the Work Plan. Permits are not included in Kennedy/Jenks or ERRG scope.

- At the County's request, one lane of the road will be available at all times during construction, but may require minor repositioning of equipment and personnel. Full time traffic control is not anticipated. If deemed necessary, full time flaggers and traffic control will be in addition to the currently estimated level of effort.

- Soil-disturbing activities will be less than one acre and a formal Stormwater Pollution Prevention Plan (SWPPP) or coverage under the construction general permit will not be required.

- As much trenching as possible will be performed in unpaved areas to reduce pavement cutting and patching. Up to 36 linear feet, 2 feet wide, of roadway paved with asphalt will be saw cut and restored.

- Excavation trench spoils are assumed to be suitable for use as backfill in unpaved areas to the surface. Unused spoils from unpaved areas will be spread on the surface. Spoils will be used as backfill in paved areas between sand bedding surrounding the pipe and aggregate base placed beneath the asphalt pavement.

Unused spoils from paved areas will be characterized for disposal. The proposal and cost estimate assume up to 4 tons of soil for disposal as a non-hazardous waste.

- The system will be installed in a wooden shed on a pad of compacted aggregate base rather than concrete as shown in the work plan.
- Bonding (performance and payment) is not required for this project.
- The water and power sources at the existing lift station will be available for temporary construction use at no cost to Kennedy/Jenks or ERRG.
- A source of 3-phase, 230 volt electric power to run the proposed blower is available at the existing panels at the lift station.
- No surveying will be performed, documentation of the system will include photos, notes, and field measurements.

Future Services

The need for future services will be determined following our assessment of work performed to date. If future services are needed, we will include a scope for those services as part of our recommendations. Future services could include conducting modifications to optimize the bioventing system, operation and maintenance services, and/or monitoring and reporting for an extended duration beyond the one year proposed herein.

Budget

We propose that compensation for our services be provided on a time-and-expense reimbursement basis, in accordance with our Schedule of Charges dated 1 January 2011. The estimated budget for the current scope and level of effort is summarized for each task as follows:

Task	Amount
Task 1 – Project Management	$12,000
Task 2 – Groundwater Monitoring and Reporting	$25,000
Task 3 – Contractor Procurement	$14,800
Task 4 – Construction Management	$61,000
Task 5 – Startup Testing	$67,500
Task 6 – Installation and Startup Completion Report	$19,700
Task 7 – Monitoring and Reporting for One Year	$225,000
ERRG Cost (including contingency and markup)	$180,000
Total Budget Request	$605,000

The budget was developed based upon the scope of services and assumptions presented above. If our underlying assumptions are off target, we can discuss modification of the scope and estimated budget with the County.

Project Team

The project team consists of the following key Kennedy/Jenks personnel:

- Laura Kennedy (Engineer-Scientist-Specialist 8) will serve as the Project Manager and will be the primary point of contact for the County. Laura will be responsible for monitoring and management of the team and budget. Laura will coordinate and direct the Kennedy/Jenks project team members.

- Jeremie Maehr, P.E. (Engineer-Scientist-Specialist 8) will serve as the Project Engineer and will provide technical oversight during contractor selection, construction, and startup testing.

Other Kennedy/Jenks staff will be used on a task-specific basis, as directed by the Project Manager.