

TRANSMITTAL 1

DEPARTMENT OF PUBLIC WORKS

ADOPTED BY THE BOARD OF  
PUBLIC WORKS OF THE CITY  
of Los Angeles, California  
AND REFERRED TO THE MAYOR  
MAR 13 2006

BUREAU OF SANITATION  
BUREAU OF CONTRACT ADMINISTRATION  
JOINT BOARD REPORT NO. 1  
MARCH 13, 2006

*James H. [Signature]*  
Secretary

CD: ALL

AUTHORITY TO EXECUTE PERSONAL SERVICES CONTRACT WITH TERRALOG TECHNOLOGIES USA, INC., FOR SPECIALIZED EXPERT ASSISTANCE IN DEVELOPING TERMINAL ISLAND RENEWABLE ENERGY (TIRE)

RECOMMENDATIONS

1. Approve and forward this report with transmittals to the Mayor with the request that the Board be authorized to execute this personal services contract with TERRALOG TECHNOLOGIES USA, INC., for specialized and expert assistance in developing renewable energy at the Terminal Island Treatment Plant and related issues at an estimated cost of \$2,760,000. This contract will be in effect for three (3) years.
2. Upon authorization from the Mayor, the President or two members of the Board of Public Works will execute the contract.
3. Return executed contracts to the Bureau of Sanitation for further processing.

TRANSMITTALS

1. Copy of the proposed contract between the City of Los Angeles and TERRALOG TECHNOLOGIES USA, INC.
2. Copy of Board Report on "Authority to Negotiate with Terralog Technologies for Pilot Project Agreement in Connection to the Request for Proposal for Economic Approaches to Class A/EQ BIOSOLIDS" adopted on January 24, 2001.
3. Copy of Board Report on "Authority to Release an RFP for Economic Approaches to Class A/EQ Biosolids", adopted on July 7, 1999.

DISCUSSION

**Background**

On January 24, 2001, your Board authorized the Director of the Bureau of Sanitation to enter into an agreement with Terralog Technologies regarding economic approach to biosolids management (Transmittal 2).

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Currently, the City's pathogen-free, Class A biosolids material is mainly spread on farmland in Kern County for non-food crops. Recent opposition by Kern County to land application of biosolids has prompted the Bureau of Sanitation to look for new alternatives in biosolids management.

The proposed pilot project involves slurry fracture injection and placement of biosolids in deep geological formation at the Terminal Island Treatment Plant. The environmentally sound technology is proven and used in petroleum industry. The contractor's technical expertise and experience in slurry fracture and geo-mechanics technologies is essential in support of the Bureau's strategic plans.

#### **Consultant Services**

TERRALOG was selected among twelve (12) firms who responded to the Request for Proposal, authorized July 1999 (Transmittal 3) due to superior economics and environmental advantages. Through this contract, TERRALOG is to provide engineering and construction management for Slurry Fracture Injection System for the TIRE project. Upon City's approval, TERRALOG will subcontract well drilling and construction.

#### **Summary of Contract Provisions**

City drafted a contract with TERRALOG, which agrees to perform as-needed, highly specialized and expert assistance, including:

- ▶ Regulatory support with EPA permit;
- ▶ Slurry Fracture Injection system design;
- ▶ Surface process & equipment design and construction;
- ▶ Drilling contractor bid specification;
- ▶ Drilling injection and monitoring wells;
- ▶ Well construction management;
- ▶ Oversight for well geological sampling and analysis.

#### **CITY REQUIREMENTS and POLICIES**

##### **Compliance with Charter Section 1022**

Personnel Department has determined that highly specialized knowledge and experience required for this project is not found in the City's Civil Service Classifications.

##### **MBE/WBE/OBE Subcontractor Outreach Program**

At the time of distribution of the original RFQ for this contract, the City had established an MBE/WBE/OBE Subcontractor Outreach Program for this project with anticipated MBE and WBE participation levels of 18 and 4 percent respectively. The participation levels

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that Terralog Technologies USA, Inc. pledged in their original proposal were 0 percent MBE, 0 percent WBE and 0 percent OBE. However, in the adopted board report granting authority to negotiate a contract, it was stated that Terralog's final pledged participation levels will be established during contract negotiations with the City and the trucking firms who had responded to their outreach effort.

Subsequent to the adoption of the board report, the Bureau of Sanitation (BOS) found it necessary to change the scope of work, thus excluding the necessity for trucking services. The initial proposed location of Aliso Canyon site was rejected by BOS due to the unfeasibility of driving heavy equipment through the Canyon's roads. The alternate proposed site is the Terminal Island Treatment Plant (TITP). The use of TITP eliminates the need for transporting biosolids from TITP to Aliso Canyon, which poses potential savings to the City estimated in the millions. However, the use of TITP requires the drilling and construction of well injection systems, which were already available at the Aliso Canyon site. BOS staff obtained a list of firms with drilling capabilities from LA MBOC and confirmed with the firms that were contacted that they were unable to drill to depths of 5,000 - 6,000 ft which is required for this project. Terralog has committed to performing a separate outreach for this specialized work but will most likely be able to pledge only OBE participation.

Gender/Ethnicity Codes:

|                                   |                              |
|-----------------------------------|------------------------------|
| AA = African American             | HA = Hispanic American       |
| SAA = Subcontinent Asian American | APA = Asian Pacific American |
| C = Caucasian                     | NA = Native American         |
| M = Male                          | F = Female                   |

The MBE/WBE/OBE subconsultant participation for Terralog Technologies USA, Inc. is as follows:

| Subconsultants                  | Gender/<br>Ethnic | MBE/<br>WBE/<br>OBE | % of<br>Contract | Subcontract<br>Amount |
|---------------------------------|-------------------|---------------------|------------------|-----------------------|
| None Listed                     |                   |                     | 0%               | \$0.00                |
| Total MBE Pledged Participation |                   |                     | 0%               | \$0.00                |
| Total WBE Pledged Participation |                   |                     | 0%               | \$0.00                |
| Total OBE Pledged Participation |                   |                     | 0%               | \$0.00                |
| Total Contract                  |                   |                     | 0%               | \$3,036,000.00        |

**Contractor Performance Evaluation**

In accordance with Article 13, Chapter 1, Division 10 of the City of Los Angeles Administrative Code, the appropriate City personnel

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responsible for the quality control of this personal services contract shall submit Contractor Performance Evaluation Reports to the City Administrative Officer (CAO) upon completion of this contract.

**Contractor Responsibility Ordinance**

All contractors participating in this program are subject to compliance with the requirements specified in the City of Los Angeles' Contractor Responsibility Ordinance #173677 [Article 14, Chapter 1, Division 10, L.A.A.C.]. Failure to comply with all requirements specified in the Ordinance will render the bidder's contract subject to termination pursuant to the conditions expressed therein.

**Headquarters Address & Workforce Information**

TERRALOG TECHNOLOGIES USA, INC. local office is located in 332 E. Foothill Blvd., Arcadia, CA 91006. None of the employees live in the City of Los Angeles.

**Other City Policies and Requirements**

TERRALOG TECHNOLOGIES USA, INC. is in compliance with Affirmative Action/Equal Opportunity Practices, Equal Benefits Ordinance, Living Wage Ordinance, Insurance, City Business Tax Registration, Child Support and Obligation, Slavery Disclosure Ordinance and the Equal Benefits Ordinance. Attachments and forms pertaining to these requirements are included in the contract package.

The City Attorney also approved the contract as to form and legality.

**Project Administrator**

Regulatory Affairs Division of the Bureau of Sanitation will be responsible for managing this contract.

**Program Review Committee (PRC)**

On August 10, 2005 PRC approved a total budget up to \$3,036,000.

**STATUS OF FINANCING**

Funding for this project, including contingency totals \$3,036,000. Funds in the amount of \$3,000,000 are currently available in the accounts shown in the table below. Additional funding in the amount of \$36,000 will be requested in the FY 2006-07 Wastewater Capital Improvement program budget. Funds may be drawn from the Sewer Capital Fund No. 761, the WW Syst Comm Paper A Const Fund No. 70W, or

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any future funds established as a result of commercial paper or bond sales, at the discretion of the Director of the Bureau of Sanitation or her designee. The contract contains a "Financial Liability Clause" which states that "the City's liability under this contract shall only be to the extent of the present City appropriation to fund the contract. However, if the City shall appropriate funds for any succeeding years, the City's liability shall be extended to the extent of such appropriation, subject to the terms and conditions of the contract."

| Account                    | Contract           | Contingency      | Total              |
|----------------------------|--------------------|------------------|--------------------|
| VH76 TITP Renewable Energy | \$800,000          | \$0              | \$800,000          |
| WH76 TITP Renewable Energy | \$1,200,000        | \$0              | \$1,200,000        |
| YH76 TITP Renewable Energy | \$760,000          | \$240,000        | \$1,000,000        |
| Future WCIP budget         | \$0                | \$36,000         | \$36,000           |
| <b>Totals</b>              | <b>\$2,760,000</b> | <b>\$276,000</b> | <b>\$3,036,000</b> |


( GD ORM RPT VA WFB)

Respectfully submitted,

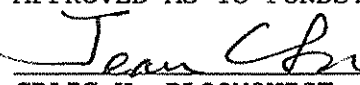
COMPLIANCE REVIEW PERFORMED  
AND APPROVED BY:

  
HANNAH CHOI, Program Manager  
Office of Contract Compliance  
Bureau of Contract Administration

  
RIVA L. ROBINSON, Director  
Bureau of Sanitation

  
JOHN L. REAMER, JR. Director  
Bureau of Contract Administration

APPROVED AS TO FUNDS:

  
CRAIG V. BLOOMQUIST, Director  
Office of Accounting

Date: 3-2-06

Prepared by:  
Ben Attai, RAD  
310-648-5085

## TRANSMITTAL 2

ADOPTED BY THE BOARD OF  
PUBLIC WORKS OF THE CITY  
of Los Angeles, California  
AND REFERRED TO THE MAYOR  
AUG 29 2007

AS AMENDED \*

*James H. [Signature]*  
Secretary

## DEPARTMENT OF PUBLIC WORKS

BUREAU OF SANITATION  
BUREAU OF CONTRACT ADMINISTRATION  
JOINT BOARD REPORT NO. 1  
AUGUST 29, 2007

CD: ALL

AMENDMENT NO. 1 TO CONTRACT C-109787 WITH TERRALOG TECHNOLOGIES  
USA, FOR SPECIALIZED EXPERT ASSISTANCE IN DEVELOPING TERMINAL  
ISLAND RENEWABLE ENERGY (TIRE)

RECOMMENDATIONS

1. Approve and forward this report with transmittals to the Mayor with the request that the Board be authorized to execute Amendment No. 1 to Contract C-109787 with \* TERRALOG TECHNOLOGIES USA, INC., to add six months start up activity which \*was not a part of the original contract of 3 years, and raise the cost ceiling of the contract from \$3,036,000 to \$7,912,000.
2. Upon authorization from the Mayor, the president or two members of the Board of Public Works will execute the amendment.
3. Return executed amendment to the Bureau of Sanitation for further processing.

TRANSMITTALS

1. One (1) copy of proposed Amendment No. 1 to CONTRACT No. C-109787
2. Copy of Bureaus of Sanitation and Contract Administration Board Report No. 1 adopted March 13, 2006, authorizing execution of a personal services contract with Terralog Technologies USA, Inc.
3. Copy of Terralog Technologies USA, Inc. in letter to BOS dated June 27, 2007 that details their good faith effort outreach to potential subconsultants.

DISCUSSION**Background**

On March 13, 2006, your Board authorized the Director of the Bureau of Sanitation to enter into an agreement with Terralog Technologies to develop the Terminal Island Renewable Energy Project.

**Scope of Work**

The Bureau of Sanitation is actively looking for new alternatives in biosolids management. The proposed demonstration project involves slurry fracture injection and placement of biosolids in deep geological formations at Terminal Island Treatment Plant. The contractor's technical

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expertise and experience in slurry fracture and geo-mechanics technologies is essential in support of the Bureau's strategic plans.

The contractor is responsible for planning, engineering and soliciting the sub-contractors to construct the first two wells complete with monitoring instrumentation at the Terminal Island Plant site. The contractor will install Slurry Fracture Injection (SFI) equipment and begin testing and start up of the wells at a maximum rate of 150 wet tons per day for six months. Following successful start up phase, a third monitoring well will be drilled per EPA permit requirement. City and Terralog will negotiate an operation and maintenance contract to resume injection of biosolids at higher rates up to 400 wet tons per day.

**Justification for this Amendment**

The additional funds are necessary for the following reasons:

- Additional work by the contractor includes start up and testing for a period of six months. This activity can prove the viability of the slurry fracture injection process before the full scale operation begins;
- EPA has required a 3rd monitoring well to be installed prior to full scale biosolids slurry injection. Construction of well #3 will be determined after considering the geologic, geophysical, fracture simulation, temperature recovery, gas migration modeling, and other data provided from start up phase and data from wells #1 and #2. It is also possible to reverse the role of #3 with the current injection well;
- The original cost estimate was drawn up based on 2001 figures. While the City was waiting for 5 years for the EPA permit, cost of well construction has risen dramatically mainly due to higher price of oil and gas, increased drilling activity in petroleum industry, fewer available rigs;
- Project budget was also affected by additional fluid and core sample collection during drilling and extensive monitoring equipment during injection as required by EPA.

**Funding History**

| Original Contract | Expended    | Amendment No. 1 | New Contract Ceiling |
|-------------------|-------------|-----------------|----------------------|
| \$3,036,000       | \$1,465,653 | \$4,876,000     | \$7,912,000          |

**City Requirements and Policies**

Contractor is in compliance with City policies, including Charter section 1022, Contractor Performance Evaluation, Affirmative Action/Equal Opportunity Practices, Living Wage Ordinance, Insurance Requirements, City Business Tax Registration, Slavery Disclosure Ordinance and the Equal Benefits Ordinance.

The City Attorney has approved the amendment as to form.

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**MBE/WBE/OBE Subcontractor Outreach Program**

The anticipated MBE and WBE participation levels established by the City in the original RFQ were 18 and 4 percent, respectively. At contract award, Terralog Technologies USA, Inc. (Terralog) pledged 0 percent MBE, 0 percent WBE and 0 percent OBE. However, Terralog committed to performing a separate subcontractor outreach for this project when the scope of work had changed (Transmittal No. 2). Terralog has since performed a subcontractor outreach, as detailed in their letter to BOS dated June 27, 2007 (Transmittal No. 3). As of June 21, 2007, Terralog has achieved 0 percent MBE, 0 percent WBE, and 3.79 percent OBE. Upon approval of this amendment, Terralog's pledged participation will be 0 percent MBE, 0 percent WBE, and 33.38 percent OBE.

Gender Ethnicity Codes:

- |                                   |                              |
|-----------------------------------|------------------------------|
| AA = African American             | HA = Hispanic American       |
| SAA = Subcontinent Asian American | APA = Asian Pacific American |
| C = Caucasian                     | NA = Native American         |
| M = Male                          | F = Female                   |

The MBE/WBE/OBE subconsultant achieved participation levels for Terralog Technologies USA, Inc. as of June 21, 2007, as reported by the prime, are:

| Subconsultants  | MBE/<br>WBE/<br>OBE | % of<br>Contract | Value          |
|---|---------------------|------------------|----------------|
| Driltek Professional Drilling Management                | OBE                 | 0.29%            | \$8,700.00     |
| Hogg Drilling Specialty Construction, Inc.              | OBE                 | 1.52%            | \$46,000.00    |
| Murray Plumbing and Heating Corp. dba<br>Murray Company | OBE                 | 0.08%            | \$2,279.00     |
| Reliable Equipment Rental, Inc.                         | OBE                 | 1.84%            | \$55,860.00    |
| Spectrum Geophysics                                     | OBE                 | 0.07%            | \$2,075.00     |
| Total MBE Participation                                 |                     | 0.00%            | \$0.00         |
| Total WBE Participation                                 |                     | 0.00%            | \$0.00         |
| Total OBE Participation                                 |                     | 3.79%            | \$114,914.00   |
| Total Contract Amount                                   |                     |                  | \$3,036,000.00 |



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Upon approval of Amendment No. 1 to Contract C-109787, the MBE/WBE/OBE subconsultant pledged participation levels for **Terralog Technologies USA, Inc.** are:

| Subconsultants   | MBE/<br>WBE/<br>OBE | % of<br>Contract | Value          |
|--|---------------------|------------------|----------------|
| B.J. Services Company  | OBE                 | 2.85%            | \$225,339.00   |
| Baker Hughes Inteq   | OBE                 | 1.02%            | \$80,992.00    |
| ChrisCo Bits   | OBE                 | 0.18%            | \$14,000.00    |
| Downhole Stabilization, Inc.   | OBE                 | 0.13%            | \$10,070.00    |
| Driltek Professional Drilling Management                             | OBE                 | 1.19%            | \$94,500.00    |
| Elco Filtration & Testing, Inc.                                      | OBE                 | 0.53%            | \$42,000.00    |
| Energy Tubulars, Inc.  | OBE                 | 4.65%            | \$368,069.40   |
| GEO Drilling Fluids, Inc.  | OBE                 | 1.14%            | \$90,000.00    |
| Hogg Drilling Specialty Construction, Inc.                           | OBE                 | 0.58%            | \$46,000.00    |
| Kenai Drilling Limited   | OBE                 | 14.59%           | \$1,154,550.00 |
| Murray Plumbing and Heating Corp. dba<br>Murray Company              | OBE                 | 0.47%            | \$37,318.00    |
| Pensinger's Motor Homes  | OBE                 | 0.06%            | \$4,725.00     |
| PetroLog, Inc.   | OBE                 | 0.47%            | \$37,580.00    |
| ReedHycalog, LP  | OBE                 | 0.13%            | \$10,580.00    |
| Reliable Equipment Rental, Inc.                                      | OBE                 | 0.71%            | \$55,860.00    |
| Schlumberger Well Services, a division of<br>Schlumberger Technology | OBE                 | 2.49%            | \$196,616.00   |
| Soli-Bond, Inc.  | OBE                 | 0.58%            | \$46,000.00    |
| Spectrum Geophysics  | OBE                 | 0.03%            | \$2,075.00     |
| Well Dynamics, a Halliburton-Shell JV                                | OBE                 | 1.57%            | \$124,530.00   |
| Total MBE Participation  |                     | 0.00%            | \$0.00         |
| Total WBE Participation  |                     | 0.00%            | \$0.00         |
| Total OBE Participation  |                     | 33.38%           | \$2,640,804.40 |
| Total Contract Amount  |                     |                  | \$7,912,000.00 |

**Contractor Responsibility Ordinance**

All contractors participating in this program are subject to compliance with the requirements specified in the City of Los Angeles' Contractor Responsibility Ordinance #173677 [Article 14, Chapter 1, Division 10, L.A.A.C.]. Failure to comply with all requirements specified in the Ordinance will render the bidder's contract subject to termination pursuant to the conditions expressed therein.

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In accordance with Article 13, Chapter 1, Division 10 of the City of Los Angeles Administrative Code, the appropriate City personnel responsible for the quality control of this personal services contract shall submit Contractor Performance Evaluation Reports to the City Administrative Officer (CAO) upon completion of this contract.

**Headquarters Address & Workforce Information**

Terralog Technologies USA, Inc., local office is located at 332 East Foothill Blvd, Arcadia, CA 91006. None of the employees live within the City of Los Angeles.

**Project Administrator**

Regulatory Affairs Division of the Bureau of Sanitation will be responsible for managing this contract.

STATUS OF FINANCING

Funding for this project is not to exceed \$7,912,000. Funds in the amount of \$2,760,000 have already been spent or encumbered. Funds in the amount of \$240,000 have been requested for reappropriation in the Account No. YH76, titled "TITP Renewable Energy." Funds in the amount of \$100,000 have been requested for reappropriation in the Account No. AH76, titled "TITP Renewable Energy (TIRE)." Funding in the amount of \$276,000 is available in Account No. CH76, titled "TITP Renewable Energy (TIRE)." Additional funding in the amount of \$4,536,000 will be requested in future fiscal years in the Wastewater Capital Improvement Program budget. Funds may be drawn from the Sewer Capital Fund No. 761, the WW System Comm Paper B Const Fund No. 70X, or any future funds established as a result of commercial paper or bond sales, at the discretion of the Director of the Bureau of Sanitation or her designee.

The contract contains a "Financial Liability Clause" which states, *"the City's liability under this contract shall only be to the extent of the present City appropriation to fund the contract. However, if the City shall appropriate funds for any succeeding years, the City's liability shall be extended to the extent of such appropriation, subject to the terms and conditions of the contract."*

| Account                          | Expended/<br>Encumbered | Requested for<br>Reappropriation/Available | Total       |
|----------------------------------|-------------------------|--|-------------|
| VH76 TITP Renewable Energy       | \$800,000               | \$0  | \$800,000   |
| WH76 TITP Renewable Energy       | \$1,200,000             | \$0  | \$1,200,000 |
| YH76 TITP Renewable Energy       | \$760,000               | \$240,000                                  | \$1,000,000 |
| AH76 TITP Renewable Energy(TIRE) | \$0                     | \$100,000                                  | \$100,000   |
| CH76 TITP Renewable Energy(TIRE) | \$0                     | \$276,000                                  | \$276,000   |
| Future WCIP budget               | \$0                     | \$4,536,000                                | \$4,536,000 |
| Totals                           | \$2,760,000             | \$5,152,000                                | \$7,912,000 |

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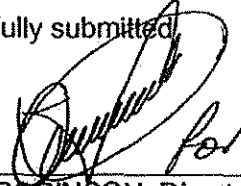
( ORM RPT VA TM WFB )

COMPLIANCE REVIEW PERFORMED  
AND APPROVED BY:



HANNAH CHOI, Program Manager  
Office of Contract Compliance  
Bureau of Contract Administration


Respectfully submitted,



RITA L. ROBINSON, Director  
Bureau of Sanitation

  
JOHN L. REAMER, JR. Director  
Bureau of Contract Administration

APPROVED AS TO FUNDS:

  
CRAIG V. BLOOMQUIST, Director  
Office of Accounting

Date: 8/10/07

Prepared by:  
Ben Attai, RAD  
310-648-5085

TRANSMITTAL 3

OFFICE OF THE CLERK  
PUBLIC WORKS OF THE CITY  
OF LOS ANGELES, CALIFORNIA

For the meeting of December 22, 2008

DEC 22 2008

CD: All

MOTION

*[Signature]*  
Secretary

On May 15, 2006, the City of Los Angeles entered into Agreement C-109787 with Terralog Technologies USA for the Terminal Island Renewable Energy (TIRE) project. TIRE project converts City's biosolids to clean energy through deep well injection and biodegradation at the Terminal Island Treatment Plant. The contract term is for 3 years. On August 29, 2007, the Board of Public Works approved the execution of Amendment No. 1 to Contract C-109787 with Terralog to add 6 months start-up activity, and raise the cost ceiling of the contract from \$3,036,000 to \$7,912,000.

The contractor has completed the majority of the construction of the wells and start up testing. To date, \$5,376,236 has been expended from the project's WCIP budget. The 6-month start-up testing phase of this TIRE project is due to be completed by the end of 2008, and the Bureau of Sanitation, Hyperion Treatment Division is currently in negotiation with Terralog for Amendment No. 2 of the contract, which will include the operation phase of the project and extend the contract for 4.5 years. In order to support the operation and maintenance activities, the source of the funding will change from Wastewater Capital Improvement Program (WCIP) to Operation and Maintenance (O&M) for the period from January 1, 2009 to May 15, 2009. The Bureau is requesting this change in the source of funding in the amount of \$885,000 from the approved budget of the project.

I THEREFORE MOVE that, the Board of Public Works authorize a change in source of funding of \$885,000 for the operation activities of this project for the period January 1, 2009 through the expiration of the contract, May 15, 2009. The funds are available in the Sewer Operations and Maintenance Fund No. 760, Account E282, Dept 50 and Object 304. Funds may be drawn from the Wastewater Operation and Maintenance budget of the Hyperion Treatment Plant, at the discretion of the Director of the Bureau of Sanitation or appointed designee.

Respectfully Submitted

*[Signature]*  
ENRIQUE C. ZALDIVAR, Director  
Bureau of Sanitation

Statement as to Funds Approved by:

*[Signature]*

Craig V. Bloomquist, Director  
Office of Accounting

Date: 12/18/08

Author: Omar Moghaddam  
310-648-5423

ADOPTED BY THE BOARD OF PUBLIC WORKS OF THE CITY of Los Angeles, California

TRANSMITTAL 4

For the meeting of May 11, 2009

MAY 11 2009

CD: All

*Janice T.*  
Secretary

MOTION

On May 15, 2006, the City of Los Angeles (City) entered into Agreement C-109787 with Terralog Technologies USA Inc. (Terralog), for the Terminal Island Renewable Energy (TIRE) project, which converts the City's biosolids to clean energy through deep well injection and biodegradation at the Terminal Island Water Reclamation Plant. The contract term is for 3 years and due to expire on May 15, 2009. Under C-109787 Terralog constructed two wells and site facilities. On August 29, 2007, the Board of Public Works approved the execution of Amendment No. 1 to Contract C-109787 with Terralog to add 6 months start-up activity, and raise the cost ceiling of the contract from \$3,036,000 to \$7,912,000.

The contractor has completed construction of two wells, slurry injection equipment and facility, and 6-month start up testing. To date, \$5,669,410 has been expended from the project's WCIP budget and \$551,832 from the biosolids O&M budget. The Bureau of Sanitation, Hyperion Treatment Division is currently in negotiation with Terralog for Amendment No. 2 of the contract, which will extend the contract until June 30, 2013, enabling the City to retain the services of Terralog for the duration of the EPA testing period (4 additional years). However, Intellectual Property and Perpetual License to the TIRE technology became major negotiation issues. The City Attorney has been consulted regarding this issue, and negotiations are currently ongoing with the contractor. In order to continue uninterrupted operation and maintenance activities, the City needs to extend the existing Contract No. C109787 with Terralog on a month-to-month basis for a period not to exceed three (3) months until Amendment No. 2 is signed. An increase in the ceiling amount of Contract No. C-109787 from \$7,912,000 to \$ 8,695,250 is necessary to continue operations until the Amendment No. 2 is signed and executed. Funding for Contract No. C-109787 extension in the amount of \$392,000 for Fiscal Year 2008-2009 is identified in Account # E282, Dept 50 and Object 304. Extending this contract will have no impact on the General Fund because funds are currently available in the 2008-2009 budget Sewer Construction and Maintenance Fund. Funding is addressed in the budget process for Fiscal Year 2009-2010.

IT IS THEREFORE MOVED that the Board of Public Works approve the extension of the existing contract with Terralog (C-109787) on a month-to-month basis for a period not to exceed three (3) months until the proposed Amendment No. 2 to agreement C-109787 is fully executed. Also authorize the Office of Accounting to disburse funds up to \$392,000 over the next two (2) months from Fund 760, Account # E282, Dept 50 and Object 304. Funding for the remaining month will be addressed in the budget process for Fiscal Year 2009-2010 to provide uninterrupted services from Terralog until Amendment No. 2 is fully executed.

Respectfully Submitted,

*Enrique C. Zaldivar*  
ENRIQUE C. ZALDIVAR, Director  
Bureau of Sanitation

Statement as to Funds Approved by:

*Craig V. Bloomquist*  
Craig V. Bloomquist, Director  
Office of Accounting  
Date: 5/5/09  
Author: Nader Tashakor  
310-648-5779

|                   |              |         |              |            |   |
|-------------------|--------------|---------|--------------|------------|---|
| Post-it® Fax Note | 7671         | Date    | 7-21-09      | # of pages | 1 |
| To                | Nader        | From    | Janice T.    |            |   |
| Co./Dept.         | HTP          | Co.     | BPW          |            |   |
| Phone #           | 310-648-5779 | Phone # | 213-978-0375 |            |   |
| Fax #             | 310-648-5070 | Fax #   |              |            |   |

DEPARTMENT OF PUBLIC WORKS

TRANSMITTAL 5  
\*\*amended 8/13/09

BUREAU OF SANITATION  
BUREAU OF CONTRACT ADMINISTRATION  
JOINT BOARD REPORT NO. 1  
August 14, 2009

ADOPTED BY THE BOARD  
PUBLIC WORKS OF THE CITY  
of Los Angeles California  
AND REFERRED TO THE MAYOR  
AUG 14 2009

CD: ALL

  
Secretary

AUTHORITY TO EXECUTE AMENDMENT NO. 2 TO CONTRACT C-109787 WITH  
TERRALOG TECHNOLOGIES USA, INC. FOR SPECIALIZED EXPERT ASSISTANCE IN  
DEVELOPING TERMINAL ISLAND RENEWABLE ENERGY (TIRE) PROJECT

RECOMMENDATIONS

Authorize the Director of the Bureau of Sanitation to:

1. Approve and forward this report with transmittals to the Mayor and the City Council with the request that the Board of Public Works (Board) be authorized to execute Amendment No. 2 to Contract C-109787 with Terralog Technologies USA, Inc. (Terralog), to add 47 months operation activity from the execution date of Amendment No. 2 with two (2) two-year options to renew, and to increase the cost ceiling of the contract by \$19,020,952 from \$7,912,000 to \$26,932,952.
2. Upon authorization from the Mayor and the City Council, the president or two members of the Board of Public Works will execute the amendment.
3. Return the executed amendment to the Bureau of Sanitation for further processing. Contact the Board Report Section at (213) 485-4246.
4. Approve the extension of the existing contract with Terralog (C-109787) on a month-to-month basis until the proposed Amendment No. 2 to agreement C-109787 is fully executed.

TRANSMITTALS

1. Copy of proposed Amendment No. 2 to Contract No. C-109787 between the City of Los Angeles (City) and Terralog.
2. Copy of Bureaus of Sanitation and Contract Administration Joint Board Report, adopted on March 13, 2006, authorizing execution of a personal services contract with Terralog.
3. Copy of Bureaus of Sanitation and Contract Administration Joint Board Report, adopted on August 29, 2007, authorizing execution of Amendment No. 1 to Contract No. C-109787 with Terralog.

4. Copy of Bureau of Sanitation Motion, adopted on December 22, 2008, approving a change in source of funding of \$885,000 for the operation activities of the TIRE project for the period January 1, 2009 through the expiration of the contract, May 15, 2009.
5. Copy of Bureau of Sanitation Motion, adopted on May 11, 2009, approving the extension of the existing contract with Terralog (C-109787) on a month-to-month basis for a period not to exceed three (3) months until the proposed Amendment No. 2 to agreement C-109787 is fully executed.
6. Copy of Terralog's letter dated June 27, 2007 regarding their Outreach Efforts for Tire Project.

#### FISCAL IMPACT

There will be no additional financial impact to the City of Los Angeles (City) for Fiscal Year 09-10. The cost of this amendment for the current fiscal year has been budgeted within Terminal Island Water Reclamation Plant (TIWRP) and Hyperion Treatment Plant (HTP) annual budget appropriations, respectively, and the cost for the subsequent years will be requested in future budgets in the Sewer Operations and Maintenance Fund 760.

#### DISCUSSION

##### **Background**

In July 1999, the City released a Request for Proposals (RFP) for cost-effective approaches to manage Class A/Exceptional Quality (EQ) biosolids. At the time, the biosolids from both HTP and TIWRP were classified as Class B, which could be beneficially used either through land application or composting. The City transported all the City biosolids to Kern County for land application. However, Kern County passed an ordinance that only allowed Class A/EQ biosolids for transportation and land application in the County. Therefore, the City released the RFP to solicit the best available technology at the most competitive price to transform City biosolids into Class A or greater rating.

In January 2001, the City began negotiating with Terralog Technologies for a pilot project agreement in connection with the RFP for economic approaches to Class A/EQ biosolids. Terralog proposed the pilot project with slurry fracture injection and placement of biosolids in deep geological formations at the TIWRP.

On March 13, 2006, the Board authorized execution of an agreement with Terralog to develop the Terminal Island Renewable Energy Project (Transmittal No. 2). Under this agreement, Terralog designed, procured, and managed the drilling of two (2) wells. On November 6, 2006, the City obtained a five-year pilot project permit from the United States Environmental Protection Agency (EPA) to inject biosolids at TIWRP.

On August 29, 2007, the Board authorized execution of the first amendment to Contract No. C-109787 with Terralog to include a six-month start-up period and to increase the cost ceiling of the contract from \$3,036,000 to \$7,912,000 (Transmittal No. 3). Terralog completed the drilling of two (2) wells at the TIWRP and installed slurry fracture equipment to begin injection into the wells on June 1, 2008.

On December 22, 2008, the Board adopted a motion, authorizing a change in source of funding of \$885,000 for the operation activities of this project for the period January 1, 2009 through the expiration of the contract, May 15, 2009. (Transmittal No. 4)

On May 11, 2009, the Board adopted a motion, authorizing the extension of the existing contract with Terralog (C-109787) on a month-to-month basis for a period not to exceed three (3) months until the proposed Amendment No. 2 to agreement C-109787 is fully executed. (Transmittal No. 5)

This Amendment No. 2 will extend the contract from the date of execution for an additional 47 months of continued operation activity with two (2) two-year options to renew, and to increase the cost ceiling of the contract by \$19,020,952 from \$7,912,000 to \$26,932,952.

#### **Scope of Work**

This proposed Amendment No. 2 authorizes Terralog to perform the following activities:

- Provide surface equipment for injection
- Provide staff for injection
- Engineering and construction management as needed
- Inject digested or undigested sludge from TIWRP
- Inject brine from TIWRP
- Inject biosolids from HTP
- Monitor and report on progress of the pilot study to the EPA
- Grant a perpetual license to the City to use the technology for deep well injection

#### **Justification for this Amendment**

Additional funds are necessary for the following reasons:

- Continuation of biosolids injection and testing for a period of forty seven (47) months. This activity can continue to prove the viability of the slurry fracture injection process during the EPA permit period;
- The original contract and Amendment No. 1 did not include the operational phase of this project.



### Funding History

|                   |              |
|-------------------|--------------|
| Original Contract | \$3,036,000  |
| Amendment No.1    | \$4,876,000  |
| Amendment No.2    | \$19,020,952 |
| Total             | \$26,932,952 |

### City of Los Angeles Contractual Requirements and Policies

Terralog has agreed to comply with the following applicable contractual requirements:

- Nondiscrimination/Equal Employment/Affirmative Action
- Living Wage and Service Contractor Worker Retention Ordinances
- Equal Benefits Ordinance
- Slavery Disclosure Ordinance
- Child Support Obligations Ordinance
- Business Tax Registration Certificate
- Municipal Lobbying Ordinance
- Insurance Requirements
- Americans with Disabilities Act
- Non-collusion Affidavit
- Contract History
- Los Angeles Residence Information

### MBE/WBE/OBE Subcontractor Outreach Program

The original MBE and WBE participation levels established by the City in the original RFP were 18 and 4 percent, respectively. At contract award, Terralog pledged 0 percent MBE, 0 percent WBE. As part of Amendment No. 1, Terralog pledged 0 percent MBE, 0 percent WBE and 33.38 percent OBE participation. As of July 13, 2009, the actual participation level was 48.86 percent OBE.

Terralog has continued to commit in performing an outreach for specialized work for this project. MI Swaco was added as a subcontractor, with a pledge of \$1,000,000 using the outreach effort as described in their letter dated June 27, 2007. Bureau of Sanitation staff obtained a list of firms with the capability of injecting slurry at high pressure from LA MBOC and confirmed with the firms that were contacted that they do not match their expertise and are not interested on this project.

The project manager reviews the amount invoiced and compare to schedule and MBE/WBE/OBE Utilization Profile.

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As of July 13, 2009, the OBE subconsultant participation for Terralog was as follows\*\*:

| Sub-consultants                            | MBE/<br>WBE/<br>OBE | Pledge<br>% of<br>Contract | Pledge<br>Value       | Actual<br>Value       | Actual<br>% of<br>Contract |
|--|---------------------|----------------------------|-----------------------|-----------------------|----------------------------|
| B.J. Services Company                      | OBE                 | 2.85%                      | \$225,339.00          | \$294,556.16          | 3.72%                      |
| Baker Hughes Integ                         | OBE                 | 1.02%                      | \$80,992.00           | \$89,501.00           | 1.13%                      |
| ChrisCo Bits                               | OBE                 | 0.18%                      | \$14,000.00           | \$3,788.75            | 0.05%                      |
| Downhole Stabilization, Inc.               | OBE                 | 0.13%                      | \$10,070.00           | \$22,837.11           | 0.29%                      |
| Driltek Professional Drilling Management   | OBE                 | 1.19%                      | \$94,500.00           | \$137,930.41          | 1.74%                      |
| Elco Filtration & Testing, Inc.            | OBE                 | 0.53%                      | \$42,000.00           | \$174,138.68          | 2.20%                      |
| Energy Tubulars, Inc.                      | OBE                 | 4.65%                      | \$368,069.40          | \$470,559.68          | 5.95%                      |
| GEO Drilling Fluids, Inc.                  | OBE                 | 1.14%                      | \$90,000.00           | \$37,346.47           | 0.47%                      |
| Hogg Drilling Specialty Construction, Inc. | OBE                 | 0.58%                      | \$46,000.00           | \$23,000.00           | 0.29%                      |
| Kenai Drilling Limited                     | OBE                 | 14.59%                     | \$1,154,550.00        | \$875,622.42          | 11.07%                     |
| Murray Plumbing and Heating Corp.          | OBE                 | 0.47%                      | \$37,318.00           | \$36,718.26           | 0.46%                      |
| Pensinger's Motor Homes                    | OBE                 | 0.06%                      | \$4,725.00            | \$14,906.79           | 0.19%                      |
| PetroLog, Inc.                             | OBE                 | 0.47%                      | \$37,580.00           | \$45,300.00           | 0.57%                      |
| ReedHycalog, LP                            | OBE                 | 0.13%                      | \$10,580.00           | \$27,352.71           | 0.35%                      |
| Reliable Equipment Rental, Inc.            | OBE                 | 0.71%                      | \$55,860.00           | \$104,307.90          | 3.36%                      |
| Schlumberger Well Services                 | OBE                 | 2.49%                      | \$196,616.00          | \$280,294.44          | 3.54%                      |
| Soli-Bond, Inc.                            | OBE                 | 0.58%                      | \$46,000.00           | \$82,887.47           | 1.05%                      |
| Spectrum Geophysics                        | OBE                 | 0.03%                      | \$2,075.00            | \$2,075.00            | 0.03%                      |
| Well Dynamics, a Halliburton-Shell JV      | OBE                 | 1.57%                      | \$124,530.00          | \$273,717.77          | 3.46%                      |
| AllenCo                                    | OBE                 | 0.19%                      | \$15,000.00           | \$15,644.10           | 0.20%                      |
| Berg Electric Corp                         | OBE                 | 3.10%                      | \$245,000.00          | \$187,158.00          | 2.37%                      |
| ESG Canada Inc.                            | OBE                 | 9.48%                      | \$750,000.00          | \$358,272.23          | 4.53%                      |
| Key Energy Service                         | OBE                 | 1.05%                      | \$83,000.00           | \$89,905.18           | 1.14%                      |
| Oil Well Service Company                   | OBE                 | 0.20%                      | \$16,000.00           | \$17,398.16           | 0.22%                      |
| Pinnacle Technologies                      | OBE                 | 5.06%                      | \$400,000.00          | \$9,944.00            | 0.13%                      |
| Gallade Chemical                           | OBE                 | 0.20%                      | \$16,000.00           | \$3,958.99            | 0.05%                      |
| Smith Brothers Crane Rental Inc            | OBE                 | 0.08%                      | \$6,000.00            | \$2,116.80            | 0.03%                      |
| Tiger Cased Hole Services Inc              | OBE                 | 0.17%                      | \$13,500.00           | \$8,930.05            | 0.11%                      |
| <b>Total MBE Participation</b>             |                     | <b>0.00%</b>               | <b>\$0.00</b>         | <b>\$0.00</b>         | <b>0.00%</b>               |
| <b>Total WBE Participation</b>             |                     | <b>0.00%</b>               | <b>\$0.00</b>         | <b>\$0.00</b>         | <b>0.00%</b>               |
| <b>Total OBE Participation</b>             |                     |                            | <b>\$4,185,304.40</b> | <b>\$3,690,168.53</b> | <b>48.86%</b>              |
| <b>Total Amount Invoiced</b>               |                     |                            | <b>\$7,552,534.37</b> |                       |                            |

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The operation phase of the contract will have less construction and third-party involvement; and most of the work will be performed by Terralog staff. Therefore, the pledged participation level will be 25.99\*\* percent OBE with this amendment.

The OBE subconsultant participation, including Amendment No. 2 will be as follows\*\*:

| Sub-consultants                            | MBE/<br>WBE/ OBE | Pledged<br>Value      | % of<br>Contract<br>Pledged |
|--|------------------|-----------------------|-----------------------------|
| B.J. Services Company                      | OBE              | \$380,000             | 1.41%                       |
| Baker Hughes Inteq                         | OBE              | \$160,000             | 0.59%                       |
| ChrisCo Bits                               | OBE              | \$14,000              | 0.05%                       |
| Downhole Stabilization, Inc.               | OBE              | \$30,000              | 0.11%                       |
| Dritel Professional Drilling Management    | OBE              | \$270,000             | 1.00%                       |
| Elco Filtration & Testing, Inc.            | OBE              | \$174,138.68          | 0.65%                       |
| Energy Tubulars, Inc.                      | OBE              | \$940,000             | 3.49%                       |
| ESG  | OBE              | \$750,000             | 2.78%                       |
| GEO Drilling Fluids, Inc.                  | OBE              | \$105,000             | 0.39%                       |
| Hogg Drilling Specialty Construction, Inc. | OBE              | \$46,000              | 0.17%                       |
| Kenai Drilling Limited                     | OBE              | \$1,325,000           | 4.92%                       |
| MI Swaco                                   | OBE              | \$1,000,000           | 3.71%                       |
| Murray Plumbing and Heating Corp.          | OBE              | \$37,318              | 0.14%                       |
| Pensinger's Motor Homes                    | OBE              | \$21,000              | 0.08%                       |
| PetroLog, Inc.                             | OBE              | \$67,500              | 0.25%                       |
| Pinnacle                                   | OBE              | \$400,000             | 1.49%                       |
| ReedHycalog, LP                            | OBE              | \$27,352.71           | 0.10%                       |
| Reliable Equipment Rental, Inc.            | OBE              | \$104,307.90          | 0.39%                       |
| Schlumberger Well Services                 | OBE              | \$350,000             | 1.30%                       |
| Soli-Bond, Inc.                            | OBE              | \$120,000             | 0.45%                       |
| Spectrum Geophysics                        | OBE              | \$2,075               | 0.01%                       |
| Well Dynamics                              | OBE              | \$273,317.73          | 1.01%                       |
| Allen Company                              | OBE              | \$15,644.10           | 0.06%                       |
| Berg Electric Corp                         | OBE              | \$245,000             | 0.91%                       |
| Key Energy Service                         | OBE              | \$89,905.18           | 0.33%                       |
| Oil Well Service Company                   | OBE              | \$17,398.16           | 0.06%                       |
| Gallade Chemical                           | OBE              | \$16,000              | 0.06%                       |
| Smith Brothers Crane Rental Inc.           | OBE              | \$6,000               | 0.02%                       |
| Tiger Cased Hole Services Inc              | OBE              | \$13,500              | 0.05%                       |
| <b>Total MBE Participation</b>             |                  | \$0                   | 0.00%                       |
| <b>Total WBE Participation</b>             |                  | \$0                   | 0.00%                       |
| <b>Total OBE Participation</b>             |                  | <b>\$7,000,857.50</b> | <b>25.99%</b>               |
| <b>Total Contract Amount</b>               |                  | <b>\$26,932,952</b>   |                             |

Seven subcontractors listed above namely: Allen Company, Berg Electric Corporation, Key Energy Service, Oil Well Service Company, Gallade Chemical, Smith Brothers Crane Rental Inc., and Tiger Cased Hole Services Inc. will not be utilized for the future services required for Amendment No. 2.

#### **Contractor Performance Evaluation**

In accordance with Article 13, Chapter 1, Division 10 of the City of Los Angeles Administrative Code, the appropriate City Personnel responsible for the quality control of this contract shall submit Contractor Performance Evaluation Reports to the Bureau of Contract Administration upon completion of this contract.

#### **Contractor Responsibility Ordinance**

All contractors participating in this project are subject to compliance with the requirements specified in the City of Los Angeles' Contractor Responsibility Ordinance #173677, [Article 14, Chapter 1, Division 10, L.A.A.C.]. Failure to comply with all requirements specified in the Ordinance will render the contract subject to termination pursuant to the conditions expressed therein.

#### **Compliance with Charter Section 1022**

The Charter Section 1022 CAO determination request was filed with CAO office on July 16, 2009. The CAO determination was received on August 5, 2009, which concludes that there is insufficient staff to perform the work proposed to be contracted and additional staff cannot be employed and trained in a timely manner to meet the department's need.

#### **Notification of Intent to Contract**

The "Notification of Intent to Contract" form was filed with the CAO Clearinghouse on March 14, 2008.

#### **Headquarters Address & Workforce Information**

Terralog Technologies USA, Inc. is located at 332 East Foothill Blvd, Arcadia, CA 91006. None of the employees live within the City of Los Angeles.

**Contract Administration**

Responsibility for administering this contract will be with the Hyperion Treatment Division – Biosolids Section.

**City Attorney Review**

The City Attorney has reviewed this contract and has approved it as to form.

**STATUS OF FINANCING**

Funding for this project will not exceed \$26,932,952, including Wastewater Capital Improvement Program (WCIP) funds. The estimated costs break down for these services are:

| Fiscal Year  | Estimated Costs      | Fund               |                     |
|--------------|----------------------|--------------------|---------------------|
|              |                      | 761                | 760                 |
| 08-09        | \$ 6,978,680         | \$5,778,680        | \$1,200,000         |
| 09-10        | \$ 3,979,200         |                    | \$ 3,979,200        |
| 10-11        | \$ 5,291,378         |                    | \$ 5,291,378        |
| 11-12        | \$ 5,291,378         |                    | \$ 5,291,378        |
| 12-13        | \$ 5,392,316         |                    | \$ 5,392,316        |
| <b>Total</b> | <b>\$ 26,932,952</b> | <b>\$5,779,441</b> | <b>\$21,155,032</b> |

Funds in the amount of \$3,979,200 are available in the Sewer Operations & Maintenance, Contractual Services, as follows:

| FY           | Division | Fund | Account | Object | Line # | Amount             |
|--------------|----------|------|---------|--------|--------|--------------------|
| 09-10        | HTP      | 760  | F282    | 304    | 50     | \$3,076,200        |
|              | TIWRP    | 760  | F282    | 304    | 132    | \$903,000          |
| <b>Total</b> |          |      |         |        |        | <b>\$3,979,200</b> |

The remaining fund requirements of \$15,975,072 will be budgeted in the subsequent fiscal years in the Sewer Operations & Maintenance Fund 760.

The contract contains a "Financial Liability Clause" which states, "the City's liability under this contract shall only be to the extent of the present City appropriation to fund the contract. However, if the City shall appropriate funds for any succeeding years, the City's liability shall be extended to the extent of such appropriation, subject to the terms and conditions of the contract."

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Funds in the amount of \$3,979,200 are available in the Sewer Operations & Maintenance, Contractual Services, as follows:


| FY    | Division | Fund | Account | Object | Line # | Amount      |
|-------|----------|------|---------|--------|--------|-------------|
| 09-10 | HTP      | 760  | F282    | 304    | 50     | \$3,076,200 |
|       | TWRP     | 760  | F282    | 304    | 132    | \$903,000   |
| Total |          |      |         |        |        | \$3,979,200 |

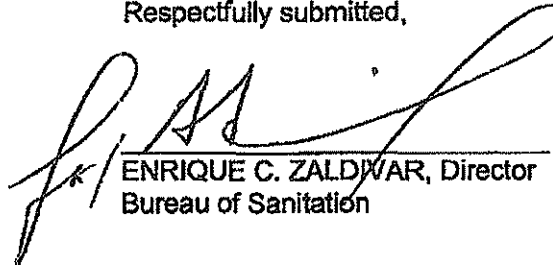
The remaining fund requirements of \$15,975,072 will be budgeted in the subsequent fiscal years in the Sewer Operations & Maintenance Fund 760.

The contract contains a "Financial Liability Clause" which states, "the City's liability under this contract shall only be to the extent of the present City appropriation to fund the contract. However, if the City shall appropriate funds for any succeeding years, the City's liability shall be extended to the extent of such appropriation, subject to the terms and conditions of the contract."

Respectfully submitted,


COMPLIANCE REVIEW PERFORMED  
 AND APPROVED BY:

  
 HANNAH CHOI, Program Manager  
 Office of Contract Compliance  
 Bureau of Contract Administration

  
 ENRIQUE C. ZALDÍVAR, Director  
 Bureau of Sanitation

  
 JOHN L. REAMER, JR. Director  
 Bureau of Contract Administration

APPROVED AS TO FUNDS:

  
 CRAIG V. BLOOMQUIST, Director  
 Office of Accounting  
 Date: 8/12/09

Prepared by:  
 Ernesto Libunao, HTD  
 310-648-5319



Terralog Technologies USA, Inc.  
332 E. Foothill Blvd  
Arcadia, CA 91006  
(626) 305-8460

Enrique C. Zaldivar  
Director  
Los Angeles Bureau of Sanitation

September 16, 2009

Dear Mr. Zaldivar,

Since July, 2008, Terralog Technologies USA, Inc. has been operating the Terminal Island Renewable Energy Project on behalf of the City of Los Angeles under contract C109787. As you know, the project is proceeding quite well, and we are in the final stages of concluding Amendment Number 2 to extend operations for an additional 47 months.

Terralog Technologies has undergone an internal reorganization to separate the Oilfield Services side of the business from the new Municipal Services side of the business. Terralog Technologies USA will continue to provide injection services to the Oil and Gas Industry, while a new organization, GeoEnvironment Technologies, LLC, has been formed to focus exclusively on injection services to the Municipal Industry, including ongoing operations of the TIRE project. This reorganization will allow us to provide more focused and more direct service to the City of Los Angeles.


The majority ownership of GeoEnvironment Technologies is controlled by the same group controlling majority ownership of Terralog Technologies USA. I will serve as President of the new organization and continue to oversee the TIRE project. The current TIRE Project Manager, Ms. Jean Young, and other engineers on the project, will continue to support the TIRE project. All the current Field Personnel will transfer to the new entity, providing complete continuity:

At this time we request written consent from The City of Los Angeles to assign Contract 109787 to the new organization maintaining all the terms, conditions, and provisions, in accordance with Article 18 of the Contract. This Article stipulates that:

*"All of the terms, conditions, and provisions hereof shall insure to the benefit of and be binding upon the parties hereto and their respective successors and assigns, provided however, that no assignment of the Agreement shall be made without written consent of the parties to this Agreement which consent shall not be unreasonably withheld."*

We therefore request written consent of the City to make such an assignment, effective November 1, 2009.

Sincerely,  
Terralog Technologies USA, Inc.

  
Michael S. Bruno, PhD, PE  
President



CITY OF LOS ANGELES  
CALIFORNIA



ANTONIO R. VILLARAIGOSA  
MAYOR

BOARD OF  
PUBLIC WORKS

COMMISSIONERS

CYNTHIA M. RUIZ  
PRESIDENT

JULIE B. GUTMAN  
VICE PRESIDENT

PAULA A. DANIELS  
PRESIDENT PRO TEMPORES

ANDREA A. ALARCÓN

VALERIE LYNNE SHAW

DEPARTMENT OF  
PUBLIC WORKS

BUREAU OF SANITATION

ENRIQUE C. ZALDIVAR  
DIRECTOR

TRACI J. MINAMIDE  
CHIEF OPERATING OFFICER

VAROUJ S. ABKIAN  
ADEL H. HAGEKHALIL  
ALEXANDER E. HELOU  
ASSISTANT DIRECTORS

1149 SOUTH BROADWAY, 9<sup>TH</sup> FLOOR  
LOS ANGELES, CA 90015  
TEL: (213) 485-2210  
FAX: (213) 485-2979

November 3, 2009

Michael S. Bruno, President  
Terralog Technologies USA, Inc.  
332 East Foothill Boulevard  
Arcadia, CA 91006

AMENDMENT TO CONTRACT NO. 109787

Dear Mr. Bruno:

This is to acknowledge the receipt of your letter dated September 16, 2009 informing us about the recent company's reorganization.

We concur with your request for the assignment of GeoEnvironment Technologies to Contract No. 109787 maintaining all the terms, conditions, and provisions, in accordance with Article 18 of the Contract Agreement.

The License Agreement language of Contract Amendment No. 2 will be changed from "Terralog" to "Terralog or its Assignee" as per the recommendation of the City Attorneys' Office.

If you have any questions, please call Mark Starr at (310) 648-5801.

Sincerely,

Traci Minamide, Chief Operating Officer  
Bureau of Sanitation

TM:el

c: Chris Westhoff  
Ted Jordan  
Enrique Zaldivar  
Steve Fan  
Omar Moghaddam  
Mark Starr  
Biosolids Group





CITY OF LOS ANGELES

CALIFORNIA



JUNE LAGMAY  
City Clerk

HOLLY L. WOLCOTT  
Executive Officer

ANTONIO R. VILLARAIGOSA  
MAYOR

Office of the  
CITY CLERK

Council and Public Services  
Room 395, City Hall  
Los Angeles, CA 90012  
General Information - (213) 978-1133  
Fax: (213) 978-1040

KONRAD CARTER  
Acting Chief, Council and Public Services  
Division

[www.cityclerk.lacity.org](http://www.cityclerk.lacity.org)

February 17, 2010

To All Interested Parties:

The City Council adopted the action(s), as attached, under Council file No.  
10-0070, at its meeting held February 12, 2010.

  
City Clerk  
kw

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TO THE COUNCIL OF THE  
CITY OF LOS ANGELES

File No. 10-0070

Your

ENERGY AND ENVIRONMENT

Committee

reports as follows:

ENERGY AND ENVIRONMENT COMMITTEE REPORT relative to a 47-month contract extension and cost increase to Contract 109787 with Terralog Technologies USA, Inc. for continuation of the City's Terminal Island Renewable Energy (TIRE) demonstration project.

Recommendation for Council action:

AUTHORIZE the Board of Public Works (Board) to execute a second amendment to Contract 109787 with Terralog Technologies USA, Inc. or its assignee for continued implementation of the City's TIRE project, substantially in form to the draft included as an attachment to the Board report dated November 12, 2009, for a term of 47 months and reflecting an increase to the cost ceiling by \$19,020,952, from \$7,912,000 to \$26,932,952.

Fiscal Impact Statement: The City Administrative Officer (CAO) reports that there is no General Fund impact. The recommendation complies with the City's Financial Policies in that special fund revenue is budgeted for the proposed contract. The amendment includes a revised cost ceiling of \$26.9 million with first year funding of \$3.9 million budgeted within 2009-10 Sewer Construction and Maintenance Fund special fund appropriations. The balance of \$15 million will be requested in future budgets, in addition to any funding associated with contract extension options. The contract includes a financial liability clause limiting the City's liability to the extent of appropriations for this purpose.

The Board reports that there will be no additional financial impact to the City for Fiscal Year 2009-2010. The cost of the amendment for the current fiscal year has been budgeted within Terminal Island Water Reclamation Plant and Hyperion Treatment Plant annual budget appropriations, respectively, and the cost for the subsequent years will be requested in future budgets in the Sewer Operations and Maintenance Fund No. 760.

Community Impact Statement: None Submitted

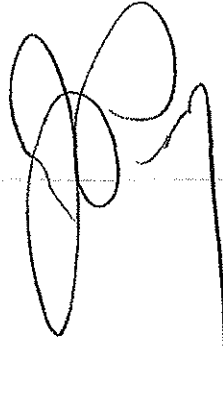
**(Public Works Committee waived consideration of the above matter)**

Summary:

At its January 19, 2010 meeting, your Committee considered CAO and Board reports relative to a 47-month contract extension and cost increase to Contract 109787 with Terralog Technologies USA, Inc. for continuation of the City's TIRE demonstration project. During the discussion of this item, the Bureau of Sanitation and City Administrative Officer representatives provided an overview of the Bureau's request and responded to related questions posed by the Committee members. After providing an opportunity for public comment, the Committee approved the recommendation contained in the CAO report. This matter is now submitted to Council for its consideration.

Respectfully submitted,

ENERGY AND ENVIRONMENT COMMITTEE



Paul Rekorian

**ADOPTED**

FEB 12 2010

**LOS ANGELES CITY COUNCIL**

| <u>MEMBER</u> | <u>VOTE</u> |
|---------------|-------------|
| PERRY         | YES         |
| CÁRDENAS      | YES         |
| ALARCÓN       | YES         |
| KORETZ        | YES         |
| KREKORIAN     | YES         |

SG  
10-0070\_rpt\_ee\_01-22-10

- Not Official Until Council Acts -

TRANSMITTAL 9

C-109787-2

**AMENDMENT NO. 2**  
**TO**  
**CONTRACT AGREEMENT C-109787**

**BETWEEN**

**THE CITY OF LOS ANGELES**

**AND**

**TERRALOG TECHNOLOGIES USA, INC.**

**FOR**

**TERMINAL ISLAND RENEWABLE ENERGY (T.I.R.E.) PROJECT**

**BUREAU OF SANITATION**  
**DEPARTMENT OF PUBLIC WORKS**  
**CITY OF LOS ANGELES**

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**AMENDMENT NO. 2  
FOR PERSONAL CONSULTANT SERVICES TO CONTRACT NUMBER C-109787  
BETWEEN THE CITY OF LOS ANGELES AND  
TERRALOG TECHNOLOGIES**

THIS AMENDMENT NO. 2 to CONTRACT NO. C-109787 is made and entered into by and between the City of Los Angeles, California, a municipal corporation acting by order of and through its Board of Public Works (hereinafter referred to as the "CITY") and Terralog Technologies USA, Inc. a corporation, (hereinafter referred to as "TERRALOG").

WITNESSETH

WHEREAS, Biosolids are nutrient-rich organic materials, which are the byproduct of the wastewater treatment that can be beneficially used; and

WHEREAS, the CITY currently produces approximately 670 wet tons per day of biosolids at the Hyperion and Terminal Island Water Reclamation Plants; and

WHEREAS, the CITY terminated the discharge of biosolids into Santa Monica Bay on November 1, 1987, and is committed to keeping the biosolids out of the Bay; and

WHEREAS, the CITY is committed to finding innovative and creative means of beneficially using the biosolids; and

WHEREAS, TERRALOG has submitted a proposal in response to the CITY's Request for Proposals for Economic Approaches to Class A/EQ Biosolids; and

WHEREAS, TERRALOG was selected from the top five (5) proposers based on viability of their method of processing the CITY's biosolids; and

WHEREAS, TERRALOG's project will involve the conversion of the CITY's biosolids to methane by natural biodegradation; and

WHEREAS, TERRALOG will use its deep well injection expertise and processes to inject biosolids into suitable subsurface geologic formations; and



WHEREAS, TERRALOG has demonstrated the ability and has agreed to perform the above-referenced tasks in an environmentally sound manner in material compliance with all applicable laws, regulations, rules and other requirements of local, state and federal governments; and

WHEREAS, the CITY executed Contract C-109787 on May 15, 2006 with TERRALOG Technologies to develop the Terminal Island Renewable Energy Project for the purpose of injecting the CITY biosolids in deep geological formations ("Original Contract"); and

WHEREAS, the CITY executed Amendment No. 1 to Contract C-109787 on September 28, 2007 to increase the contract ceiling by \$4,876,000 from \$3,036,000 to \$7,912,000 to cover the higher cost of drilling and monitoring, and to revise the scope of the work to include the start-up and testing ("Amendment No. 1").

WHEREAS, the Original Contract and Amendment No. 1 did not include the operational phase of this project; and

WHEREAS, on May 11, 2009, The Board of Public Works adopted a motion to extend Contract C-109787 on a month-to-month basis for a period of three (3) months; and

WHEREAS, this Amendment No. 2 to the Contract C-109787 will provide equipment, personnel and expertise to conduct the Deep Well Injection and comply with the EPA permit and requirements ; and

WHEREAS, this Amendment No. 2 will extend the term of Contract C-109787 from the date of execution for an additional 47 months, plus two 2-year extension options; and

WHEREAS, the United States Environmental Protection Agency (EPA) permit is valid for a period of five (5) years; and

WHEREAS, the additional funds are necessary for continuation of biosolids injection and testing to prove the viability of the slurry fracture injection process during the EPA permit period; and

WHEREAS, the contract ceiling shall be raised by \$19,020,952 from \$7,912,000 to \$26,932,952 to cover the cost of this contract Amendment; and

NOW, THEREFORE, in consideration of the foregoing and of the benefits which will accrue to the parties hereto in carrying out the terms and conditions of this Agreement, it is understood and agreed by and between the parties hereto as follows:

**ARTICLE 1 - SECTION HEADINGS**

No Change to this Article.

**ARTICLE 2 - DEFINITIONS**

Modify the following definitions in this Article to read as follows:

Agreement or Contract            This agreement between the CITY and TERRALOG for technical consultant services, operation and other expert services on as needed basis to assist the Bureau of Sanitation with Terminal Island Renewable Energy project. This agreement will be managed by the Hyperion Treatment Division, Biosolids Management Group

TIWRP                                Terminal Island Water Reclamation Plant (TIWRP), owned and operated by the City of Los Angeles. Formerly referred to as TI, TITP, and/or Terminal Island.

Add the following definitions to this Article to read as follows:

Contract Ceiling                 Is the maximum allowable payment to TERRALOG through the duration of the contract

CONTRACTOR                      Terralog Technologies USA

Operating Day                    Each day during the month in which injection operations proceed or can proceed subject to availability of the well and formation and City supplied power to the TIRE site.

Non-Operating Day                Each day in which injection operations are suspended due to well activities (such as workovers or cleanouts), monitoring and sampling activities required to comply with EPA requirements, well testing activities required to comply with EPA requirements, or other shut-ins related to City requests or City requirements and City responsibilities.

**ARTICLE 3 - PROJECT DESCRIPTION**

Modify this Article to read as follows:

The Agreement is to manage the CITY'S digested sludge and to convert the CITY's biosolids to clean energy through deep well placement and biodegradation in a pilot project at the Terminal Island Water Reclamation Plant. TERRALOG shall develop and operate a demonstration project to enable the CITY to monitor, review and evaluate the execution of a full-scale Slurry Fracture Injection (SFI) operation. The Parties acknowledge that the CITY may perform or use other biosolids management processes concurrently with the SFI Operations during the Term of this Agreement. Without limiting the specific undertakings of TERRALOG hereunder, the general scope of the services shall be engineering, 3<sup>rd</sup> party contract management, start up and testing as detailed in **EXHIBIT A**. TERRALOG shall operate the facility for an additional 47 months from the date of execution of this amendment as detailed in **EXHIBIT A**.

**ARTICLE 4 - RESPONSIBILITIES OF AND TASKS TO BE PERFORMED BY TERRALOG**

Modify Sub-article 4.4 to read as follows: **4.4 Scope of project services**

Scope of project services is outlined in **EXHIBIT A**. The modification adds new task of operation to the responsibilities of TERRALOG.

**ARTICLE 5 - KEY PROJECT PERSONNEL**

Add Sub-article 5.3 to read as follows:

Unless otherwise provided or approved by the CITY, the CONTRACTOR shall use its own employees to perform the services described in this Contract. The CITY shall have the right to review and approve any personnel who are assigned to work under this Contract. The CONTRACTOR shall agree to remove any personnel from performing work under this contract at the request of the CITY.

The CONTRACTOR shall not use subcontractors to assist in performance of this CONTRACT without the prior written approval of the CITY. In the event the CITY permits the use of subcontractors, the CONTRACTOR shall remain responsible for performing all aspects of this CONTRACT. The CITY shall have the right to approve the subcontractors, and the CITY shall reserve the right to request replacement of subcontractors. The CITY shall not have any obligations to pay subcontractors, and nothing herein creates any privity between the CITY and the subcontractors.

**ARTICLE 6 - TERM OF AGREEMENT AND TIME OF EFFECTIVENESS**

Modify this Article to read as follows:

This Amendment No. 2 will extend the term of Contract C-109787 from the date of execution for an additional 47 months, unless terminated as provided under Article 7, or extended by amendment, or change order to this Agreement. Upon 180 days advance written notice, the CITY has the options to extend this Agreement for two (2) terms, 2 years per term, subject to mutual agreement of the Parties and approval of the Board of Public Works and City Council.

**ARTICLE 7 - TERMINATION**

Modify this Article to read as follows:

**7.1 Termination with Cause**

**7.1.1 By the CITY**

This Agreement may be terminated by the CITY for the reasons described in Articles 7.1.1.1 and 7.1.1.2 in whole or in part without payment of penalties, demobilization fee, and termination fee, but it shall be subject to payment of compensation for injection services through the date of termination.

**7.1.1.1 Faulty Operations**

In the event TERRALOG fails to operate in a safe, diligent, careful and professional manner, the CITY shall send a written notice to TERRALOG to remedy matters within twenty-one (21) working days. In the event TERRALOG fails to remedy matters during the remedy period, the CITY shall have the option to terminate the Agreement. In the event the CITY opts to terminate this Agreement after the remedy period, the CITY shall send a written termination notice to outline the grounds for termination and any issues identified in the written notice which TERRALOG failed to remedy.

**7.1.1.2 Failure to Provide Equipment or Personnel**

In the event TERRALOG fails to provide the necessary material, equipment or personnel required to fulfill its obligations under this Agreement, through no fault of the CITY, the CITY shall send a written notice to TERRALOG to remedy matters within twenty-one (21) working days. In the event TERRALOG fails to remedy matters during the remedy period, the CITY shall have the option to terminate the Agreement. In the event the CITY opts to terminate this Agreement after the remedy period, the CITY shall send a

written termination notice to outline the grounds for termination and any issues identified in the written notice which TERRALOG failed to remedy.

In such event of Termination with Cause by the CITY, the price adjustment shall be made as provided in Article 7.5.

#### **7.1.2 By TERRALOG**

TERRALOG shall have the right to terminate this Agreement in the event the CITY fails to fulfill any material portion of its obligations as specified in Article 4, Article 9 and Exhibit A, and the CITY fails to remedy such matters within twenty-one (21) working days after receiving written notice, or such other length of time as may be reasonably necessary to affect the remedy. Upon the expiration of the remedy period, in the event TERRALOG opts to terminate this Agreement, TERRALOG shall send a written termination notice to outline the grounds for termination and any issues identified in the written notice which the CITY failed to remedy.

In such event of Termination with Cause by TERRALOG, the price adjustment shall be made as provided in Article 7.5.

#### **7.2 Termination Due to Regulatory Changes or Permit Denial**

The CITY and TERRALOG shall each have the right to terminate this Agreement for significant regulatory change or permit denial. In such event, price adjustment shall be made as provided in Article 7.5.

#### **7.3 Termination for Failure to Achieve Deep Well Injection**

The CITY shall have the right to terminate this Agreement in the event TERRALOG fails to achieve sustainable deep well injection (average of 160,000 gallons of digested sludge and 66 wet tons of biosolids per Operating Day during any calendar month during the Term of this Agreement) due to problems related to formation response to injection operations (including but not limited to formation containment and formation injectivity problems).

1. The CITY may terminate this Agreement without penalties, upon sending a ninety (90) days notice, during which time TERRALOG may schedule to remedy the problem. Upon expiration of the remedy period, in the event the CITY opts to terminate this Agreement, the CITY shall

send a written termination notice to outline the grounds for termination and any issues identified in the ninety (90) days notice which TERRALOG failed to remedy.

2. The CITY may request a change in monthly injection fee (see Exhibit B).
3. The CITY shall pay for the third party demobilization costs; TERRALOG shall pay for its own demobilization costs.

#### **7.4 Termination Due to Force Majeure**

The CITY and TERRALOG shall each have the right to terminate this Agreement if a force majeure continues to exist for a period of thirty (30) consecutive calendar days. In such event, price adjustment shall be made as provided in Article 7.5 below.

#### **7.5 Payment Adjustments for Termination**

In the event of termination with cause by CITY (Article 7.1.1), TERRALOG shall pay for:

1. One hundred percent (100%) of the demobilization fees in accordance with the provisions of Exhibit B.

In the event of termination with cause by TERRALOG (Article 7.1.2), the CITY shall pay TERRALOG for:

1. Compensation for services rendered through the termination date.
2. One hundred percent (100%) of the demobilization fees in accordance with the provisions of Exhibit B.

In the event this Agreement is terminated due to Regulatory Changes or Permit Denial (Article 7.2), the CITY shall pay TERRALOG for:

1. Compensation for services rendered through the termination date.
2. The CITY shall pay all third party demobilization; TERRALOG pays its own demobilization costs.

In the event this Agreement is terminated for Failure to achieve sustainable Deep Well Injection (Article 7.3) the CITY shall pay TERRALOG for:

1. Compensation for Services rendered through the termination date.
2. The CITY shall pay all third party demobilization; TERRALOG pays its own demobilization costs.

In the event this Agreement is terminated due to FORCE MAJEURE (Article 7.4), the CITY shall pay TERRALOG for:

1. Compensation for services rendered through the termination date.
2. The CITY shall pay all third party demobilization; TERRALOG pays its own demobilization costs.

#### **7.6 Discontinuance of Work**

Upon receipt of a written-termination notice, TERRALOG shall (1) promptly discontinue all affected work (unless the notice directs otherwise), and (2) provide the CITY all reports, studies, project plans, draft letters and other documents, data, drawings, graphics, specification, estimates, summaries and other information and materials which were produced and/or accumulated by TERRALOG in performing this Agreement, whether completed or in process.

#### **7.7 Ineligibility**

Under the provisions of Section 10.31.5, Article 5 of Chapter 1 of Division 10 of the Los Angeles Administrative Code, the CITY shall have the authority, under appropriate circumstances, to terminate this Agreement and to refuse payment to TERRALOG for services performed, if the CITY determines that such TERRALOG was ineligible under said Article at the time of entering into this Agreement or became ineligible thereafter.

#### **ARTICLE 8 - SUBCONSULTANT APPROVAL**

No Change to this Article.

#### **ARTICLE 9 - COMPENSATION, INVOICING AND PAYMENT**

Modify Sub-articles 9.1 and 9.2 to read as follows and add Sub-article 9.3.6 and 9.4

##### **9.1 Definitions**

Compensation for services throughout the term of this Agreement shall be provided by the CITY based on Billing Salary Rates for each employee and classification or based on fixed price amounts as detailed in EXHIBIT B hereto and incorporated herein by reference. At the discretion of the CITY Project Manager or his designee, individual tasks may be quoted for and assigned on the basis of a lump sum for which a Task Agreement Form (TAF) has been approved by the CITY and TERRALOG.

The CITY shall only be responsible for actual work performed on the specific tasks identified in this Agreement.

The Billing Salary Rate(s) and Fixed Price Amounts, as shown in EXHIBIT B, include general overhead, profit, and indirect costs generally associated with consulting services. Indirect costs shall be included in overhead and shall include typical daily requirements such as costs for all necessary desks, tables, chairs, workspace, telephones, routine invoicing, postage, miscellaneous copies, fax, computers and software, miscellaneous communications equipment and use, and other supporting materials and their use as is necessary to provide the services delineated herein.

## **9.2 Compensation**

The Contract Ceiling of this Agreement between TERRALOG and the CITY shall be raised from \$7,912,000 to \$26,932,952. Any extension to the Agreement term, modification to the Scope of Project Services or increase in the contract ceiling shall be done in accordance with Articles 9.3.4. Compensation shall be subject to satisfactory documentation submitted by TERRALOG to the CITY that invoiced work has been performed and completed.

The Contract Ceiling reflects the amount the CITY estimated and appropriated to spend on this project. The CITY is not obligated to pay TERRALOG the whole amount but only what is invoiced. The third party cost will be paid to TERRALOG as set forth in this agreement.

TERRALOG agrees to perform the work specified in Article 4, and the CITY shall compensate TERRALOG in accordance with the Billing Salary Rates or Fixed Amounts provided herein as EXHIBIT B and incorporated herein by this reference and the agreed upon work as described in each TAF.

Any requests for increases in monthly fees, billing salary rates due to raise(s), or cost of living increases of TERRALOG or its sub-consultants' staff shall include justification and indicate the resultant benefits to the CITY. TERRALOG may request such increases once each year after the anniversary date of this amendment. Such approved increases shall take effect following the CITY's approval but no sooner than the beginning of anniversary date of this amendment, retroactive to date of Terralog's request after the anniversary. All such increases and movement from one of the billing salary rates are subject to approval by the CITY. Such approval will not be unreasonably withheld.



### **9.3 Invoicing and Payment**

Modify Sub-article 9.3.6 to read as follows:

**9.3.6** The City shall not be responsible for payment of invoices or supplement invoices submitted to the City more than one year after the date of expiration of this Agreement.

Add Article 9.4 to read as follows:

### **9.4 False Claim Act**

TERRALOG acknowledges that it is aware of liabilities resulting from submitting a false claim for payment by the CITY under the False Claims Act (Cal. Gov. Code 12650 et seq.), including treble damages, costs of legal actions to recover payments, and civil penalties of up to \$10,000 per false claim.

## **ARTICLE 10 - AMENDMENTS, CHANGES OR MODIFICATIONS**

No Change to this Article.

## **ARTICLE 11 - INDEMNIFICATION AND INSURANCE**

Modify this Article to read as follows:

### **11.1 Mutual Indemnification for Respective Personnel**

TERRALOG shall assume all responsibility for, and shall indemnify, defend, hold the CITY and its Personnel harmless from any and all claims, costs, liability, fines, penalties, legal fees, and expenses arising out of any actual or alleged illness, death of or injury to any of TERRALOG's Personnel or to any of TERRALOG's subcontractors in connection with the performance of Services hereunder, unless it is determined to have been solely caused by the CITY's active negligence or willful misconduct.

The CITY shall assume all responsibility for, and shall indemnify, defend, hold TERRALOG and its Personnel harmless from any and all claims, costs, liability, fines, penalties, legal fees, and expenses arising out of any actual or alleged illness, death of or injury to any of the CITY's Personnel in connection with the performance of Services hereunder, unless it is determined to have been solely caused by TERRALOG's active negligence or willful misconduct.

## **11.2 Liability for Ground Surface Pollution**

TERRALOG shall assume all responsibility for, and shall indemnify, defend, and hold the CITY harmless from any and all claims, costs, liability, fines, penalties, legal fees, and expenses for any actual or alleged loss of or damage to any property in connection with pollution or contamination on ground surface determined to have been solely caused by TERRALOG's or its subcontractor's active negligence or willful misconduct.

## **11.3 Liability for Underground Pollution and Mineral Resources**

The CITY shall assume all responsibility for, and shall indemnify, defend, and hold TERRALOG harmless from any and all claims, costs, liability, fines, penalties, legal fees, and expenses for any actual or alleged damage or contamination to underground water resources or to oil, gas, or other mineral resources, unless it is determined to have been caused by TERRALOG's active negligence or willful misconduct.

## **11.4 Liability for Claim or Actions from Third Parties**

The CITY shall assume all responsibility for, and shall indemnify, defend, and hold TERRALOG harmless from any and all claims, costs, liability, fines, penalties, legal fees, and expenses related to any legal action, claims, and lawsuits from third party entities, unless it is determined to have been solely caused by TERRALOG's negligence or willful misconduct.

## **11.5 Insurance**

During the term of this Contract and without limiting the CONTRACTOR'S indemnification of the CITY, the CONTRACTOR shall provide and maintain at its own expense during the term of this Contract a program of insurance having the coverage and limits customarily carried and actually arranged by CONTRACTOR but not less than the amounts and types listed on the Insurance Requirements Sheet (Form Gen 146/IR), in EXHIBIT C hereto, covering its operations hereunder. Such insurance shall conform to CITY requirements as established by charter, ordinance, or policy and shall comply with the instructions set forth, in EXHIBIT C, and which can also be found at the BOARD'S website: [www.lacity.org/bpw/Secretariat/Insurance.html](http://www.lacity.org/bpw/Secretariat/Insurance.html), in the form Instructions and Information on Complying with City Insurance Requirements, rev 9/06, and shall otherwise be in a form acceptable to the City

Administrative Officer, Risk Management. The CONTRACTOR shall comply with all insurance Contractual Requirements shown on EXHIBIT C hereto. EXHIBIT C is hereby incorporated by reference and made a part of this Contract.

A waiver of Subrogation in favor of CITY will be required when work is performed on CITY premises under hazardous conditions.

**ARTICLE 12 - PUBLIC RECORDS ACT**

No Change to this Article.

**ARTICLE 13 - INDEPENDENT CONTRACTORS**

No Change to this Article.

**ARTICLE 14 - WARRANTY AND RESPONSIBILITY OF CONSULTANT**

Modify Sub-Article 14.4 to read as follows:

**14.4 TERRALOG Performs Necessary Professional Services**

TERRALOG shall perform such professional services to accomplish the work under this Agreement in accordance with this article.

It is understood and agreed that TERRALOG's performance under this Agreement shall be excused to the extent that CITY non-performance renders TERRALOG's performance impossible or impractical until such matter has been remedied.

**ARTICLE 15 – OWNERSHIP OF PROPERTY**

Modify this Article to read as follows:

Unless otherwise provided for herein, all Work Products originated and prepared by TERRALOG or its subcontractors of any tier developed specifically for the CITY under the Contract shall be and remain the exclusive property of the CITY. Work Products are all works, tangible or not, created specifically for the CITY under this Contract including, without limitation, documents, material, data, reports, manuals, specifications, artwork, drawings, sketches, computer programs and databases, schematics,

photographs, video and audiovisual recordings, sound recordings, marks, logos, graphic designs, notes, websites, and domain names. Where TERRALOG, but not the CITY, is deemed to be the owner of any of the property rights in the Work Products. TERRALOG hereby assigns and will assign all property rights (tangible and intangible) to the CITY. TERRALOG further agrees to execute any documents necessary for the CITY to perfect, memorialized, or record the CITY's ownership of rights provided herein. The provisions of this paragraph shall survive expiration or termination of this Contract.

#### **FINAL DELIVERABLE – LICENSE AGREEMENT**

TERRALOG or its' Assignee shall grant to the CITY, without any further action required by TERRALOG or its' Assignee or the CITY, an irrevocable, non-exclusive and non-transferrable right and license to use the Licensed Property, in the form of the Patent License Agreement attached hereto as Exhibit N, when the following has been met:

- A. The CITY has made forty seven (47) monthly payments to TERRALOG or its' Assignee of the Structured Fee or the Modified Structured Fee (as described in Exhibit B);

In the event of termination of this Agreement for conditions B through J below prior to the payment by the CITY of the forty seven (47) monthly payments of the Structured Fee or the Modified Structured Fee are made, the CITY shall have the right to purchase the Patent License in fulfillment under the terms of "Date of Payment Satisfaction" by making final payment to TERRALOG or its' Assignee of the remaining monthly value of the Patent License. The value of the Patent License shall be that portion of each of the monthly Structured Fee payments equal to \$53,191. Upon termination of Agreement in month **N** (after making **N** payments), the CITY may make payment to TERRALOG for the remaining value of the Patent License as calculated:

$$\text{Remaining patent value} = \{ \$53,191 \times (47 - \mathbf{N}) \}$$

CITY shall have 180 days from the date of termination to notify TERRALOG or its' Assignee in writing of CITY's intent to purchase Patent License by final payment of remaining patent value. Payment shall be made to TERRALOG within this 180 day period. CITY is not obligated to pay TERRALOG for that portion of the remaining Structured Fee associated with 3<sup>rd</sup> party deliverables, for which the CITY did not receive services from.

- B. The CITY has terminated this Agreement pursuant to Article 7.1.1.

- C. The CITY or TERRALOG has terminated this Agreement pursuant to Article 7.2.
- D. The CITY has terminated this Agreement pursuant to Article 7.3.
- E. The CITY or TERRALOG has terminated this Agreement pursuant to Article 7.4.
- F. The CITY has terminated this Agreement pursuant to Article 29.
- G. The CITY has terminated this Agreement pursuant to Article 31.
- H. The CITY has terminated this Agreement pursuant to Article 32.
- I. The CITY has terminated this Agreement for breach.
- J. TERRALOG files for bankruptcy or makes a general assignment for the benefit of creditors.

**ARTICLE 16 - NONDISCRIMINATION AND AFFIRMATIVE ACTION**

No Change to this Article.

**ARTICLE 17 - MBE/WBE/OBE SUBCONTRACTOR OUTREACH PROGRAM**

No Change to this Article.

**ARTICLE 18 - SUCCESSORS AND ASSIGNS**

No Change to this Article.

**ARTICLE 19 - CONTACT PERSONS - PROPER ADDRESSES - NOTIFICATION**

Modify this Article to read as follows:

All notices shall be made in writing and may be given by mail or by personal delivery. Such notices sent by mail should be registered or certified and sent to the designated contact person for each party and addressed as follows:

To The CITY

Mr. Mark Starr  
Sr. Environmental Engineer  
Hyperion Treatment Division  
12000 Vista del Mar  
Playa del Rey, CA 90293  
BUS: (310) 648-5801  
FAX: (310) 648-5070

To TERRALOG

Mr. Mike Bruno  
President  
TERRALOG Technologies USA, Inc.  
332 East Foothill Blvd., Suite B  
Arcadia, CA 91006  
BUS: (626) 305-8460  
FAX: (626) 305-8462

Although memos may be sent to other staff for administrative purposes, all official contract documents shall be sent to and from these principals, unless others have been duly authorized for specific contractual purposes as described in Articles 4 and 5. Successors and Superiors to these individuals within the CITY and the Contractor's firm may exercise authority and assume responsibility as if they were the above named principals.

The CITY and TERRALOG shall inform the other of any change in office location or contact information at least fifteen (15) calendar days in advance of such change(s).

**ARTICLE 20 - FORCE MAJEURE**

Modify this Article to read as follows:

In the event that performance on the part of any party hereto is delayed or suspended as a result of circumstances beyond the reasonable control and without the fault and negligence of said party, none of the parties shall incur any liability to the other parties as a result of such delay or suspension. Circumstances deemed to be beyond the control of the parties hereunder include, but are not limited to, acts of God or of the public enemy; insurrection; acts of the Federal Government or any unit of State or Local Government in either sovereign or contractual capacity; fires; floods; earthquakes; epidemics; quarantine restrictions; strikes; freight embargoes or delays in transportation, to the extent that they are not caused by the party's willful or negligent acts or omissions, and to the extent that they are beyond the party's reasonable control.

**ARTICLE 21 - SEVERABILITY**

No Change to this Article.

**ARTICLE 22 - DISPUTES**

No Change to this Article.

**ARTICLE 23 - ENTIRE AGREEMENT**

No Change to this Article.

**ARTICLE 24 - APPLICABLE LAW**

Modify this Article to read as follows:

Each party's performance hereunder shall comply with all applicable laws of the United States of America, the State of California, and the CITY, including but not limited to, laws regarding health and safety, labor and employment, wage and hours and licensing laws which affect employees. This Contract shall be enforced and interpreted under the laws of the State of California without regard to conflict of law principles. TERRALOG shall comply with new, amended, or revised laws, regulations, and/or procedures that apply to the performance of this Contract.

In any action arising out of this Contract, TERRALOG consents to personal jurisdiction, and agrees to bring all such actions, exclusively in state or federal courts located in Los Angeles County, California.

If any part, term or provision of this Contract is held void, illegal, unenforceable, or in conflict with any law of a federal, state or local government having jurisdiction over this Contract, the validity of the remaining parts, terms or provisions of the Contract shall not be affected thereby.

**ARTICLE 25 - CITY BUSINESS TAX REGISTRATION**

Modify this Article to read as follows:

If applicable, TERRALOG represents that it has obtained and presently holds the Business Tax Registration Certificate(s) required by the CITY's Business Tax Ordinance, Sections 21.00 et seq. of the Los Angeles Municipal Code. For the terms covered by this CONTRACT, TERRALOG shall maintain, or obtain as necessary, all such Certificates required of it under the Business Tax Ordinance and shall not allow any such Certificate to be revoked or suspended. Should such certificate(s) become suspended or revoked, it is TERRALOG's responsibility to report the matter immediately to the CITY Project Manager.

**ARTICLE 26 - BONDS**

No Change to this Article.

**ARTICLE 27 - CHILD CARE POLICY**

No Change to this Article.

**ARTICLE 28 - CHILD SUPPORT ASSIGNMENT ORDERS**

Modify this Article to read as follows:

This Contract is subject to the Child Support Assignment Orders Ordinance, Section 10.10 of the Los Angeles Administrative Code, as amended from time to time. Pursuant to the Child Support Assignment Orders Ordinance, CONTRACTOR will fully comply with all applicable State and Federal employment reporting requirements for CONTRACTOR'S employees. CONTRACTOR shall also certify (1) that the Principal Owner(s) of CONTRACTOR are in compliance with any Wage and Earnings Assignment Orders and Notices of Assignment applicable to them personally; (2) that CONTRACTOR will fully comply with all lawfully served Wage and Earnings Assignment Orders and Notices of Assignment in accordance with Section 5230, et seq. of the California Family Code; and (3) that CONTRACTOR will maintain such compliance throughout the term of this Contract.

Pursuant to Section 10.10(b) of the Los Angeles Administrative Code, the failure of CONTRACTOR to comply with all applicable reporting requirements or to implement lawfully served Wage and Earnings Assignment Orders or Notices of Assignment, or the failure of any Principal Owner(s) of CONTRACTOR to comply with any Wage and Earnings Assignment Orders or Notices of Assignment applicable to them personally, shall constitute a default by the CONTRACTOR under this Contract, subjecting this Contract to termination if such default shall continue for more than ninety (90) days after notice of such default to CONTRACTOR by the CITY.

Any subcontract entered into by CONTRACTOR, to the extent allowed hereunder, shall include a like provision for work to be performed under this Contract. Failure of CONTRACTOR to obtain compliance of its subcontractors shall constitute a default by CONTRACTOR under this Contract, subjecting this Contract to termination where such default shall continue for more than ninety (90) days after notice of such default to CONTRACTOR by the CITY.



CONTRACTOR certifies that, to the best of its knowledge, it is fully complying with the Earnings Assignment Orders of all employees, and is providing the names of all new employees to the New Hire Registry maintained by the Employment Development Department as set forth in Section 7110(b) of the California Public Contract Code.

**ARTICLE 29 - LIVING WAGE ORDINANCE & SERVICE CONTRACTOR WORKER RETENTION ORDINANCE**

Modify this Article to read as follows:

- A. Unless otherwise exempt in accordance with the provisions of this Ordinance, this Agreement is subject to the applicable provisions of the Living Wage Ordinance (LWO), Section 10.37 et seq. of the Los Angeles Administrative Code, as amended from time to time, which is attached hereto as Exhibit G and incorporated herein by this reference, and the Service Contractor Worker Retention Ordinance (SCWRO), Section 10.36 et seq., of the Los Angeles Administrative Code, as amended from time to time. These Ordinances require the following:
1. The CONTRACTOR assures payment of a minimum initial wage rate to employees as defined in the LWO and as may be adjusted each July 1 and provision of benefits of compensated and uncompensated days off and health benefits, as defined in the LWO.
  2. The CONTRACTOR further pledges that it will comply with federal law proscribing retaliation for union organizing and will not retaliate for activities related to the LWO. CONTRACTOR shall require each of its Subcontractors within the meaning of the LWO to pledge to comply with the terms of federal law proscribing retaliation for union organizing. CONTRACTOR shall receive and retain on file the executed pledges from each such Subcontractor within ninety (90) days of the execution of the Subcontract. CONTRACTOR'S evidence of executed pledges from each such Subcontractor shall fully discharge the obligation of the CONTRACTOR to comply with the provision in the LWO contained in Section 10.37.6(c) concerning compliance with such federal law.
  3. The CONTRACTOR, whether an employer, as defined in the LWO, or any other person employing individuals, shall not discharge, reduce in compensation, or otherwise discriminate against any employee for complaining to the CITY with regard to the employer's compliance or anticipated compliance with the LWO, for opposing

any practice proscribed by the LWO, for participating in proceedings related to the LWO, for seeking to enforce his or her rights under the LWO by any lawful means, or otherwise asserting rights under the LWO. CONTRACTOR shall post the Notice of Prohibition Against Retaliation provided by the CITY.

4. Any Subcontract entered into by the CONTRACTOR relating to this AGREEMENT, to the extent allowed hereunder, shall be subject to the provisions of LWO and the SCWRO, and shall incorporate the LWO and the SCWRO.
  5. The CONTRACTOR shall comply with all rules, regulations and policies promulgated by the CITY's designated administrative agency, which may be amended from time to time.
- B. Under the provisions of Section 10.36.3(c) and Section 10.37.6(c) of the Los Angeles Administrative Code, the CITY shall have the authority, under appropriate circumstances, to terminate this Agreement and otherwise pursue legal remedies that may be available if the CITY determines that the subject CONTRACTOR has violated provisions of the LWO and the SCWRO or both.
- C. Where under the LWO Section 10.37.6(d), the CITY's Designated Administrative Agency has determined (a) that the CONTRACTOR is in violation of the LWO in having failed to pay some or all of the living wage, and (b) that such violation has gone uncured, the CITY in such circumstances may impound monies otherwise due the CONTRACTOR in accordance with the following procedures. Impoundment shall mean that from monies due the CONTRACTOR, the CITY may deduct the amount determined to be due and owing by the CONTRACTOR to its employees. Such monies shall be placed in the holding account referred to in LWO Section 10.37.6(d) (3) and disposed of under procedures there described through final and binding arbitration. Whether the CONTRACTOR is to continue work following an impoundment shall remain in the sole discretion of the CITY. The CONTRACTOR may not elect to discontinue work either because there has been an impoundment or because of the ultimate disposition of the impoundment by the arbitrator.
- D. The CONTRACTOR shall inform employees making less than Twelve Dollars (\$12.00) per hour of their possible right to the federal Earned Income Credit (EIC). CONTRACTOR shall also

make available to employees the forms informing them about the EIC and forms required to secure advance EIC payments from CONTRACTOR.

**ARTICLE 30 - AMERICANS WITH DISABILITIES ACT**

Modify this Sub-Article to read as follows:

The CONTRACTOR hereby certifies that it will comply with the Americans with Disabilities Act 42 U.S.C. Section 12101 et seq. and its implementing regulations. The CONTRACTOR will provide reasonable accommodations to allow qualified individuals with disabilities to have access to and to participate in its programs, services and activities in accordance with the provisions of the Americans with Disabilities Act. The CONTRACTOR will not discriminate against persons with disabilities nor against persons due to their relationship to or association with a person with a disability. Any subcontract entered into by the CONTRACTOR, relating to this AGREEMENT, to the extent allowed hereunder, shall be subject to the provisions of this paragraph.

**ARTICLE 31 - EQUAL BENEFITS ORDINANCE**

Modify this Article to read as follows:

Unless otherwise exempted, this Contract is subject to the provisions of the Equal Benefits Ordinance (EBO), Section 10.8.2.1 of the Los Angeles Administrative Code, as amended from time to time.

- A. During the performance of the Contract, the CONTRACTOR certifies and represents that the CONTRACTOR will comply with the EBO.
- B. The failure of the CONTRACTOR to comply with the EBO will be deemed to be a material breach of this Contract by the CITY.
- C. If the CONTRACTOR fails to comply with the EBO the CITY may cancel, terminate or suspend this Contract, in whole or in part, and all monies due or to become due under this Contract may be retained by the CITY. The CITY may also pursue any and all other remedies at law or in equity for any breach.
- D. Failure to comply with the EBO may be used as evidence against CONTRACTOR in actions taken pursuant to the provisions of Los Angeles Administrative Code Section 10.40 et seq., Contractor Responsibility Ordinance.
- E. If the CITY'S Designated Administrative Agency determines that a CONTRACTOR has set up or used its contracting entity for the purpose of evading the intent of the EBO, the CITY may

terminate the Contract. Violation of this provision may be used as evidence against CONTRACTOR in actions taken pursuant to the provisions of Los Angeles Administrative Code Section 10.40 et seq., Contractor Responsibility Ordinance.

The CONTRACTOR shall post the following statement in conspicuous places at its place of business available to employees and applicants for employment:

“During the performance of a Contract with the City of Los Angeles, the Contractor will provide equal benefits to its employees with spouses and its employees with domestic partners. Additional information about the City of Los Angeles’ Equal Benefits Ordinance may be obtained from the Department of Public Works, Office of Contract Compliance at (213) 847-2625.”

**ARTICLE 32 - SLAVERY DISCLOSURE ORDINANCE**

No Change to this Article.

**ARTICLE 33 - WAIVER**

No Change to this Article.

**ARTICLE 34 - PROHIBITION AGAINST ASSIGNMENT OR DELEGATION**

No Change to this Article.

**ARTICLE 35 - DISCOUNT TERMS**

No Change to this Article.

**ARTICLE 36 - CONTRACTOR PERFORMANCE EVALUATION**

Modify this Article to read as follows:

At the end of this contract, the CITY will conduct an evaluation of the Contractor's performance. The CITY may also conduct evaluations of the Contractor's performance during the term of the contract. As required by Section 10.39.2 of the Los Angeles Administrative Code, evaluations will be based on a number of criteria, including the quality of the work product or service performed the timeliness of performance, financial issues, and the expertise of personnel that the Contractor assigns to the contract. A Contractor who receives a “Marginal” or “Unsatisfactory” rating will be provided with a copy

of the final CITY evaluation and allowed 14 calendar days to respond. The CITY will use the final CITY evaluation, and any response from the Contractor, to evaluate proposals and to conduct reference checks when awarding other personal services contracts.

**ARTICLE 37 - PERMITS**

No Change to this Article.

**ARTICLE 38 - CLAIMS FOR LABOR AND MATERIALS**

No Change to this Article.

**ARTICLE 39 - CONTRACTOR RESPONSIBILITY ORDINANCE**

Modify this Article to read as follows:

Unless otherwise exempt, this Contract is subject to the provisions of the Contractor Responsibility Ordinance, Section 10.40 et seq., of the Los Angeles Administrative Code, as amended from time to time, which requires CONTRACTOR to update its responses to the responsibility questionnaire within thirty calendar days after any change to the responses previously provided if such change would affect CONTRACTOR'S fitness and ability to continue performing this Contract.

In accordance with the provisions of the Contractor Responsibility Ordinance, by signing this Contract, CONTRACTOR pledges, under penalty of perjury, to comply with all applicable federal, state and local laws in the performance of this Contract, including but not limited to, laws regarding health and safety, labor and employment, wages and hours, and licensing laws which affect employees. CONTRACTOR further agrees to: (1) notify the CITY within thirty calendar days after receiving notification that any government agency has initiated an investigation which may result in a finding that CONTRACTOR is not in compliance with all applicable federal, state and local laws in performance of this Contract; (2) notify the CITY within thirty calendar days of all findings by a government agency or court of competent jurisdiction that CONTRACTOR has violated the provisions of Section 10.40.3(a) of the Contractor Responsibility Ordinance; (3) unless exempt, ensure that its subcontractor(s), as defined in the Contractor Responsibility Ordinance, submit a Pledge of Compliance to the CITY; and (4) unless exempt, ensure that its subcontractor(s), as defined in the Contractor Responsibility Ordinance, comply with the requirements of the Pledge of Compliance and the requirement to notify the CITY within thirty calendar days after any government agency or court of

competent jurisdiction has initiated an investigation or has found that the subcontractor has violated Section 10.40.3(a) of the Contractor Responsibility Ordinance in performance of the subcontract.

**ARTICLE 40 - BREACH**

No Change to this Article.

**ARTICLE 41 - MUNICIPAL LOBBYING ORDINANCE**

Add this Article to read as follows:

**Contractor Certification of Compliance with Lobbying Laws.** Any Contractor for the CITY shall submit a certification, on a form prescribed by the CITY Ethics Commission, that the Contractor acknowledges and agrees to comply with the disclosure requirements and prohibitions established in the Los Angeles Municipal Lobbying Ordinance, Exhibit J, if the Contractor qualifies as a lobbying entity under the Ordinance. The exemptions contained in Los Angeles Administrative Code Section 10.40.4 shall not apply to this subsection.

**ARTICLE 42 - INTELLECTUAL PROPERTY INDEMNIFICATION**

Add this Article to read as follows:

TERRALOG, at its own expense, undertakes and agrees to defend, indemnify, and hold harmless the CITY, and any of its Boards, Officers, Agents, Employees, Assigns, and Successors in Interest from and against all suits and causes of action, claims, losses, demands and expenses, including, but not limited to, attorney's fees (both in house and outside counsel) and cost of litigation (including all actual litigation costs incurred by the CITY, including but not limited to, costs of experts and consultants), damages or liability of any nature whatsoever arising out of the infringement, actual or alleged, direct or contributory, of any intellectual property rights, including, without limitation, patent, copyright, trademark, trade secret, right of publicity and proprietary information right by TERRALOG or its subcontractors of any tier, in performing the work under this Contract or as a result of the CITY'S actual or intended use of the Licensed Property (as defined in the Patent License Agreement, see Exhibit N) or of any Work Product (as defined in Article 15) furnished by TERRALOG, or its subcontractors of any tier, under this Agreement. Rights and remedies available to the CITY under this provision are cumulative of those provided for elsewhere in this Contract and those allowed under

the laws of the United States, the State of California, and the CITY. The provisions of this Article shall survive expiration or termination of this Contract.

**ARTICLE 43 – INTELLECTUAL PROPERTY WARRANTY**

Add this Article to read as follows:

The TERRALOG represents and warrants that its performance of all obligations under this Contract does not infringe in any way, directly or contributory, upon any third party's intellectual property rights, including, without limitation, patents, copyrights, trademarks, trade secrets, right of publicity and proprietary information.

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

CITY OF LOS ANGELES

TERRALOG TECHNOLOGIES USA, INC.

By: \_\_\_\_\_  
Cynthia M. Ruiz

By: Mike Bruno  
Mike Bruno

Title: President, Board of Public Works

Title: President

Date: \_\_\_\_\_

Date: Nov 7, 2009

By: [Signature]

Title: Commissioner, Board of Public Works

Date: 3-1-2010

By: \_\_\_\_\_

Title: Commissioner, Board of Public Works

Date: 3-1-2010

Approved as to Form:

Carmen A. Trutanich, City Attorney

ATTEST:

June Lagmay, City Clerk

By: [Signature]  
Christopher M. Westhoff

By: [Signature]

Title: Assistant City Attorney

Title: Deputy City Clerk

Date: 1/9/09

Date: 3/1/10





## EXHIBIT A –SCOPE OF WORK

MODIFY EXHIBIT A TO READ AS FOLLOWS:

TERRALOG shall:

1. Be responsible for coordinating all its services with the CITY and its personnel, unless otherwise noted;
2. Provide all the Slurry Disposal Unit (SDU) equipment, including pumping equipment, mix tank, piping from/to mix tank-pumps-well, conveyor/auger system from pit to mix tank, on pad control valves and sensors, data acquisition and control system, wiring between injection equipment and control room, equipment mobilization, installation and commission, and wiring between on-pad valves/sensors and control room. The processing and injection system must have sufficient capacity to inject a minimum volume of 200,000 Gallons of digested sludge and 88 wet tons of biosolids per operating day;
3. Conduct commissioning services of the Slurry Fracture Injection (SFI) Facility to be performed after construction and installation to ensure the SDU and other equipment are operating according to design intentions;
4. Maintain its SDU equipment throughout the Term of this Agreement, and provide all tools, parts, materials, supplies and personnel necessary to accomplish this;
5. Be responsible for the field operations related to the Deep Well Injection of biosolids using SFI technology including material handling at the SFI Facility, injection equipment, and maintaining the wells and associated systems within its jurisdiction at TIWRP. All activities shall be coordinated with the CITY's project manager as well as plant operation;
6. Provide monitoring and sampling of the injection and monitoring wells dictated by the EPA Permit for the SFI Operations, Part II Section C.8 of the permit no.CA5060001;
7. Provide personnel for field operations, field crews, and Project Technical Support, repair and maintenance of equipment;
8. Ensure safety of the site by complying with all Federal, State and Local rules and regulations, CITY's safety procedures, and SFI operation safety procedures;
9. Comply with the CITY's Biosolids Environmental Management Systems (EMS) as specified in Exhibit M of this agreement;
10. Provide project technical support services suitable to conduct SFI operations and monitor its performance. Specifically, such project technical support shall provide personnel and technical expertise to address the following issues:
  - Monitoring the injection operations, determining the formation response to the injection process in terms of formation pressurization, fracture orientation, and fracture containment

- Determining operating parameters that allow for sustained injection of material into an unconsolidated sand formation, facilitate containment of the injected material, and facilitate optimization of formation storage capacity;
  - Additional consultation on well injection, well integrity and well maintenance;
11. Provide additional engineering and regulatory support on an “as needed” basis related to the TIRE project that may be requested by the CITY, within its scope of qualifications;
  12. Provide an annual budget estimate for all down-hole monitoring equipment, third party testing, monitoring and analyses costs;
  13. Supply the CITY with weekly & monthly reports containing significant issues. Significant issues to be included in the report but not limited to are shown in Table A1.

**Table A1. Placement well SFI-1 proposed parameters and operating data**

|   |                          |
|---|--------------------------|
| Average daily rate of placement         | barrels per minute (bpm) |
| Average daily volume of injectate       | barrels (bbls)           |
| Maximum daily rate of placement         | barrels per minute (bpm) |
| Maximum daily volume of injectate       | barrels (bbls)           |
| Average daily biosolids placement       | wet tons                 |
| Average daily brine placement           | gallons                  |
| Average daily digested sludge placement | gallons                  |
| Slurry density                          | specific gravity         |
| Viscosity                               | TBD                      |
| Average placement pressure              | psig                     |
| Maximum placement pressure              | psig                     |
| Solids concentrations                   | %                        |

14. Supply the CITY with a copy of all reports and communications submitted to EPA on testing and sampling of injection and monitoring wells, including evaluation of containment of the injectate within the Target Zone;
15. Provide a copy and advise us in writing prior to publishing any report, article, presentation, patent request or publication;
16. Submit an annual summary report to CITY within thirty (30) days of each anniversary and a final summary report within sixty (60) days of the completion of the five (5) year TIRE project. The annual report to include but not limited to the following information: all data from the monthly reports, all injection material identified and quantified, the cost per ton of biosolids injection and per gallon of digested sludge injection, all modifications to the equipment and process, all findings and reports to EPA and other entities;
17. Maintain operating hours at least five (5) days a week;
18. Terralog shall provide training to City whenever City makes the request, subject to practical operating logistics during normal operating hours;

19. Terralog to relinquish all equipment and/or parts purchased on behalf of the SDU operation by the City independently or through Terralog. All equipment purchased by or for the City independently or through Terralog shall become the City's sole property. Terralog shall not claim ownership of any such equipment and/or parts at termination of this contract. This excludes leased or rental equipment by Terralog or equipment purchased independently by Terralog.

The CITY shall:

1. Provide suitable electrical and water supply at the site;
2. Deliver Biosolids to the injection site as prescribed in EXHIBIT B;
3. Deliver digested sludge (pipeline or vacuum trucks) to the injection site as prescribed in EXHIBIT B;
4. Deliver brine (pipeline or vacuum trucks) to the injection site;
5. Deliver thickened waste activated sludge (TWAS) to the injection site if this option is chosen as described in EXHIBIT B;
6. Deliver waste activated sludge (WAS) and raw sludge to the injection site if option chosen;
7. Deliver mix-water (high pressure effluent) to the injection site suitable for SFI operations, as may be required;
8. Provide site security;
9. Provide control room office space;
10. Provide and maintain all off-pad pipelines, control valves, sensors and wiring;
11. Provide and maintain a suitable project area and surface pad for TERRALOG to deliver and install its Slurry Disposal Equipment as described in Article 4 in this Agreement;
12. Have the right to provide equipment, labor and make capital improvements to the site, when such changes/improvements would reduce costs or improve operation. The monthly injection fee to Terralog shall be adjusted subject to mutual consent.

For clarification purposes but not limiting the generality of the foregoing, the following Table A.2 summarizes the roles and responsibilities of the CITY and TERRALOG:

**TABLE A.2: SUMMARY OF CITY AND TERRALOG RESPONSIBILITIES**

| <b>Description</b>  | <b>Financial Responsibility</b> | <b>Management Responsibility</b> |
|---|---------------------------------|----------------------------------|
| <b><i>Processing and Injection equipment</i></b>                                    |                                 |                                  |
| Pumping Equipment   | TERRALOG                        | TERRALOG                         |
| Mix Tank  | TERRALOG                        | TERRALOG                         |
| Piping from/to Mix Tank-Pumps-Well  | TERRALOG                        | TERRALOG                         |
| Conveyor/auger System from Pit to Mix Tank  | TERRALOG                        | TERRALOG                         |
| On-pad control valves and sensors   | TERRALOG                        | TERRALOG                         |
| On-pad Data Acquisition and Control System  | TERRALOG                        | TERRALOG                         |
| Wiring between injection equipment and control room                                 | TERRALOG                        | TERRALOG                         |
| Wiring between on-pad valves/sensors and control room                               | TERRALOG                        | TERRALOG                         |
| Equipment Mobilization  | TERRALOG                        | TERRALOG                         |
| Equipment Installation and Commission   | TERRALOG                        | TERRALOG                         |
| <b><i>Operations and Maintenance</i></b>  |                                 |                                  |
| Technical Engineering   | TERRALOG                        | TERRALOG                         |
| Data Analysis and Management  | TERRALOG                        | TERRALOG                         |
| Reporting and Documentation   | TERRALOG                        | TERRALOG                         |
| Regulatory Liaison  | TERRALOG                        | TERRALOG                         |
| Monitoring Systems Management   | TERRALOG                        | TERRALOG                         |
| Operations Management   | TERRALOG                        | TERRALOG                         |
| Field Operations  |                                 |                                  |
| Operating Labor   | TERRALOG                        | TERRALOG                         |
| On-pad Equipment Maintenance/Repair, Parts  | TERRALOG                        | TERRALOG                         |
| On-pad piping and sensors maintenance/repair  | TERRALOG                        | TERRALOG                         |
| Off-pad equipment, piping, sensors maintenance, repair, parts                       | CITY                            | CITY                             |
| Lubricants  | TERRALOG                        | TERRALOG                         |
| Phone Bills   | TERRALOG                        | TERRALOG                         |
| Site cleaning, trash removal  | TERRALOG                        | TERRALOG                         |
| Site Security   | CITY                            | CITY                             |
| Electricity Consumption   | CITY                            | CITY                             |
| Well Maintenance/Workovers  | TERRALOG                        | TERRALOG                         |
| 3rd Party Well logs, sampling, and testing  | TERRALOG                        | TERRALOG                         |
| 3rd Party Geophysical monitoring  | TERRALOG                        | TERRALOG                         |
| Well Abandonment  | CITY                            | TERRALOG                         |
| Trucking and Scheduling of Biosolids, etc.  | CITY                            | CITY                             |
| Conveyance of sludge, brine and other wastes to the site                            | CITY                            | CITY                             |
| Modifications to the physical site, including pad, sump, wells, power supply system | CITY                            | CITY                             |

## EXHIBIT B - COMPENSATION

Modify Exhibit B to read as follows:

### Fee Schedule for Services

Payment to TERRALOG for services under this Amendment will begin on August 16, 2009 or the execution day of this amendment, whichever is later.

The CITY will pay TERRALOG for SDU operation, Project Management, and Prime Contractor Services as Stipulated in this Agreement, in accordance with the following fee schedule below:

#### **1. Mobilization, Transport, and Set-up Fee**

Mobilization, transport and set-up for the initial equipment with capacity up to 150 tons/day have been paid under the start-up agreement. Mobilization for expanded equipment that may be requested by the City will be paid at actual cost.

#### **2. Equipment Supply and Injection Fee for Operations**

The CITY shall pay to TERRALOG each calendar month or prorated period thereof a fee equal to \$165,000 per month ("Monthly Injection Fee") for supplying personnel and equipment to inject at the rate of 200,000 gallons of digested sludge and 88 wet tons per operating day.

Monthly Injection Fee shall be increased to \$215,000 per month, once the second set of injection equipments are installed at the written request of the CITY with capacity to inject at a rate of 220,000 gallons of digested sludge and 250 wet tons of biosolids per Operating Day.

If during the period in which a Monthly Injection Fee of \$165,000 is in force, an average volume of 66 wet tons of biosolids and 160,000 gallons of digested sludge per Operating Day could not be sustained for a period of four (4) weeks, the CITY and TERRALOG will re-negotiate for a new price or the CITY may exercise Article 7 of this contract agreement.

If during the period in which a Monthly Injection Fee of \$215,000 is in force, an average volume of 200 wet tons of biosolids and 176,000 gallons of digested sludge per Operating Day could not be sustained for a period of four (4) weeks, the CITY and TERRALOG will re-negotiate for a new price or the CITY may exercise Article 7 of this contract agreement.

The formulas below shall be used to calculate average daily injections:

Average daily sludge injected = All sludge injected from Monday thru Sunday divided by up to 5 operating days

Average daily biosolids injected = All biosolids injected from Monday thru Sunday divided by up to 5 operating days

### **3. Monitoring, Well Maintenance, Well Logging, Sampling and Analysis, Simulation, Regulatory Support, and Technology License Fee (Structured Fee)**

The CITY shall pay to TERRALOG a total Structured Fee of \$6,020,710 for the duration of the contract in return for the following services and licenses:

1. Microseismic and Tiltmeter Monitoring and Reporting as required by EPA;
2. All additional monitoring required per EPA permit (including temperature and pressure);
3. All Logging required per EPA permit;
4. All well workovers and maintenance (chemical treatment, perforations, cleanouts, etc.);
5. All fluid and gas sampling and analysis required by EPA;
6. Fracture modeling and gas migration modeling required by EPA;
7. Any additional EPA regulatory support required by the project;
8. Engineering and contract management for 3<sup>rd</sup> well construction and installation.

Structured Fee of \$128,100 will be paid each month for 47 months for a total of \$6,020,710.

In the event that Tiltmeter services are waived by the EPA or the City, the Structured Fee shall be reduced by \$25,000 per month plus 8.5%.

After 47 payments of the Structured Fee or the Modified Structured Fee, Terralog shall grant to the City a non-exclusive, non-expiring, license to its patented technology related to "Method of Biosolids Disposal and Methane Generation" as specified in Exhibit N.

### **4. Regulatory Support and Miscellaneous Engineering Support**

TERRALOG shall provide additional regulatory support and miscellaneous engineering tasks requested by the CITY on an "as-needed" basis up to eight (8) hours a day at an hourly fee of \$112.50 for time devoted by professional staff.

## **5. 3<sup>rd</sup> Party Contract Management**

TERRALOG shall provide oversight and contract management for 3<sup>rd</sup> party contracts associated with drilling any additional wells and/or with any additional projects requested by the CITY or required by regulatory agencies. The CITY shall pay TERRALOG the actual 3<sup>rd</sup> party contract costs plus 8.5% for contract management and administrative fee. Such third party contracts may include, but not limited to efforts related to:

- pad construction or modification;
- pipeline construction or modification;
- material supply for wells, pipelines, or TIRE facility (excluding TERRALOG's injection equipment);
- any third party analysis or research not included in Structured Fee;
- other third party contracts requested by CITY.

## **6. Demobilization and Transport Fee**

In the event the project is terminated prior to expiration of the contract as stated in Article 7, the demobilization and transport fees shall not exceed \$75,000.

## **7. Annual Cost Adjustment in Accordance with CPI**

Commencing on the anniversary of execution of this Amendment, and on an annual basis thereafter, the Monthly Injection Fee shall be adjusted in accordance with the change in Consumer Price Index (CPI-U) for the Los Angeles-Long Beach area for the prior 12-month period as published by the US Bureau of Labor Statistics. This adjustment shall be limited to a maximum of 5%.

## **8. Costs payable by CITY**

- Drilling of any additional wells.
- Physical site modifications to pad, sump, roadways, and electrical supply system.

## **9. Costs payable by TERRALOG**

- All costs associated with surface processing and injection equipment. This includes but not limited to all parts and repairs for equipments above the ground, including mix tank, piping on pad, transfer pumps, injection pumps, screens on pad, and to comply with applicable laws and regulations related to such surface equipment and injection operation.
- All downhole monitoring equipment, all third party monitoring, sampling and analysis costs including tilt-meters and micro-seismic analysis, gas sampling collection and analyses, and

all other monitoring, testing and analysis required by the regulatory agencies related to the TIRE project.

- All well workovers and well maintenance (excluding drilling of new wells).

#### 10. Biosolids wetcake equivalent

Sludge injected counts as part of the minimum tonnage. The equivalent wetcake is calculated based on the TIWRP total digested sludge and biosolids for the period of July 2007 through June 2008:

| Gallons of sludge | Tons of Equivalent wetcake |
|-------------------|----------------------------|
| 25,000            | 6.7                        |
| 50,000            | 13.4                       |
| 75,000            | 20.1                       |
| 100,000           | 26.8                       |
| 125,000           | 33.5                       |
| 150,000           | 40.2                       |
| 175,000           | 46.9                       |
| 200,000           | 53.6                       |



## EXHIBIT C - INSURANCE REQUIREMENTS

Rev. 6/09

### INSTRUCTIONS FOR SUBMITTING PROOF OF INSURANCE TO THE BOARD OF PUBLIC WORKS

(Share this information with your insurance agent or broker.)

#### CONTACT INFORMATION:

Direct all correspondence, questions, and request for additional forms, etc., to the contacts listed below. To download Insurance Forms please go to [www.bpw.lacity.org/](http://www.bpw.lacity.org/). Insurance documents can be mailed, faxed or sent electronically to:

Insurance Coordinator  
Grace Hernandez  
[Grace.Hernandez@lacity.org](mailto:Grace.Hernandez@lacity.org)

Board of Public Works  
200 N. Spring Street,  
Rm., 355, City Hall  
Los Angeles, CA 90012

Phone: 213-978-0264  
Fax: 213-978-0278  
[www.bpw.lacity.org/](http://www.bpw.lacity.org/)

**1. Agreement/Reference** All evidence of insurance must identify the nature of your business with the CITY. **Important:** Clearly show any assigned number of a bid, contract, lease, permit, etc., or give the project name and the job site or street address to ensure that your submission will be properly credited. Provide the **types of coverage, and the minimum dollar amounts** specified on the Required Insurance and Minimum Limits sheet (Form Gen. 146) Included in your CITY documents.

**2. When to submit** Normally, no work may begin until the Office of the City Administrative Officer, Risk Management Insurance approval number has been obtained, so documents should be submitted as early as practicable. For **As-needed Contracts**, insurance need not be submitted until a specific job has been awarded. **Design Professionals** coverage for new construction work may be submitted simultaneously with final plans and drawings, but before construction commences.

#### 3. Acceptable Evidence and Approval:

An Insurance Industry Certificate of Insurance (such as an **ACORD** Certificate) containing the following is the preferred form of evidence of insurance:

- A provision for a (30) thirty-day written cancellation notice and (10) ten-day for non-payment of premium;
- A written endorsement naming the *CITY as Additional Insured* in the **Description of Operations** box on the certificate.
- An attached *hard copy* of the Additional Insured Endorsement of the policy, naming the CITY An additional insured, completed by your insurance company or its designee.
- If the policy includes an automatic or blanket additional insured endorsement, the ACORD Certificate must state that the CITY is covered by this endorsement.
- For property Insurance, an endorsement naming the CITY an Additional Named Insured and As a Loss Payee as Its Interests May Appear is required on the policy.
- All evidence of insurance must be authorized and signed by a person with authority to bind Coverage, whether that is the authorized agent/broker or insurance underwriter.

**Acceptable Alternatives** to Insurance Industry Certificates of Insurance:

- **Binders and Cover Notes** are acceptable as Interim evidence for up to 90 days from date of approval.

**Additional Insured Endorsements DO NOT apply to the following:**

- Indication of compliance with statute, such as Workers' Compensation Law or the California Financial Responsibility Law for Automobile Liability.
- Professional Liability Insurance.

**Completed Insurance Industry Certificates of Insurance** can be sent electronically to ([Grace.Hernandez@lacity.org](mailto:Grace.Hernandez@lacity.org)) or faxed to the Office of the Board of Public Works Insurance Section, to **(213) 978-0278**. Electronic submission is the preferred method of submitting your documents. **Verification of approved insurance** may be obtained by checking the Office of the City Administrative Officer, Risk Management, Insurance & Bonds Compliance System at <http://ibts.lacity.org>.

**4. Renewal:** When an existing policy is renewed (annually, or anytime your policy number changes), please submit an Insurance Industry Certificate of Insurance with a renewal endorsement of Additional Insured attached.

**5. Alternative Programs/Self-Insurance** Risk financing mechanisms such as Risk Retention Groups, Risk Purchasing Groups, off-shore carriers, captive Insurance programs and self- Insurance programs are subject to separate approval after the CITY has reviewed the relevant audited financial statements. To initiate a review for approval of your program, you should complete and submit the Applicant's Declaration of Self Insurance form to ([Grace.Hernandez@lacity.org](mailto:Grace.Hernandez@lacity.org)) the Office of the Board of Public Works, Insurance Section.

**6. General Liability** insurance covering your operations (and products, where applicable) is required whenever the CITY is at risk of third-party claims which may arise out of your work or your presence or special event on CITY premises. Sexual Misconduct coverage is a required coverage when the work performed involves minors. Fire Legal Liability is required for persons occupying a portion of CITY premises. (Information on two City Insurance programs, the SPARTA program, an optional source of low-cost insurance which meets most minimum requirements, and PROMPT COVER, which provides liability coverage for short-term special events on CITY premises or streets, is available at [www.2sparta.com](http://www.2sparta.com), or by calling (800) 420-0555.)

**7. Automobile Liability** insurance is required only when vehicles are used in performing the work of your Contract or when they are driven off-road on CITY premises; it is not required for simple commuting unless CITY is paying mileage. However, compliance with California law requiring auto liability insurance is a contractual requirement.

**8. Errors and Omissions** coverage will be specified on a project-by-project basis if you are working as a licensed or other professional. The length of the claims discovery period required will vary with the circumstances of the individual job.

**9. Workers' Compensation and Employer's Liability** insurance are not required for single-person contractors. However, under state law these coverages (or a copy of the state's Consent To Self Insure) must be provided if you have any employees at any time during the period of this contract. Contractors with no employees must complete a Request for Waiver of Workers' Compensation Insurance Requirement form from [www.bpw.lacity.org/](http://www.bpw.lacity.org/). A Waiver of Subrogation on the coverage is required only for jobs where your employees are working on CITY premises under hazardous conditions, e.g., uneven terrain, scaffolding, caustic chemicals, toxic materials, power tools, etc. The Waiver of Subrogation waives the insurer's right to recover (from the CITY) any workers' compensation paid to an injured employee of CONTRACTOR/CONSULTANT.

**10. Property Insurance** is required for persons having exclusive use of premises or equipment owned or controlled by the CITY. Builder's Risk/Course of Construction is required during construction projects and should include building materials in transit and stored at the project site. **Please note:** The CITY must be named as Additional Insured as well as Loss Payee, endorsements are required.

### Required Insurance and Minimum Limits

Name: Terraog Technologies USA Date: 04/22/2008

Agreement/Reference: Terminal Island Renewable Energy Project

Evidence of coverages checked below, with the specified minimum limits, must be submitted and approved prior to occupancy/start of operations. Amounts shown are Combined Single Limits ("CSLs"). For Automobile Liability, split limits may be substituted for a CSL if the total per occurrence equals or exceeds the CSL amount.

|   | Limits   |                    |    |                  |  |    |                    |
|---|--|--------------------|----|------------------|--|----|--------------------|
| <input checked="" type="checkbox"/> <b>Workers' Compensation - Workers' Compensation (WC) and Employer's Liability (EL)</b>   | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;"></td> <td style="width: 15%; text-align: right;">WC</td> <td style="width: 15%; text-align: right;"><u>Statutory</u></td> </tr> <tr> <td></td> <td style="text-align: right;">EL</td> <td style="text-align: right;"><u>\$1,000,000</u></td> </tr> </table> |                    | WC | <u>Statutory</u> |  | EL | <u>\$1,000,000</u> |
|   | WC   | <u>Statutory</u>   |    |                  |  |    |                    |
|   | EL   | <u>\$1,000,000</u> |    |                  |  |    |                    |
| <input checked="" type="checkbox"/> Waiver of Subrogation in favor of City <span style="margin-left: 100px;"><input type="checkbox"/> Longshore &amp; Harbor Workers</span><br><input type="checkbox"/> Jones Act   |  |                    |    |                  |  |    |                    |
| <input checked="" type="checkbox"/> <b>General Liability</b>  | <u>\$1,000,000</u>   |                    |    |                  |  |    |                    |
| <input checked="" type="checkbox"/> Products/Completed Operations <span style="margin-left: 100px;"><input type="checkbox"/> Sexual Misconduct</span><br><input checked="" type="checkbox"/> Fire Legal Liability<br><input type="checkbox"/>   |  |                    |    |                  |  |    |                    |
| <input checked="" type="checkbox"/> <b>Automobile Liability</b> (for any and all vehicles used for this contract, other than commuting to/from work)  | <u>\$1,000,000</u>   |                    |    |                  |  |    |                    |
| <input checked="" type="checkbox"/> <b>Professional Liability</b> (Errors and Omissions)  | <u>\$2,000,000</u>   |                    |    |                  |  |    |                    |
| Discovery Period <u>12 Months After Completion of Work or Date of Termination</u>   |  |                    |    |                  |  |    |                    |
| <input type="checkbox"/> <b>Property Insurance</b> (to cover replacement cost of building - as determined by insurance company)   |  |                    |    |                  |  |    |                    |
| <input type="checkbox"/> All Risk Coverage <span style="margin-left: 100px;"><input type="checkbox"/> Boiler and Machinery</span><br><input type="checkbox"/> Flood <span style="margin-left: 100px;"><input type="checkbox"/> Builder's Risk</span><br><input type="checkbox"/> Earthquake <span style="margin-left: 100px;"><input type="checkbox"/></span> |  |                    |    |                  |  |    |                    |
| <input checked="" type="checkbox"/> <b>Pollution Liability</b>  | <u>\$1,000,000</u>   |                    |    |                  |  |    |                    |
| <input type="checkbox"/>  |  |                    |    |                  |  |    |                    |
| <input type="checkbox"/> <b>Surety Bonds - Performance and Payment (Labor and Materials) Bonds</b>  | 100% of the contract price   |                    |    |                  |  |    |                    |
| <input type="checkbox"/> <b>Crime Insurance</b>   |  |                    |    |                  |  |    |                    |

Other: 1) If contractor is a sole proprietor and decides to not cover herself/himself, please complete the form entitled "Request For Waiver of Workers' Compensation" located at www.lacity.org/cao/risk.  
2. Auto Liability in compliance with the financial responsibility laws of the State of California.  
Provided to Nader Tashakor

**EXHIBIT D - TASK AGREEMENT FORM (TAF)**

No Change to this exhibit.

**EXHIBIT E - CHILD SUPPORT**

This exhibit is no longer needed.

**EXHIBIT F - AMERICANS WITH DISABILITIES ACT**

This exhibit is no longer needed.

**EXHIBIT G - EQUAL BENEFITS ORDINANCE**

No Change to this exhibit.

**EXHIBIT H - LIVING WAGE ORDINANCE**

No Change to this exhibit.

**EXHIBIT I - MBE/WBE/OBE**

No Change to this exhibit.

**EXHIBIT J - MUNICIPAL LOBBYING ORDINANCE BIDDER CERTIFICATION**

No Change to this exhibit.

**EXHIBIT K - NONDISCRIMINATION, EQUAL EMPLOYMENT, AFFIRMATIVE ACTION PLAN**

Updated documents included.

**EXHIBIT L - SLAVERY DISCLOSURE ORDINANCE**

No Change to this exhibit.

**EXHIBIT M - ENVIRONMENTAL MANAGEMENT SYSTEM**

No Change to this exhibit.

## EXHIBIT N - PATENT LICENSE AGREEMENT

### PATENT LICENSE

THIS PATENT LICENSE AGREEMENT (this "**LICENSE AGREEMENT**") is entered into as of the \_\_\_th day of \_\_\_\_\_, 2009 (the "**Effective Date**"), by and between **TERRALOG TECHNOLOGIES USA, INC.**, a California Corporation, with offices as 332 East Foothill Boulevard, Arcadia, California 91006, hereinafter "**TERRALOG**" and **THE CITY OF LOS ANGELES**, with offices at 12000 Vista del Mar, Playa del Rey, California 90293, hereinafter the "**CITY**"

### RECITALS

WHEREAS, TERRALOG and the CITY have entered into Contract No. C-109787, as amended from time to time, whereby TERRALOG participated in the Terminal Island Renewable Energy Project, hereinafter the "T.I.R.E. Project," for the purpose of injecting the CITY's biosolids into the ground and, potentially, converting the CITY's biosolids to methane by natural biodegradation;

WHEREAS TERRALOG has developed methods disclosed in United States Patent Nos. 6,287,248, 6,409,650, 6,491,616 and 6,962,561, which describe and claim the technology utilized in the T.I.R.E. project;

WHEREAS TERRALOG may have filed, or caused to be filed, additional United States Patent Applications, and may hereafter file, or cause to be filed, additional United States Patent Applications which describe and claim any aspect of the "Method for Biosolids Disposal and Methane Generation" described in the above-listed patents or utilized as part of the T.I.R.E. Project, as well as improvements to that technology;

WHEREAS, TERRALOG desires to grant to the CITY a non-exclusive and non-transferable right and license to use the Licensed Property (as hereinafter defined) at the Terminal Island Treatment Plant and at the Hyperion Treatment Plant and any other facilities owned or operated by the CITY that inject biosolids into the ground;

WHEREAS, the CITY desires to obtain the non-exclusive and non-transferable right and license to use the Licensed Property as described herein;

WHEREAS, TERRALOG and the CITY agree that the purpose of this License Agreement is for TERRALOG or its Assignee to grant to the CITY an irrevocable, non-exclusive and non-transferrable license to utilize all rights that Terralog or its Assignee now has, or may hereafter acquire, to the technology being used and developed in the T.I.R.E. project, including improvements to that technology hereafter developed, for use by the CITY at facilities owned or operated by the CITY that inject biosolids into the ground; and

NOW THEREFORE, contingent on payment as set forth in Contract License C-109787 and further herein, mutual covenants herein contained, and intending to be legally bound hereby, TERRALOG and the CITY hereby agree as follows:

## ARTICLE I – DEFINITIONS

1.1 Patents. "Patents" mean United States Patent Nos. 6,287,248, 6,409,650, 6,491,616 and 6,962,561, as well as any other patents now existing or hereafter granted which are owned or licensed by TERRALOG, which claim or describe any aspect of the "Method for Biosolids Disposal and Methane Generation" described in the above-listed patents or utilized as part of the T.I.R.E. Project including improvements to that technology hereafter developed.

1.2 Effective Date. The term "Effective Date" is the date in which Contract C-109787 and this License Agreement are executed.

1.3 Licensed Property. "Licensed Property" means the Patents listed or described in Article 1.1 above, as well as all other patents and patent applications, including but not limited to all continuations, continuation-in-parts, divisionals, reexaminations, reissues, and provisionals, that claim or describe any aspect of the "Method for Biosolids Disposal and Methane Generation" described in the Patents or utilized as part of the T.I.R.E. Project, including improvements to that technology hereafter developed. Licensed Property includes patents or patent applications that may be filed, issued, or acquired subsequent to the execution of this License Agreement.

Licensed Property further includes all other intellectual property rights associated with the "Method for Biosolids Disposal and Methane Generation" described in the Patents or utilized as part of the T.I.R.E. Project, including improvements to that technology hereafter developed, including but not limited to, all copyright, trademark, service marks, and trade secrets.

Licensed Property further includes any patent or other intellectual property rights licensed to TERRALOG or its Assignee, including but not limited to any rights for injection technology, for utilizing the "Method for Biosolids Disposal and Methane Generation" described in the Patents or utilized as part of the T.I.R.E. Project, including improvements to that technology hereafter developed, which TERRALOG or its Assignee acquires by license or other means.

1.4 Licensed Territory. "Licensed Territory" means any facility either owned or operated by the City that includes the injection of biosolids into the ground and, potentially, converting the biosolids to methane, including but not limited to the City of Los Angeles Terminal Island Treatment Plant and the City of Los Angeles Hyperion Treatment Plant.

1.5 Date of Payment Satisfaction. "Date of Payment Satisfaction" means the date consideration totals of Six Million Twenty Thousand Seven Hundred and Ten Dollars (\$6,020,710.00).

1.6 Term. "Term" means from the Date of Payment Satisfaction until the expiration date of the last to expire patent or other intellectual property right of the Licensed Property.

1.7 Person. "Person" means any natural person, corporation, company, partnership, limited partnership, limited liability company, firm, association, trust, government, governmental agency, or any other entity, whether acting in an individual, fiduciary or other capacity.

1.8 Transfer. Transfer means assigned, pledged, sold, mortgaged, sublicensed or otherwise hypothecated or disposed of, either directly or indirectly, in whole or in part, by operation of law or otherwise.

1.9 Assignee. Assignee shall mean any affiliated entity to TERRALOG to which Contract C109787 is subsequently assigned by mutual consent between TERRALOG and CITY.

## **ARTICLE II – LICENSES**

2.1 License Grant. Subject to the terms and conditions set forth in this License Agreement, TERRALOG or its Assignee hereby grants to CITY, and CITY hereby accepts, an irrevocable, non-exclusive, and non-transferable, license of the Licensed Property, to solely use the Licensed Property at the Licensed Territory. No license is granted hereunder for the use of the Licensed Property for any purpose other than as specifically set forth in this Section 2.1.

2.2 TERRALOG retains and reserves any and all rights to use and exploit, and to grant to any other Person the right to use and exploit, the Licensed Property.

2.3 Transfer of License. The license granted herein is strictly personal to CITY. Neither this Agreement nor any of the rights granted to or obligations undertaken by CITY hereunder may be transferred to any Person without the prior written approval of TERRALOG, which may be withheld in TERRALOG's sole discretion; any attempted transfer shall be null, void, and of no force or effect.

## **ARTICLE III – CONSIDERATION**

3.1 In consideration of the License Agreement to be delivered by TERRALOG or its Assignee, which are contingent and thus in effect on the Date of Payment Satisfaction, CITY provides forty-eight (47) monthly payments of One-Hundred Two Thousand (\$128,100.00), or payments equal to Six Million Twenty Thousand Seven Hundred and Ten dollars (\$6,020,710.00), as set forth in Contract C-109787,

Amendment 2, Exhibit B – Compensation, whichever occurs first, on or after the Effective Date as set forth herein.

#### **ARTICLE IV – WARRANTIES AND INDEMNIFICATION**

4.1 Full Power and Authority. Each of TERRALOG and CITY hereby represents and warrants to the other party that: (I) TERRALOG or its Assignee has the full and complete right to license the Licensed Property to CITY, (ii) TERRALOG and CITY have the full corporate power and authority to enter into this License Agreement and to carry out its obligations hereunder; (iii) this License Agreement has been duly authorized by all necessary action on its part; (iv) this License Agreement has been duly executed and delivered by its authorized representative.

4.2 Warranty. TERRALOG or its Assignee represents and warrants that CITY'S use of the Licensed Property will not infringe in any way, directly or contributorily, upon any third party's intellectual property rights, including without limitation, patents, copyrights, trademarks, trade secrets, right of publicity and proprietary information.

4.3. Warranty Exclusions. Except as expressly set forth herein, TERRALOG disclaims any and all promises, representations, and warranties, expressed or implied, with respect to the Licensed Property provided under the this Agreement, including but not limited to, any and all implied warranties of merchantability, fitness for a particular use.

4.4 Infringement. TERRALOG or its Assignee agrees to defend, indemnify, and hold harmless the CITY, and any of its Boards, Officers, Agents, Employees, Assigns, and Successors in Interest from and against all suits and causes of action, claims, losses, demands and expenses, including, but not limited to, attorney's fees (both in house and outside counsel) and cost of litigation (including all actual litigation costs incurred by the CITY, including but not limited to, costs of experts and consultants), damages or liability of any nature whatsoever arising out of the infringement, actual or alleged, direct or contributory, of any intellectual property rights, including, without limitation, patent, copyright, trademark and trade secret right arising out of the CITY'S use of the Licensed Property. Rights and remedies available to the CITY under this provision are cumulative of those provided for elsewhere in this License Agreement or Contract No. C-109787 and those allowed under the laws of the United States, the State of California, and the CITY. The provisions of this section shall survive expiration or termination of this License Agreement.

4.5 CITY, by execution hereof, acknowledges, covenants and agrees that it has not been induced in any way to enter into this License Agreement, and further warrants and represents that: (i) it has conducted sufficient due diligence with respect to all items and issues, including laws and regulatory issues pertinent to the implementation of the Licensed Property, and pertaining to this Article 4 and all other matters pertaining to this License Agreement; and (ii) CITY has adequate knowledge and expertise, or has utilized



knowledgeable and expert consultants, to adequately conduct the due diligence, and agrees to accept all risks inherent herein.

#### **ARTICLE V – LIMITATION OF LIABILITY; EXCLUSION OF CONSEQUENTIAL DAMAGES**

5.1. Except for the Indemnification obligation under Section 4.3, in no event shall either party be liable to the other for any consequential, indirect, special, or incidental damages, or damages for loss of profits, revenue, or use. The foregoing limitation of liability and exclusion of certain damages shall apply regardless of the success or effectiveness of other remedies. This limitation of liability allocates the risks between the parties to this agreement and the consideration reflects this allocation to which the parties have agreed.

#### **ARTICLE VI – PROTECTION AND DEFENSE OF LICENSED PROPERTY**

6.1 It is not the CITY's responsibility to defend any of the Licensed Property under this License Agreement.

6.2 Maintenance Fees. TERRALOG or its Assignee hereby represents and warrants to the CITY that TERRALOG or its Assignee will maintain correspondence with the United States Patent and Trademark Office, hereinafter "USPTO," and satisfy the necessary maintenance fees and associated documents required by the USPTO to maintain the Licensed Property until their respective dates of expiration.

#### **ARTICLE VII – TERM AND TERMINATION**

7.1 Term. The term of this License Agreement shall commence on the Date of Payment Satisfaction and shall continue in full force until the expiration date of the last intellectual property right of any right comprising the Licensed Property.

#### **ARTICLE VIII – MISCELLANEOUS**

8.1 Relationship of Parties. Neither party will act or represent or hold itself out as having authority to act as an agent or partner of the other party, or in any way bind or commit the other party to any obligations. Nothing contained in this License Agreement will be construed as creating a partnership, joint venture, agency, trust or other association of any kind, each party being individually responsible only for its obligations as set forth in this License Agreement. The employees, consultants or contractors of CITY will remain employees, consultants or contractors of CITY, and TERRALOG shall not have any responsibility for such employees, consultants or contractors. The employees, consultants or contractors of TERRALOG will remain employees, consultants or contractors of TERRALOG, and CITY shall not have any responsibility for such employees, consultants or contractors.

8.2 In addition, except as specifically stated herein, nothing contained in this License Agreement shall obligate TERRALOG with respect to any license, contract, or other arrangement, obligation or responsibility entered into by CITY with respect to Licensed Property prior to the Effective Date of this License Agreement and TERRALOG shall have no liability, obligation or other responsibility to CITY or any other party with respect to licenses, contracts, or other arrangements, obligations or responsibilities entered into or assumed by CITY with respect to Licensed Property.

8.3 Notices. Notice under this License Agreement shall be in writing and shall be effective when actually delivered. If mailed, notice shall be deemed effective two business days after mailing as registered or certified mail, postage prepaid, directed to the other party at the address set forth below or such other address as the party may indicate by written notice to the other.

As to -----:-----

**TERRALOG TECHNOLOGIES USA, INC.**, a  
California Corporation, with offices at  
332 East Foothill Boulevard  
Arcadia, California 91006  
Attention: Michael S. Bruno  
Facsimile: (626) 305-8462  
Email: [msbruno@terralog.com](mailto:msbruno@terralog.com)

As to -----:-----

**THE CITY OF LOS ANGELES**  
Attention: Mark Starr, Sr. Environmental Engineer  
Hyperion Treatment Division  
12000 Vista del Mar  
Playa del Rey, California 90293  
Facsimile: (310) 648-5070  
Email: [mark.starr@lacity.org](mailto:mark.starr@lacity.org)

8.4 Waiver. Any waiver by either party of the breach of any provision of this License Agreement by the other party shall not operate or be construed as a waiver of any subsequent breach.

8.5 Assignment. This License Agreement may not be assigned or otherwise transferred (in whole or in part) by CITY without the prior written consent of the TERRALOG.

8.6 Governing Law; Jurisdiction. This License Agreement shall be governed by and construed in accordance with the laws of the State of California.

8.7 Entire Agreement. This License Agreement and Contract C-109787, as amended, contain the entire understanding between and among the parties with respect to the subject

matter hereof and supersedes any prior understandings and licenses among them respecting the subject matter of this License Agreement.

8.8 License Agreement Binding. This License Agreement shall be binding upon the successors and assigns of the parties hereto.

8.9 Further Action. The parties shall execute and deliver all documents, provide all information and take or forbear from all such action as may be reasonably necessary or appropriate to achieve the purpose of this License Agreement.

8.10 Good Faith, Cooperation and Due Diligence. The parties covenant, warrant and represent to each other good faith, complete cooperation, due diligence and honesty in fact in the performance of all obligations of the parties pursuant to this License Agreement. All promises and covenants are mutual and dependent.


8.11 Parties in Interest. Nothing herein shall be construed to be to the benefit of any third party, nor is it intended that any provision shall be for the benefit of any third party.

8.12 Savings Clause. If any provision of this License Agreement, or the application of such provision to any person or circumstance, shall be held invalid, the remainder of this License Agreement, or the application of such provision to persons or circumstances other than those as to which it is held invalid, shall not be affected thereby.

8.13 Titles not to Affect Interpretation. The titles of the sections and subsections in this License Agreement are inserted for convenience of reference only, and they neither form a part of this License Agreement nor are they to be used in the construction or interpretation thereof.

8.14 Modification. No change or modification of this License Agreement shall be binding upon the parties hereto, unless it shall be in writing and signed by both parties.

IN WITNESS WHEREOF, the parties hereto have caused their duly authorized representatives to execute this License Agreement as of the Effective Date.

\_\_\_\_\_  
**TERRALOG TECHNOLOGIES USA, INC**  
By:   
Its: President  
Date: Nov 7, 2009

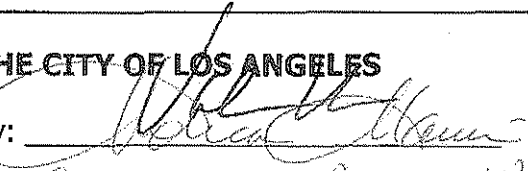
\_\_\_\_\_  
**THE CITY OF LOS ANGELES**  
By:   
Its: Commissioner, Board of Public Works  
Date: MARCH 1, 2010

EXHIBIT O - CONTRACT HISTORY

CITY OF LOS ANGELES CONTRACT HISTORY

The City Council passed a resolution on July 21, 1998 requiring that all proposed vendors supply in their proposal or bid, a list of all City of Los Angeles contracts held by the bidder or any affiliated entity during the preceding 10 years. Use the space below to list all such contracts. Include the dates of the contract, the services or goods provided, the amount of the contract, and the contract number. If the bidder or any affiliated entity has held no City of Los Angeles contracts during the preceding 10 years, state so in the space below. Use the back of the page and additional pages as needed.

LA City Contract C-109787, LA Biosolids Contract since 2006

Terralog Technologies USA, Inc  
Name of Organization

Michael J Bruno  
Signature

Michael Bruno  
Print Name

President  
Title

Oct. 22nd, 2009  
Date

**EXHIBIT P - LA RESIDENCE INFORMATION**

Los Angeles Residence Information

The City Council in consideration of the importance of preserving and enhancing the economic base and well-being of the city encourages businesses to locate or remain within the City of Los Angeles. This is important because of the jobs businesses generate and for the business taxes they remit. The City Council, on January 7, 1992, adopted a motion that requires proposers to state their headquarters address as well as the percentage of their workforce residing in the City of Los Angeles.

Organization: Terralog Technologies USA Inc.

I. Corporate or Main Office Address:

332 E. Foothill Blvd., Suite B

Arcadia, CA 91006

II Total Number of Employees in Organization: 8

Number and Percentage of Employees in Organization who are Los Angeles City Residents:

1 and 12.5 %

**EXHIBIT Q – NON-COLLUSION AFFIDAVIT**

Non-Collusion Affidavit

The appropriate, authorized operator's designate must sign and affix the corporate seal (see space below).

I, Michael Bruno, depose and say that I am

President of Terralog Technologies USA, Inc  
("President", "Vice President", etc.) (Name and Address of Organization)

who submits this proposal to the City of Los Angeles Personnel Department, and hereby declare that this proposal is genuine, and not sham or collusive, nor made in the interest or in behalf of any person not herein named and the proposer had not directly induced or solicited any other proposer to put in a sham proposal, or any other person, firm, or corporation to refrain from submitting a proposal, and that the proposer has not in any manner sought by collusion to secure for him/herself an advantage over any other proposer.

Date: Oct. 22nd, 2009 at Arcadia, CA  
(Month, Day, Year) (City, State)

(Corporate Seal)

I certify or declare under penalty of perjury that the foregoing is correct

Michael J Bruno  
(Signature)