COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

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GRACE ROBINSON HYDE
*Chief Engineer and General Manager*

September 12, 2017
File No. 31-320.10

Mr. Chris Marks
Denali Water Solutions
2001 West Key Street
Colton, CA 92324

Dear Mr. Marks:

**Transmittal of LACSD JWPCP Biosolids Monitoring Report**

Attached please find the LACSD JWPCP Biosolids Monitoring Report for July 2017. 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
Reuse and Compliance Section

MF:TF:GS:nm
Attachments

#4078680

# Notice and Necessary Information

To be Completed by Preparers of Class B Biosolids

Facility Name: Joint Water Pollution Control Plant (JWPCP) Monitoring Period: 07/01/2017 to 07/31/2017

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 | 7.06 | 13.1 | 313 | 14.8 | 0.73 | 20.5 | 38.6 | 29.5 | 739 | 48,800 | 8,400 | 29.0 |
| 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): 07/0/17 Sample Number(s): 17060600201

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

√ anaerobic for 20 days at 35.7 °C (96.2 °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: % $VS_{in}$ = 78 % $VS_{out}$ = 61 % VSR = 55 % 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 MC T. Fang TCF

Signature: _____ Date: 12 Sep 17

## July 2017 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17010400198 | 1/3/2017 | 28.8 | 9.09 | 4.0 | 64.3 | 341 | 18.1 | 0.87 | 22.5 | 36.9 | 26.0 | 805 | 6,510 |
| 17020800151 | 2/7/2017 | 30.2 | 8.86 | 5.4 | 63.7 | 339 | 20.1 | 1.28 | 19.7 | 39.8 | 27.3 | 818 | - |
| 17030800165 | 3/7/2017 | 28.3 | 8.55 | 4.9 | 114 | 315 | 19.0 | 1.20 | 20.2 | 40.4 | 27.3 | 828 | - |
| 17040500179 | 4/4/2017 | 28.8 | 8.63 | 4.6 | 100 | 333 | 17.1 | 1.19 | 20.1 | 42.8 | 29.6 | 740 | 9,800 |
| 17050300216 | 5/2/2017 | 28.3 | 7.90 | 4.5 | 74.2 | 330 | 15.7 | 1.43 | 20.3 | 40.1 | 31.4 | 769 | - |
| 17060700201 | 6/6/2017 | 28.4 | 7.20 | 4.2 | 77.7 | 331 | 17.3 | 0.85 | 23.5 | 39.4 | 23.8 | 794 | - |
| 17071200223 | 7/11/2017 | 29.0 | 7.06 | 13.1 | 72.9 | 313 | 14.8 | 0.73 | 20.5 | 38.6 | 29.5 | 739 | 6,380 |
| **MEAN** | | **28.8** | **8.18** | **5.8** | **81.0** | **329** | **17.4** | **1.08** | **21.0** | **39.7** | **27.8** | **785** | **7,560** |
| **MAX** | | | **9.09** | **13.1** | **114** | **341** | **20.1** | **1.43** | **23.5** | **42.8** | **31.4** | **828** | **9,800** |
| **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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17010400198 | 1/3/2017 | 28.8 | 5.1 | 1,120 | 0.065 | 5.50 | 96,800 | 237 | 1,020 | 3.2 | < 0.10 | 45.3 | 37.6 |
| 17020800151 | 2/7/2017 | 30.2 | - | - | - | - | - | - | - | - | - | - | - |
| 17030800165 | 3/7/2017 | 28.3 | - | - | - | - | - | - | - | - | - | - | - |
| 17040500179 | 4/4/2017 | 28.8 | 2.9 | 1,120 | 0.078 | 5.29 | 85,100 | 262 | 967 | 3.4 | < 0.10 | 58.6 | 38.0 |
| 17050300216 | 5/2/2017 | 28.3 | - | - | - | - | - | - | - | - | - | - | - |
| 17060700201 | 6/6/2017 | 28.4 | - | - | - | - | - | - | - | - | - | - | - |
| 17071200223 | 7/11/2017 | 29.0 | 3.0 | 1,130 | 0.069 | 5.29 | 93,100 | 255 | 918 | 2.9 | < 0.10 | 39.6 | 36.7 |
| **MEAN** | | **28.8** | **3.7** | **1,123** | **0.071** | **5.36** | **91,700** | **251** | **968** | **3.2** | **ND** | **47.8** | **37.4** |
| **MAX** | | | **5.1** | **1,130** | **0.078** | **5.50** | **96,800** | **262** | **1,020** | **3.4** | **ND** | **58.6** | **38.0** |

\ = No limit
ND = Not Detected
-- = No Sample
Statistics use detected values only



DENALI_005121

## July 2017 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17010400198 | 1/3/2017 | 28.8 | 31,900 | 78,300 | 6,230 | 49,000 | < 138 | 3.88 | 24.5 | < 1.0 | 8.3 |
| 17020800151 | 2/7/2017 | 30.2 | 28,700 | - | 5,860 | 47,300 | < 131 | 4.56 | - | - | - |
| 17030800165 | 3/7/2017 | 28.3 | 28,400 | - | 6,900 | 47,400 | < 141 | 3.78 | - | - | - |
| 17040500179 | 4/4/2017 | 28.8 | 30,200 | 86,800 | 9,380 | 44,200 | < 139 | 3.80 | 27.5 | < 1.0 | 8.2 |
| 17050300216 | 5/2/2017 | 28.3 | 30,900 | - | 6,050 | 47,200 | < 141 | < 3.53 | - | - | - |
| 17060700201 | 6/6/2017 | 28.4 | 28,500 | - | 7,390 | 48,500 | < 140 | 4.22 | - | - | - |
| 17071200223 | 7/11/2017 | 29.0 | 34,500 | 87,200 | 8,400 | 48,800 | < 137 | < 3.42 | 25.8 | < 1.0 | 8.1 |
| **MEAN** | | **28.8** | **30,400** | **84,100** | **7,170** | **47,500** | **ND** | **4.05** | **25.9** | **ND** | **8.2** |
| **MAX** | | | **34,500** | **87,200** | **9,380** | **49,000** | **ND** | **4.56** | **27.5** | **ND** | **8.3** |

ND = Not Detected
- = No Sample
Statistics use detected values only.



DENALI_005122

## 3rd Quarter 2017 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17010400199 | 1/3/2017 | 132 | 0.06 | 0.15 | 24 | < 0.010 | < 0.005 | 0.88 | 0.076 | < 0.10 | 2,290 |
| 17040500178 | 4/4/2017 | 209 | 0.04 | 0.09 | 21 | < 0.010 | < 0.005 | 1.09 | 0.071 | < 0.10 | 2,070 |
| 17071200226 | 7/11/2017 | 142 | 0.03 | < 0.05 | 49 | < 0.010 | < 0.005 | 0.97 | 0.075 | < 0.10 | 2,180 |
| **MEAN** | | **161** | **0.04** | **0.12** | **31** | **ND** | **ND** | **0.98** | **0.07** | **ND** | **2,180** |
| **MAX** | | **209** | **0.06** | **0.15** | **49** | **ND** | **ND** | **1.09** | **0.08** | **ND** | **2,290** |
| **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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17010400199 | 1/3/2017 | 0.06 | < 0.0005 | 0.29 | < 1.0 | < 50.0 | 0.02 | < 0.02 | < 0.04 | < 0.04 | 0.70 | 10.9 |
| 17040500178 | 4/4/2017 | 0.02 | < 0.0005 | 0.22 | < 1.0 | < 50.0 | 0.02 | < 0.02 | < 0.04 | < 0.04 | 0.71 | 7.26 |
| 17071200226 | 7/11/2017 | < 0.010 | < 0.0005 | 0.18 | < 1.0 | < 50.0 | 0.02 | < 0.02 | < 0.04 | < 0.04 | 0.73 | 27.9 |
| **MEAN** | | **0.04** | **ND** | **0.23** | **ND** | **ND** | **0.02** | **ND** | **ND** | **ND** | **0.71** | **15.4** |
| **MAX** | | **0.06** | **ND** | **0.29** | **ND** | **ND** | **0.02** | **ND** | **ND** | **ND** | **0.73** | **27.9** |
| **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.



DENALI_005123

## 2017 BIOSOLIDS MANAGEMENT PROGRAM

### JWPCP Digester Performance

| Month | Temp ( °F ) | Detention Time (Days) | VSD (%) |
|---|---|---|---|
| January | 96.1 | 19 | 51 |
| February | 96.2 | 20 | 55 |
| March | 96.2 | 17 | 52 |
| April | 96.3 | 19 | 54 |
| May | 96.1 | 18 | 54 |
| June | 96.2 | 18 | 51 |
| July | 96.2 | 20 | 55 |
| **MEAN** | **96.2** | **19** | **53** |
| **MIN** | **96.1** | **17** | **51** |

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

| **Date** | 1/3/17 | 7/11/17 |
|---|---|---|
| **Sample Numbers** | 17010400198 | 17071200223 |
| | 17010400199 | 17071200224 |
| **Constituent** | **Result (mg/kg)** | **Result (mg/kg)** |
| Arsenic | 9.09 | 7.06 |
| Cadmium | 4.0 | 13.1 |
| Chromium | 64.3 | 72.9 |
| Copper | 341 | 313 |
| Lead | 18.1 | 14.8 |
| Mercury | 0.87 | 0.73 |
| Nickel | 36.9 | 38.6 |
| Selenium | 26.0 | 29.5 |
| Silver | 3.2 | 2.9 |
| Zinc | 805 | 739 |
| Antimony | 5.1 | 3.0 |
| Cyanide | 3.89 | 4.19 |
| Beryllium | 0.065 | 0.069 |
| Diethylhexyl Phthalate | 66.1 | 65.7 |