COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

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GRACE ROBINSON HYDE
Chief Engineer and General Manager

December 29, 2016
File No. 31-320.10

Mr. Chris Marks
Denali Water Solutions
12812 Valley View St., #9
Garden Grove, CA 92845

Dear Mr. Marks:

Transmittal of LACSD JWPCP Biosolids Report

Attached please find the LACSD JWPCP Biosolids Report for November 2016. The Report includes the following data for your files:

Biosolids
- total and soluble metals
- digester performance
- detected priority pollutants
- miscellaneous constituents

I certify, under penalty of law, that the Class B pathogen reduction requirements in 503.32(b)(3) and the vector attraction reduction requirements in 503.33(b)(1) have been met. These determinations have been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

I certify, under penalty of law, that the biosolids produced at JWPCP are non-hazardous in accordance with Title 22, California Code of Regulations (CCR), Division 4.5, Chapter 11, Article 3, Section 66261.24(a)(2)(A) Table II (Priority Pollutant Metals).

Attached are the analytical testing results for JWPCP in accordance with Title 22, California Code of Regulations (CCR), Division 4.5, Chapter 11, Article 3, Section 66261.24(a)(2)(A) Table II (Priority Pollutant Metals).

Should you have any further questions or require additional information, please contact Tom C. Fang at (562) 908-4288, extension 2825.

Very truly yours,

Melissa Fischer
Supervising Engineer
Monitoring Section

MF:TF:GS:nm
Attachments

#3668562

Notice and Necessary Information

To be Completed by Preparers of Class B Biosolids

Facility Name: Joint Water Pollution Control Plant (JWPCP) **Monitoring Period:** 11/01/2016 to 11/30/2016

1. Pollutant and Nitrogen concentrations (report results in mg/kg on a 100% dry weight basis. Attach lab analyses).

	As	Cd	Cu	Pb	Hg	Mo	Ni	Se	Zn	Org-N	NH_3-N	% solids
Result	7.63	4.3	315	16.8	1.04	30.5	37.3	24.4	803	51,700	6,710	28.2
Table 3	41	39	1500	300	17	na	420	100	2800	na	na	na
Table 1	75	85	4300	840	57	75	420	100	7500	na	na	na

Sampling date(s): 11/01/16 **Sample Number(s):** 16110200039

2. Class B Pathogen Reduction: (Check off and fill in applicable portion)

√ anaerobic for 19 days at 35.5 °C (96.0 °F) (range for past month)
Class B: either 15 days at 35°C to 55°C or 60 days at 20°C
___ aerobic digestion for ____to ____ days at _____to ____ degrees F / C (range for past month)
Class B: time (days) ≥ 20 - 15(temp, degrees C) for times between 40 and 60 days
___ drying beds for ____to_____ months (attach records of dates in and out)
Class B: time > 3 months; 2 months > 0 degrees C
___ fecal coliform: geometric mean of seven samples = _____ (attach lab results)
Class B: geometric mean of seven samples is < 2,000,000 mpn
___ lime stabilization: pH at 2 hours after addition = _____
Class B: pH 2 hours after addition of lime is ≥ 12

3. Vector Attraction Reduction:

√ Option 1: % VS_{in} = 75 % VS_{out} = 60 % VSR = 51 % per Van Kleeck method
VAR: VSR > 38%
____ Option 2/3: Bench scale test: % VSR = _____ after ____ days
VAR: additional VSR < 17% after 40 days (anaerobic), < 15% after 30 days (aerobic)
____ Option 4: SOUR = _____
VAR: SOUR < 1.5 mg O_2/hr/gram (dry weight)
____ Option 5: Composted _____ days at temps of _____ to _____degrees F/C (attach times/temps)
VAR: temp > 40 degrees C for 14 days, w/5 days > 45 degrees C
____ Option 6: time alkali added: _____ pH after 2 hours = ___ pH after 22 hours = ___
VAR: pH ≥ 12 for 2 hours after alkali addition, ≥ 11.5 for additional 22 hrs
____ Option 7: % solids = _____ Stabilization method: _____
VAR: stabilized solids > 75%
____ Option 8: % solids = _____
VAR: unstabilized solids > 90%
____ Option 9/10: Applier will inject/incorporate within _____ hours
VAR: injection within 1 hour, incorporation within 6 hours

Certification: I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or the persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and Official Title: Melissa Fischer - Supervising Engineer

Phone: (562) 908-4288 Extension 2824 **E-mail:** mfischer@lacsd.org

Prepared By: G. Salva GS **Reviewed By:** M. Copeland ML T. Fang TF

Signature: _____ **Date:** 29 Dec 16

DENALI_004503

November 2016 BIOSOLIDS MANAGEMENT PROGRAM
JWPCP Biosolids Cake -Total Metals Concentrations
mg/kg Dry Weight

Sample No.	Date	% TS	As	Cd	Cr	Cu	Pb	Hg	Mo	Ni	Se	Zn	Al
16010600165	1/5/2016	28.7	8.23	4.7	57.1	311	13.1	0.77	20.9 [A]	36.5	22.4 [A]	757	7,050
16020300210	2/2/2016	28.1	8.29	4.2	69.6	326	14.8	1.20	21.6	48.0	23.0	786	-
16030200228	3/1/2016	28.3	8.03	4.3	71.2	350	14.8	0.97	23.2	48.9	23.5	786	-
16040600207	4/5/2016	28.6	8.07	5.1	62.8	334	15.6	0.94	27.0	46.9	22.8	860	7,760
16050400192	5/3/2016	28.2	8.68	4.5	57.8	322	14.8	0.95	25.2	44.7	23.2	814	-
16060800193	6/7/2016	28.1	7.85	5.2	51.9	312	14.7	0.92	24.9	40.4	24.1	754	-
16070600174	7/5/2016	28.5	7.34	4.6	52.6	350	15.4	0.65	28.1	36.7	27.4	809	7,470
16080300191	8/2/2016	28.2	8.00	7.3	54.9	352	17.3	0.79	27.9	39.0	29.2	817	-
16090700150	9/6/2016	28.7	7.41	5.0	49.7	314	15.9	0.77	25.5	36.2	25.0	738	-
16100500131	10/4/2016	28.6	7.92	4.1	49.0	335	17.2	0.74	28.3	38.3	24.9	785	7,350
16110200039	11/1/2016	28.2	7.63	4.3	51.4	315	16.8	1.04	30.5	37.3	24.4	803	-
MEAN		**28.4**	**7.95**	**4.8**	**57.1**	**329**	**15.5**	**0.89**	**25.3**	**41.2**	**24.6**	**792**	**7,410**
MAX			**8.68**	**7.3**	**71.2**	**352**	**17.3**	**1.20**	**28.3**	**48.9**	**29.2**	**860**	**7,760**
TABLE 1 LIMITS		****	**75**	**85**	****	**4,300**	**840**	**57**	**75**	**420**	**100**	**7,500**	****
TABLE 3 LIMITS		****	**41**	**39**	****	**1,500**	**300**	**17**	****	**420**	**100**	**2,800**	****

Sample No.	Date	% TS	Sb	Ba	Be	Co	Fe	Mn	K	Ag	Tl	Sn	V
16010600165	1/5/2016	28.7	2.8	1,350 [A]	0.068 [A]	6.25	84,800	259	852 [A]	4.22 [A]	< 0.10 [A]	41.5	59.9
16020300210	2/2/2016	28.1	-	-	-	-	-	-	-	-	-	-	-
16030200228	3/1/2016	28.3	-	-	-	-	-	-	-	-	-	-	-
16040600207	4/5/2016	28.6	3.4	1,260	0.066	7.86	85,900	238	932	5.87	< 0.10	46.2	64.9
16050400192	5/3/2016	28.2	-	-	-	-	-	-	-	-	-	-	-
16060800193	6/7/2016	28.1	-	-	-	-	-	-	-	-	-	-	-
16070600174	7/5/2016	28.5	3.0	1,070	0.069	5.89	93,700	233	1,000	4.21	< 0.10	40.4	45.3
16080300191	8/2/2016	28.2	-	-	-	-	-	-	-	-	-	-	-
16090700150	9/6/2016	28.7	-	-	-	-	-	-	-	-	-	-	-
16100500131	10/4/2016	28.6	2.9	1,100	0.073	6.22	94,500	250	1,020	4.14	< 0.10	46.5	51.3
16110200039	11/1/2016	28.2	-	-	-	-	-	-	-	-	-	-	-
MEAN		**28.4**	**3.0**	**1,195**	**0.069**	**6.56**	**89,700**	**245**	**951**	**4.61**	**ND**	**43.7**	**55.4**
MAX			**3.4**	**1,350**	**0.073**	**7.86**	**94,500**	**259**	**1,020**	**5.87**	**ND**	**46.5**	**64.9**

\ = No limit
ND = Not Detected
-- = No Sample
Statistics use detected values only
A = Lab ID: 16010600164

November 2016 BIOSOLIDS MANAGEMENT PROGRAM
JWPCP Biosolids Cake - Nutrients and Miscellaneous Constituents
mg/kg Dry Weight (or as indicated)

Sample No.	Date	% TS	Sulfur	PO_4	NH_3-N	Org-N	NO_3-N	NO_2-N	Boron	Paint FilterTest (ml/100 g)	pH
16010600165	1/5/2016	28.7	33,900	77,700	5,990	49,100	< 139 [A]	5.08 [A]	23.0	< 1.0	8.1
16020300210	2/2/2016	28.1	32,700	-	5,720	52,900	< 142	5.66	-	-	-
16030200228	3/1/2016	28.3	28,400	-	6,200	49,400	< 141	4.47	-	-	-
16040600207	4/5/2016	28.6	28,500	84,500	6,020	47,400	< 140	4.97	23.8	< 1.0	7.9
16050400192	5/3/2016	28.2	33,600	-	5,820	47,000	< 141	4.91	-	-	-
16060800193	6/7/2016	28.1	34,400	-	6,160	47,900	< 142	3.96	-	-	-
16070600174	7/5/2016	28.5	33,800	72,900	4,690	51,700	< 140	5.46	22.6	< 1.0	8.0
16080300191	8/2/2016	28.2	34,900	-	6,360	49,000	< 142	4.19	-	-	-
16090700150	9/6/2016	28.7	35,800	-	7,420	45,600	< 139	3.48	-	-	-
16100500131	10/4/2016	28.6	36,300	81,400	7,830	48,300	< 137	< 3.44	34.4	< 1.0	7.9
16110200039	11/1/2016	28.2	36,600	-	6,710	51,700	< 142	4.81	-	-	-
MEAN		**28.4**	**33,500**	**79,100**	**6,270**	**49,100**	**ND**	**4.69**	**26.0**	**ND**	**8.0**
MAX			**36,600**	**84,500**	**7,830**	**52,900**	**ND**	**5.66**	**34.4**	**ND**	**8.1**

ND = Not Detected
- = No Sample
Statistics use detected values only.
A = Lab ID: 16010600164

4th Quarter 2016 BIOSOLIDS MANAGEMENT PROGRAM
JWPCP Biosolids Cake - Soluble Metals Concentrations - mg/L
Analyzed by California Title 22 Waste Extraction Test

Sample No.	Date	Al	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Fe
16010600165	1/5/2016	197	0.04	0.11 [A]	50.6 [A]	< 0.010	< 0.005	0.99	0.11	< 0.10	2,870
16040600209	4/5/2016	183	0.05	0.13	27.3	< 0.010	< 0.005	1.04	0.131	< 0.10	2,440
16070600177	7/5/2016	169	0.04	0.09	22.7	< 0.010	< 0.005	0.803	0.086	< 0.10	2,310
16100500134	10/4/2016	151	0.05	0.12	22.3	< 0.010	< 0.005	0.785	0.095	< 0.10	2,390
MEAN		**175**	**0.05**	**0.11**	**30.7**	**ND**	**ND**	**0.90**	**0.10**	**ND**	**2,500**
MAX		**197**	**0.05**	**0.13**	**50.6**	**ND**	**ND**	**1.04**	**0.13**	**ND**	**2,870**
TITLE 22 STLCs		****	**15**	**5.0**	**100**	**0.75**	**1**	**5**	**80**	**25**	****

Sample No.	Date	Pb	Hg	Mo	Ni	K	Se	Ag	Tl	Sn	V	Zn
16010600165	1/5/2016	0.03	< 0.0005	0.241	< 1.00 [A]	< 50.0	0.03 [A]	< 0.02 [A]	< 0.04 [A]	< 0.04 [A]	1.32	19.8
16040600209	4/5/2016	0.04	< 0.0005	0.308	< 1.00	< 50.0	0.02	< 0.02	< 0.04	< 0.04	1.35	10.0
16070600177	7/5/2016	0.02	< 0.0005	0.318	< 1.00	< 50.0	0.03	< 0.02	< 0.04	< 0.04	0.861	7.98
16100500134	10/4/2016	0.02	< 0.0005	0.335	< 1.00	< 50.0	0.03	< 0.02	< 0.04	< 0.04	1.07	7.93
MEAN		**0.03**	**ND**	**0.301**	**ND**	**ND**	**0.03**	**ND**	**ND**	**ND**	**1.15**	**11**
MAX		**0.04**	**ND**	**0.335**	**ND**	**ND**	**0.03**	**ND**	**ND**	**ND**	**1.35**	**20**
TITLE 22 STLCs		**5.0**	**0.2**	**350**	**20**	****	**1.0**	**5**	**7.0**	****	**24**	**250**

ND = Not Detected
\ = No Limit
Statistics use detected values only.
A = Lab ID: 16010600164

November 2016 BIOSOLIDS MANAGEMENT PROGRAM

JWPCP Digester Performance

Month	Temp (°F)	Detention Time (Days)	VSD (%)
January	96.1	19	53
February	96.1	20	54
March	96.2	20	53
April	96.1	19	52
May	96.1	19	51
June	96.2	19	53
July	96.3	19	50
August	96.1	18	49
September	96.1	19	51
October	96.0	19	50
November	96.0	19	51
MEAN	**96.1**	**19**	**52**
MIN	**96.0**	**18**	**49**

Semi-Annual JWPCP Biosolids Cake
Detected Priority Pollutants
mg/kg on a Dry Weight Basis

Date	1/5/16	7/5/16
Sample Numbers	16010600164	16070600174
	16010600165	16070600175
Constituent	**Result (mg/kg)**	**Result (mg/kg)**
Arsenic	8.23	7.34
Cadmium	4.7	4.6
Chromium	57.1	52.6
Copper	311	350
Lead	13.1	15.4
Mercury	0.77	0.65
Nickel	36.5	36.7
Selenium	22.4	27.4
Silver	4.22	4.21
Zinc	757	809
Antimony	2.79	3.0
Cyanide	1.56	6.42
Beryllium	0.068	0.069
PP'-DDE	0.032	N/D
Toluene	0.011	N/D
Diethylhexyl Phthalate	57.5	36.5
Methylene Chloride	0.016	N/D

DENALI_004507