FORM GEN. 160 (Rev. 6-80)

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

DATE: July 29, 2016

TO: Timeyin Dafeta, Plant Manager
Hyperion Water Reclamation Plant

Mark Starr, Plant Manager
Terminal Island Water Reclamation Plant

FROM: Masahiro Dojiri, Division Manager
Environmental Monitoring Division

SUBJECT: **ASSESSMENT OF BIOSOLIDS FOR JUNE 2016**

This report contains data from the analysis of composite biosolids and digested sludge samples collected in June 2016 at the Hyperion and Terminal Island Water Reclamation Plants. The samples were tested in accordance with EPA's Part 503 Sewage Sludge Regulations, Tables 1 and 3, to furnish a beneficial use assessment. Analyses were also performed to determine if pathogen and vector control requirements of Part 503 were met.

Hyperion Water Reclamation Plant

The metals and nutrient analyses data are presented in Tables 1 and 2 of this report. All metals detected in the composite sample were below their respective ceiling and pollutant concentration limits listed in EPA 40 CFR 503.13, Table 1. The results for Nickel, Calcium, Iron, and Magnesium were slightly higher than their 12-month average (Tables 1 and 2). Please note that the concentrations of Arsenic and Selenium were higher than their 12-month average (Table 1). Also, for June, fecal coliform and *Salmonella* results were below the EPA 40 CFR Part 503 limit for Class A biosolids (Table 6). The June helminth ova and enteric virus results were below the limits for Class A biosolids. The June dioxin and polychlorinated biphenyl results were non-detect (Table 5).

Terminal Island Water Reclamation Plant

Beginning in July 2010, TIWRP began injecting digested sludge into TIRE with a goal of 100% injection, but may occasionally produce biosolids due to operational logistics.

No TIWRP biosolids analyses were required in June per the sampling schedule.

Graphs of the concentrations of selected metals in HWRP and TIWRP biosolids and digested sludge over the past 24 months are shown in Figures 1 through 10.

If you have any questions about this report, please contact Stacee Karnya of my staff at (310) 648-5727.

RV/MAD:rv

Attachment: Appendix 1 - Arizona ELAP-Certified Monthly Biosolids Monitoring Report with Class A and B Microbiological Requirements.

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Table 1. BENEFICIAL USE ASSESSMENT OF BIOSOLIDS AT HYPERION TREATMENT PLANT

Sampling Date	pH	%TS	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Molybdenum (Mo)	Lead (Pb)	Mercury (Hg)	Nickel (Ni)	Selenium (Se)	Zinc (Zn)
	mg/kg dry weight											
Jun-16	8.1	23.9	3.01	10.7	41.1	720	19.9	19.0	1.01	53.1	4.69	1,210
May-16	8.6	24.5	ND	11.4	39.2	620	15.5	15.9	1.62	42.0	ND	1,130
Apr-16	8.6	24.5	ND	8.33	38.0	702	15.5	18.4	1.58	51.0	ND	1,140
Mar-16	8.3	25.9	ND	10.0	36.5	660	18.1	18.1	1.81	49.0	2.01	1,200
Feb-16	8.6	27.8	ND	11.5	48.6	665	17.5	18.4	1.05	41.4	2.45	1,240
Jan-16	7.9	27.0	ND	10.6	39.6	741	20.0	17.8	2.73	45.2	ND	1,360
Dec-15	8.2	26.9	ND	11.2	38.3	717	23.0	21.9	0.967	39.4	ND	1,180
Nov-15	8.6	26.8	ND	11.2	44.4	765	29.1	21.3	1.13	42.2	ND	1,410
Oct-15	8.5	26.2	ND	12.3	55.0	844	30.5	24.4	1.77	46.6	ND	1,570
Sep-15	8.2	26.1	ND	12.8	50.2	816	29.1	21.8	0.985	40.6	ND	1,300
Aug-15	8.6	27.3	ND	10.4	45.4	758	24.2	23.8	1.01	40.3	ND	1,200
Jul-15	8.7	25.5	ND	11.2	47.8	780	23.5	23.5	1.53	42.7	ND	1,210
Average	8.4	26.0	0.251	11.0	43.7	732	22.2	20.4	1.43	44.5	0.762	1,260
Maximum	8.7	27.8	3.01	12.8	55.0	844	30.5	24.4	2.73	53.1	4.69	1,570
Minimum	7.9	23.9	ND	8.33	36.5	620	15.5	15.9	0.967	39.4	ND	1,130
Ceiling Conc.*			75	85	***	4300	75	840	57	420	100	7500
Pollutant Conc.**			41	39	***	1500	***	300	17	420	100	2800

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* Ceiling concentration in Table 1 of EPA Part 503 Sludge Regulation.
** Pollutant concentration in Table 3 of EPA Part 503 Sludge Regulation
*** Limit was deleted according to Federal Register Vol. 60, No. 206 of Oct. 25, 1995

Table 2. HTP BIOSOLIDS - NUTRIENTS AND MISC. METALS - EVALUATION FOR LOADING PURPOSES

Sampling Date	%TS	Aluminum (Al)	Calcium (Ca)	Iron (Fe)	Potassium (K)	Magnesium (Mg)	Nitrate-N (NO3-N)	Phosphorus (Tot-P)	Sodium (Na)	Ammonia-N (NH3-N)	Organic-N (Org-N)
	mg/kg dry weight										
Jun-16	23.9	4,400	42,700	44,800	1,600	7,200	8.37	28,700	1,690	7,450	36,400
May-16	24.5	3,600	38,000	46,900	1,530	7,020	8.16	29,800	1,690	3,840	41,200
Apr-16	24.5	4,200	40,100	44,900	1,180	6,730	24.5	31,200	1,630	8,780	38,400
Mar-16	25.9	4,200	39,000	45,200	1,730	6,680	19.3	29,600	1,630	8,030	37,400
Feb-16	27.8	4,300	41,700	43,500	1,390	6,940	7.19	30,900	1,330	7,950	37,100
Jan-16	27.0	4,000	42,200	43,000	1,800	6,740	7.41	29,300	1,630	3,340	41,100
Dec-15	26.9	4,400	38,700	39,400	1,150	6,170	7.43	29,300	1,780	3,750	41,600
Nov-15	26.8	4,400	34,000	41,800	1,280	5,560	11.2	26,900	1,410	7,130	39,200
Oct-15	26.2	4,800	36,800	43,900	2,160	6,150	11.5	28,200	1,520	9,690	39,300
Sep-15	26.1	4,500	39,500	36,000	1,730	6,320	11.5	28,500	1,560	7,700	40,600
Aug-15	27.3	4,100	41,400	28,900	1,090	6,590	25.6	27,200	1,540	7,910	45,400
Jul-15	25.5	4,500	37,800	38,500	2,350	7,100	23.5	27,800	1,660	10,000	39,000
Average	26.0	4,280	39,300	41,400	1,580	6,600	13.8	29,000	1,590	7,130	39,700
Maximum	27.8	4,800	42,700	46,900	2,350	7,200	25.6	31,200	1,780	10,000	45,400
Minimum	23.9	3,600	34,000	28,900	1,090	5,560	7.19	26,900	1,330	3,340	36,400

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Table 3. BENEFICIAL USE ASSESSMENT OF BIOSOLIDS AT TERMINAL ISLAND WATER RECLAMATION PLANT

Sampling Date	pH	%TS	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Molybdenum (Mo)	Lead (Pb)	Mercury (Hg)	Nickel (Ni)	Selenium (Se)	Zinc (Zn)
	mg/kg dry weight											
Jun-16	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
May-16	7.6	1.7	ND	4.60	24.1	115	17.2	5.75	1.18	28.7	28.7	718
Apr-16	7.5	1.7	ND	2.40	22.8	138	18.0	12.0	0.922	24.0	29.9	868
Mar-16	7.7	1.7	ND	4.76	ND	154	26.8	ND	0.851	ND	35.7	935
Feb-16	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Jan-16	7.7	1.9	ND	4.12	33.0	191	72.2	10.3	1.12	41.2	41.2	1,210
Dec-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nov-15	7.7	2.0	ND	4.06	19.8	122	25.4	10.2	0.873	20.3	15.2	787
Oct-15	7.5	1.7	ND	6.02	29.5	211	30.1	12.0	1.45	30.1	24.1	1,120
Sep-15	7.3	1.8	ND	5.65	24.9	169	22.6	11.3	0.689	22.6	22.6	944
Aug-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Jul-15	7.5	1.8	ND	5.62	23.6	169	22.5	11.2	1.89	28.1	33.7	1,060
Average	7.6	1.8	ND	4.65	22.2	158	29.3	9.10	1.12	24.4	28.9	955
Maximum	7.7	2.0	ND	6.02	33.0	211	72.2	12.0	1.89	41.2	41.2	1,210
Minimum	7.3	1.7	ND	2.40	ND	115	17.2	ND	0.689	ND	15.2	718
Ceiling Conc.*			75	85	***	4300	75	840	57	420	100	7500
Pollutant Conc.**			41	39	***	1500	***	300	17	420	100	2800

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WISARD - Biosolids Management - HTP TITP Biosolids

* Ceiling concentration in Table 1 of EPA Part 503 Sludge Regulation.
** Pollutant concentration in Table 3 of EPA Part 503 Sludge Regulation
*** Limit was deleted according to Federal Register Vol. 60, No. 206 of Oct. 25, 1995

Table 4. TIWRP BIOSOLIDS - NUTRIENTS AND MISC. METALS - EVALUATION FOR LOADING PURPOSES

Sampling Date	%TS	Aluminum (Al)	Calcium (Ca)	Iron (Fe)	Potassium (K)	Magnesium (Mg)	Nitrate-N (NO3-N)	Phosphorus (Tot-P)	Sodium (Na)	Ammonia-N (NH3-N)	Organic-N (Org-N)
	mg/kg dry weight										
Jun-16	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
May-16	1.7	5,700	23,000	39,000	9,660	10,100	ND	25,300	47,800	54,400	22,900
Apr-16	1.7	5,600	22,900	39,100	8,800	11,300	ND	28,800	47,700	59,900	25,300
Mar-16	1.7	6,300	23,000	38,500	10,700	10,700	ND	27,300	48,500	63,700	29,000
Feb-16	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Jan-16	1.9	4,700	23,100	37,800	9,850	10,400	155	35,400	35,200	57,700	27,600
Dec-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nov-15	2.0	2,900	22,800	35,800	8,630	9,950	ND	30,200	34,600	51,300	35,500
Oct-15	1.7	4,300	25,800	48,600	10,200	12,100	120	32,100	48,200	52,700	28,100
Sep-15	1.8	3,500	22,100	38,400	8,980	10,500	ND	29,700	41,500	50,400	30,700
Aug-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Jul-15	1.8	4,300	25,300	43,600	8,880	10,600	ND	27,600	37,100	57,900	34,600
Average	1.8	4,700	23,500	40,100	9,450	10,700	34.4	29,600	42,600	56,000	29,200
Maximum	2.0	6,300	25,800	48,600	10,700	12,100	155	35,400	48,500	63,700	35,500
Minimum	1.7	2,900	22,100	35,800	8,630	9,950	ND	25,300	34,600	50,400	22,900

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NS No Sampling Required

Table 5. CONCENTRATIONS OF DIOXIN AND PCBs IN HTP AND TIWRP BIOSOLIDS

Sampling Date	Dioxin 2,3,7,8-TCDD (ppb ng/g wet wt.)	PCBs** AR 1016	AR 1221	AR 1232	AR 1242	AR 1248	AR 1254	AR 1260	Total PCBs*** ppm (mg/kg wet wt.)
		ppm (mg/kg) wet weight							
HTP BIOSOLIDS									
Jun-16	<0.50000 *	<0.00430	<0.02500	<0.02400	<0.00620	<0.00440	<0.00830	<0.00290	ND
May-16	<0.50000 *	<0.00200	<0.03030	<0.01860	<0.01330	<0.00763	<0.00276	<0.00176	ND
Apr-16	<0.00100 ^^	<0.00200	<0.03030	<0.01860	<0.01330	<0.00763	<0.00276	<0.00176	ND
Mar-16	<0.50000 *	<0.00200	<0.03030	<0.01860	<0.01330	<0.00763	<0.00276	<0.00176	ND
Feb-16	<0.50000 *	<0.00230	<0.00560	<0.00430	<0.01400	<0.00610	<0.00240	<0.00290	ND
Jan-16	<0.00100 ^^	<0.00200	<0.03030	<0.01860	<0.01330	<0.00763	<0.00276	<0.00176	ND
Dec-15	<0.50000 *	<0.00200	<0.03030	<0.01860	<0.01330	<0.00763	<0.00276	<0.00176	ND
Nov-15	<0.50000 *	<0.00230	<0.00560	<0.00430	<0.01400	<0.00610	<0.00240	<0.00290	ND
Oct-15	<0.00100 ^^	<0.00430	<0.02500	<0.02400	<0.00620	<0.00440	<0.00830	<0.00290	ND
Sep-15	<0.50000 *	<0.00430	<0.02500	<0.02400	<0.00620	<0.00440	<0.00830	<0.00290	ND
Aug-15	<0.50000 *	<0.00430	<0.02500	<0.02400	<0.00620	<0.00440	<0.00830	<0.00290	ND
Jul-15	<0.00100 ^^	<0.00430	<0.02500	<0.02400	<0.00620	<0.00440	<0.00830	<0.00290	ND
TIWRP BIOSOLIDS / DIGESTED SLUDGE @, #									
Jun-16	NS	NS	NS	NS	NS	NS	NS	NS	NS
May-16	<0.50000 *	<0.00200	<0.03030	<0.01860	<0.01330	<0.00763	<0.00276	<0.00176	ND
Apr-16	<0.00100 ^^	<0.00200	<0.03030	<0.01860	<0.01330	<0.00763	<0.00276	<0.00176	ND
Mar-16	<0.50000 *	<0.00200	<0.03030	<0.01860	<0.01330	<0.00763	<0.00276	<0.00176	ND
Feb-16	NS	NS	NS	NS	NS	NS	NS	NS	NS
Jan-16	<0.00100 ^^	<0.00200	<0.03030	<0.01860	<0.01330	<0.00763	<0.00276	<0.00176	ND
Dec-15	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nov-15	<0.50000 *	<0.00230	<0.00560	<0.00430	<0.01400	<0.00610	<0.00240	<0.00290	ND
Oct-15	<0.00100 ^^	<0.00430	<0.02500	<0.02400	<0.00620	<0.00440	<0.00830	<0.00290	ND
Sep-15	<0.50000 *	<0.00430	<0.02500	<0.02400	<0.00620	<0.00440	<0.00830	<0.00290	ND
Aug-15	NS	NS	NS	NS	NS	NS	NS	NS	NS
Jul-15	<0.00100 ^^	<0.00430	<0.02500	<0.02400	<0.00620	<0.00440	<0.00830	<0.00290	ND

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* Low Resolution 2,3,7,8-TCDD analysis by method EPA 8280A.
^^ High resolution 2,3,7,8-TCDD analysis by method EPA 1613B.
** Polychlorinated biphenyls (Arochlors)
*** Sum of AR 1016, AR 1221, AR 1232, AR 1242, AR 1248, AR 1254, AR 1260

ND Not Detected
NS No Sampling Required
@ Sampling frequency for TIWRP is 6 months/year. The sampling months are: Jan, Mar, May, Jul, Sep and Nov.
\# TIWRP changed from analyzing Biosolids to analyzing Digested Sludge in July 2010

Note: California Title 22 lists 10 ppb for Dioxin and 50 ppm for PCBs as the Total Threshold Limit Concentration (TTLC) for hazardous waste

Table 6. HTP BIOSOLIDS - CLASS A COMPLIANCE MONITORING DATA

Sampling Date	%TS	FECAL COLIFORM MPN/gram TS (dry wt)		SALMONELLA, sp. MPN/4 grams TS (dry wt)		HELMINTH OVA Viable Helminth Ova/4 grams TS (dry wt)			ENTERIC VIRUS PFU/4 grams TS (dry wt)		
		Silo#/Farm		Silo#/Farm		Raw Sludge	Silo#/Farm		Raw Sludge	Silo#/Farm	
June 7, 2016	25.5	Silo #2	<7.1	Silo #2	<1.7	5.0	Silo #2	<0.5	3.2	Silo #2	<0.5
May 10, 2016	25.9	Silo #2	<6.9	Silo #2	<1.5	9.7	Silo #2	<0.5	31.2	Silo #2	<0.5
April 5, 2016	26.6	Farm	<6.8	Farm	<1.6	5.6	Farm	<0.5	4.2	Farm	<0.5
March 8, 2016	26.8	Silo	6.7	Silo	<1.6	3.7	Silo	<0.5	0.9	Silo	<0.5
February 9, 2016	26.8	Silo	<6.7	Silo	<1.5	4.8	Silo	<0.5	8.5	Silo	<0.5
January 5, 2016	26.5	Farm	15.1	Farm	<1.4	5.7	Farm	<0.4	17.1	Farm	<0.5
December 8, 2015	27.0	Silo #1	<6.7	Silo #1	<1.5	3.0	Silo #1	<0.5	2.2	Silo #1	<0.5
November 10, 2015	25.4	Silo	<7.1	Silo	<1.7	8.6	Silo	<0.5	14.1	Silo	<0.5
October 6, 2015	26.8	Farm	<6.7	Farm	<1.6	10.1	Farm	<0.4	22.6	Farm	<0.5
September 15, 2015	23.0	Silo	<7.8	Silo	<1.9	5.3	Silo	<0.5	10.6	Silo	<0.5
August 4, 2015	26.2	Silo	<6.9	Silo	<1.5	3.4	Silo	<0.5	8.8	Silo	<0.4
July 7, 2015	25.7	Farm	<7.0	Farm	<1.6	3.7	Farm	<0.5	9.8	Farm	<0.5
Requirement**			<1000		<3			<1			<1

* - EPA 40 CFR Part 503 Class A requirements
NA - Data not yet available from Biovir.
NS - No Sampling Required

Table 7. TIWRP BIOSOLIDS - CLASS A COMPLIANCE MONITORING DATA

Sampling Date	TOTAL SOLIDS		FECAL COLIFORM		SALMONELLA, sp.	
	%		MPN/gram TS (dry wt)		MPN/4 grams TS (dry wt)	
	Silo#/Farm		Silo#/Farm		Silo#/Farm	
	6 Times/Year@		6 Times/Year@		Quarterly	
Jun-16	NS	NS	NS	NS	NS	NS
May-16	TIWRP Digester Sludge	1.71	TIWRP Digester Sludge	<10.5	TIWRP Digester Sludge	<1.6
Apr-16	NS	NS	NS	NS	NS	NS
Mar-16	TIWRP Digester Sludge	1.66	TIWRP Digester Sludge	<10.8	TIWRP Digester Sludge	<1.6
Feb-16	NS	NS	NS	NS	NS	NS
Jan-16	TIWRP Digester Sludge	1.89	TIWRP Digester Sludge	<9.5	TIWRP Digester Sludge	<1.7
Dec-15	NS	NS	NS	NS	NS	NS
Nov-15	TIWRP Digester Sludge	1.94	TIWRP Digester Sludge	<9.3	TIWRP Digester Sludge	<1.5
Oct-15	NS	NS	NS	NS	NS	NS
Sep-15	TIWRP Digester Sludge	1.77	TIWRP Digester Sludge	44.1	TIWRP Digester Sludge	<1.3
Aug-15	NS	NS	NS	NS	NS	NS
Jul-15	TIWRP Digester Sludge	2.00	TIWRP Digester Sludge	<9.0	TIWRP Digester Sludge	<1.6
Requirement*				<1000		<3

* - EPA 40 CFR Part 503 Class A requirements
NS - No Sampling Required
@ - Sampling frequency for TIWRP is 6 months/year. The sampling months are: Jan, Mar, May, Jul, Sep and Nov.

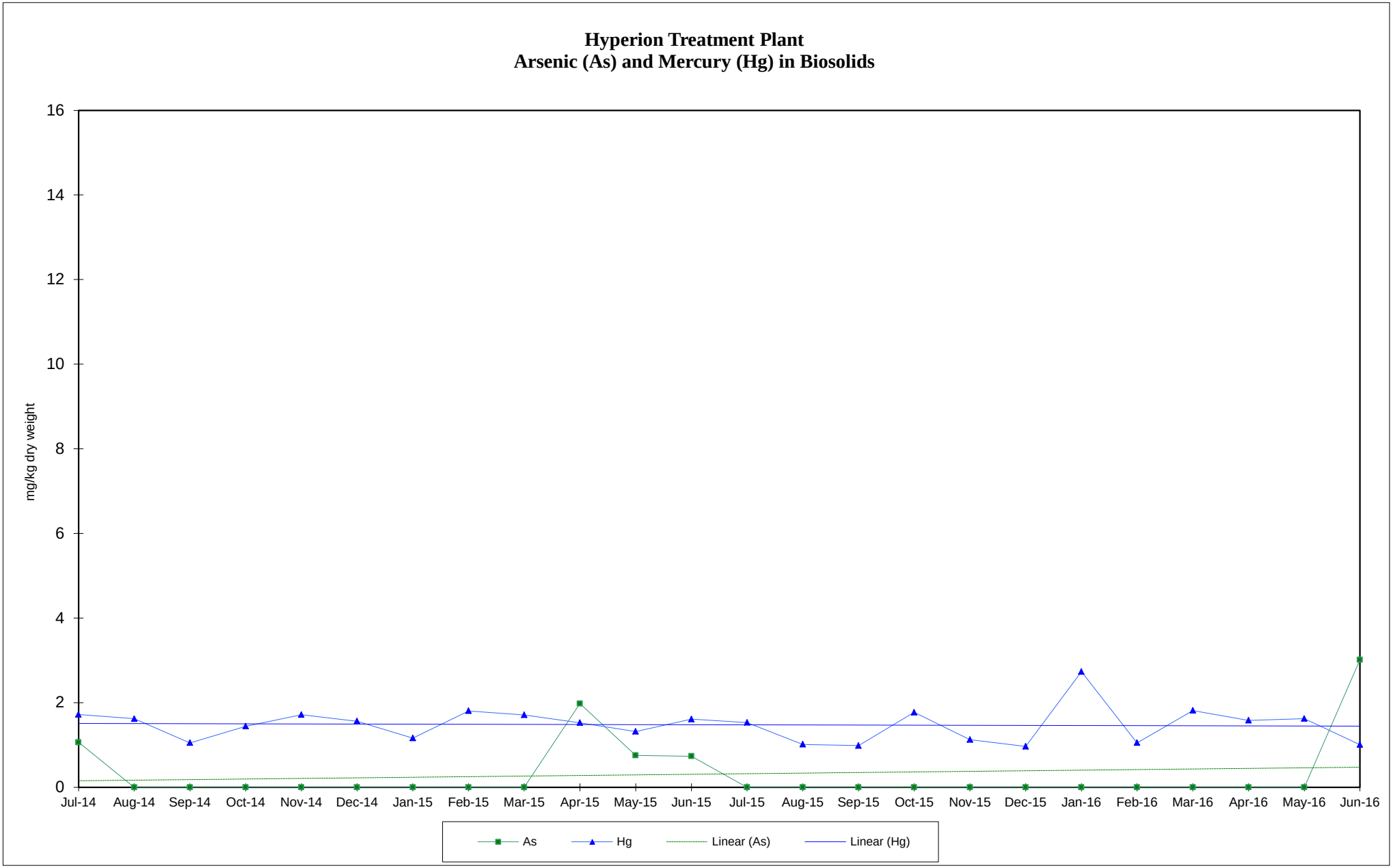

Figure 1. Concentrations of arsenic and mercury in HTP biosolids from July 2014 to June 2016

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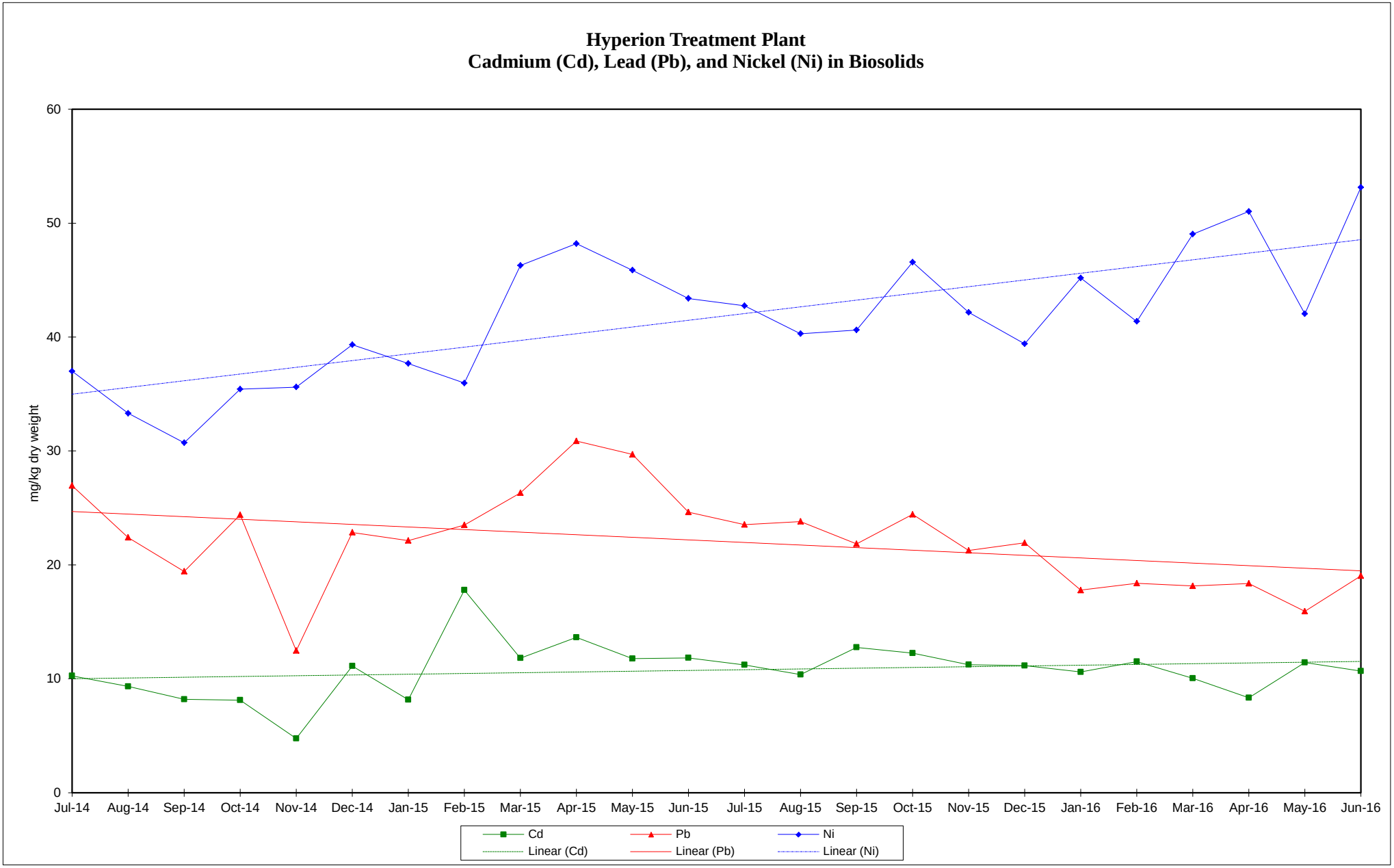

Figure 2. Concentrations of cadmium, lead, and nickel in HTP biosolids from July 2014 to June 2016

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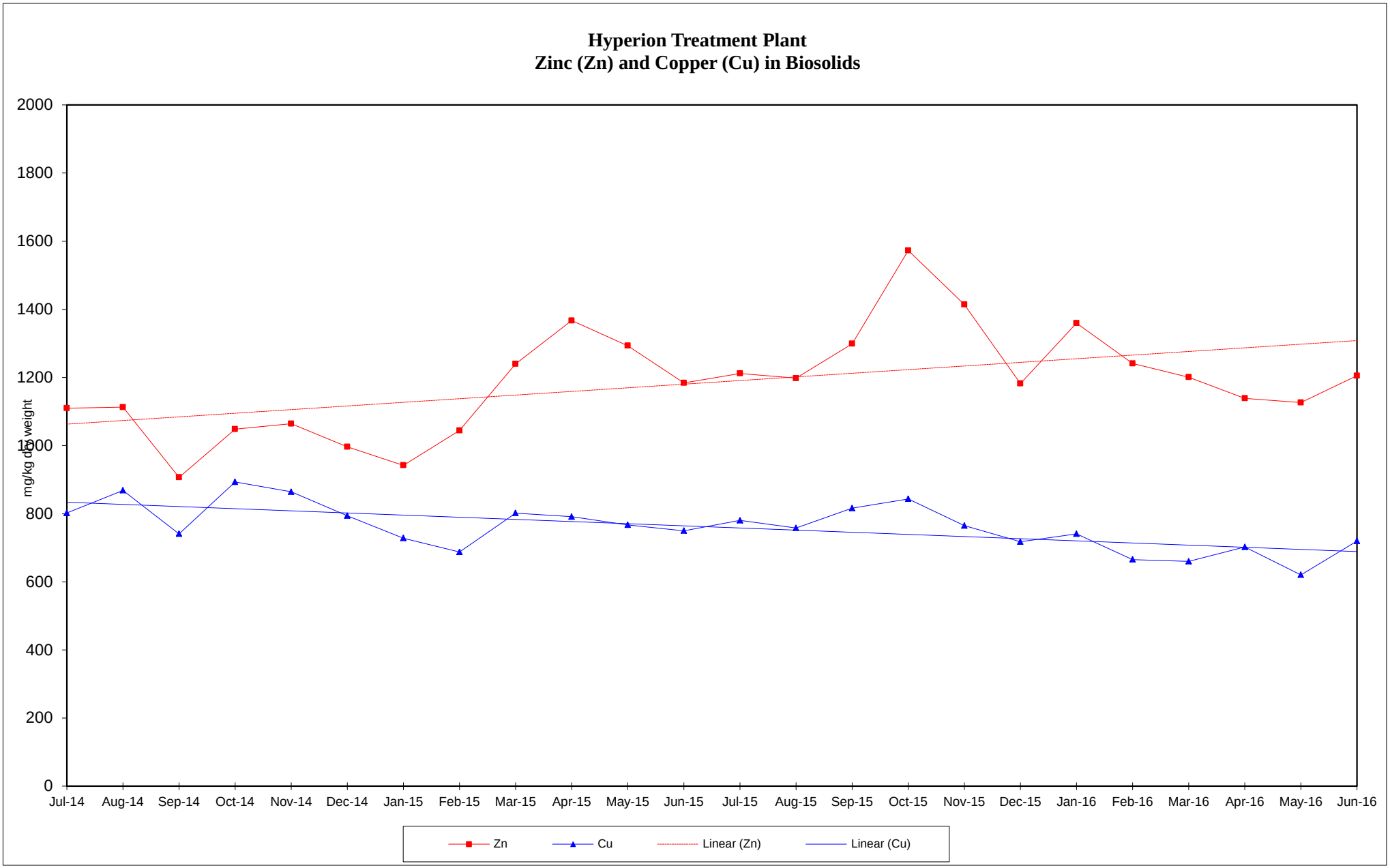

Figure 3. Concentrations of zinc and copper in HTP biosolids from July 2014 to June 2016

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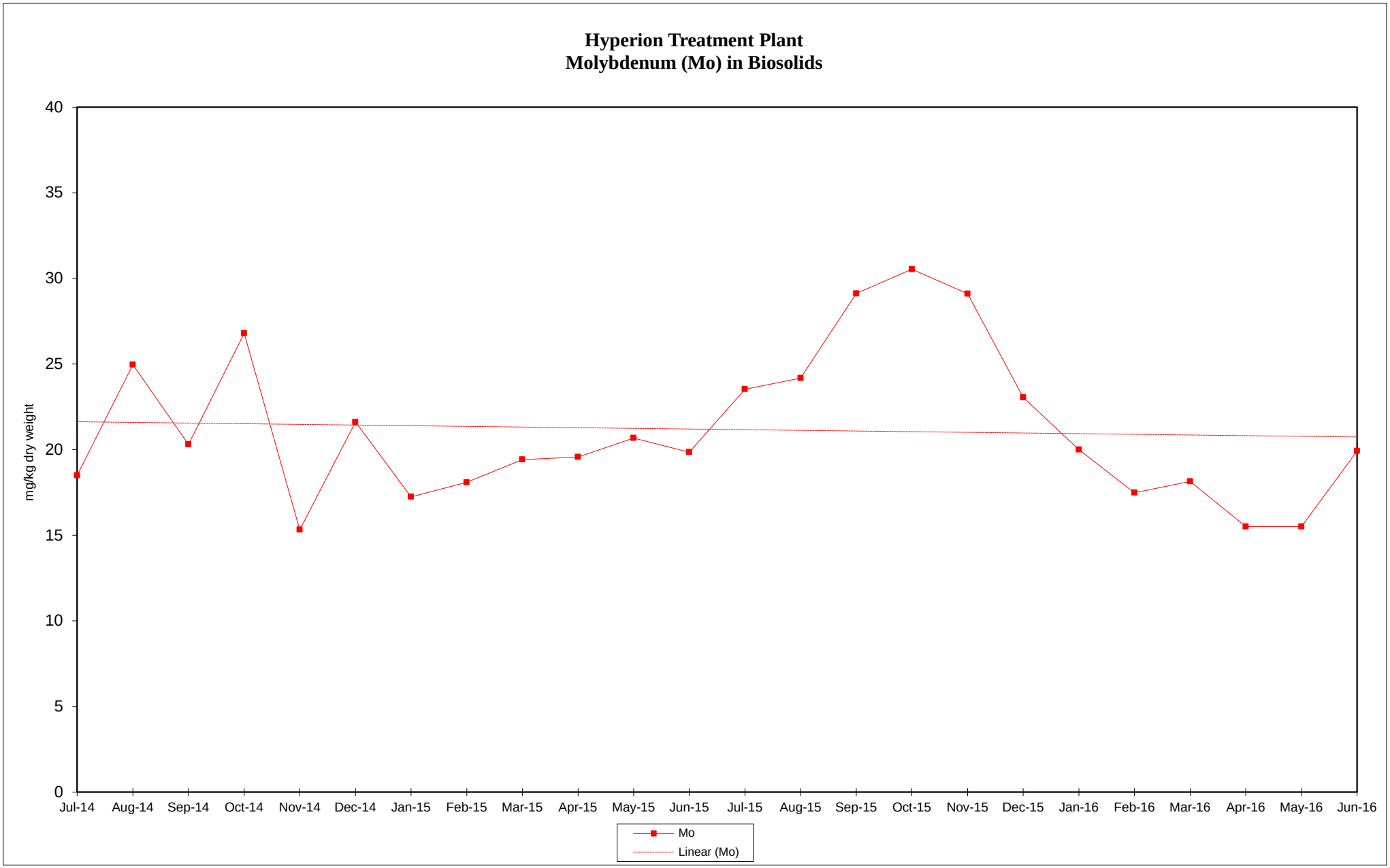

Figure 4. Concentrations of molybdenum in HTP biosolids from July 2014 to June 2016

Generated by RVALENZU at 07/11/2016 09:33:23 AM using the Production Database and WISARD V2.0

WISARD - Biosolids Management - HTP TITP Biosolids

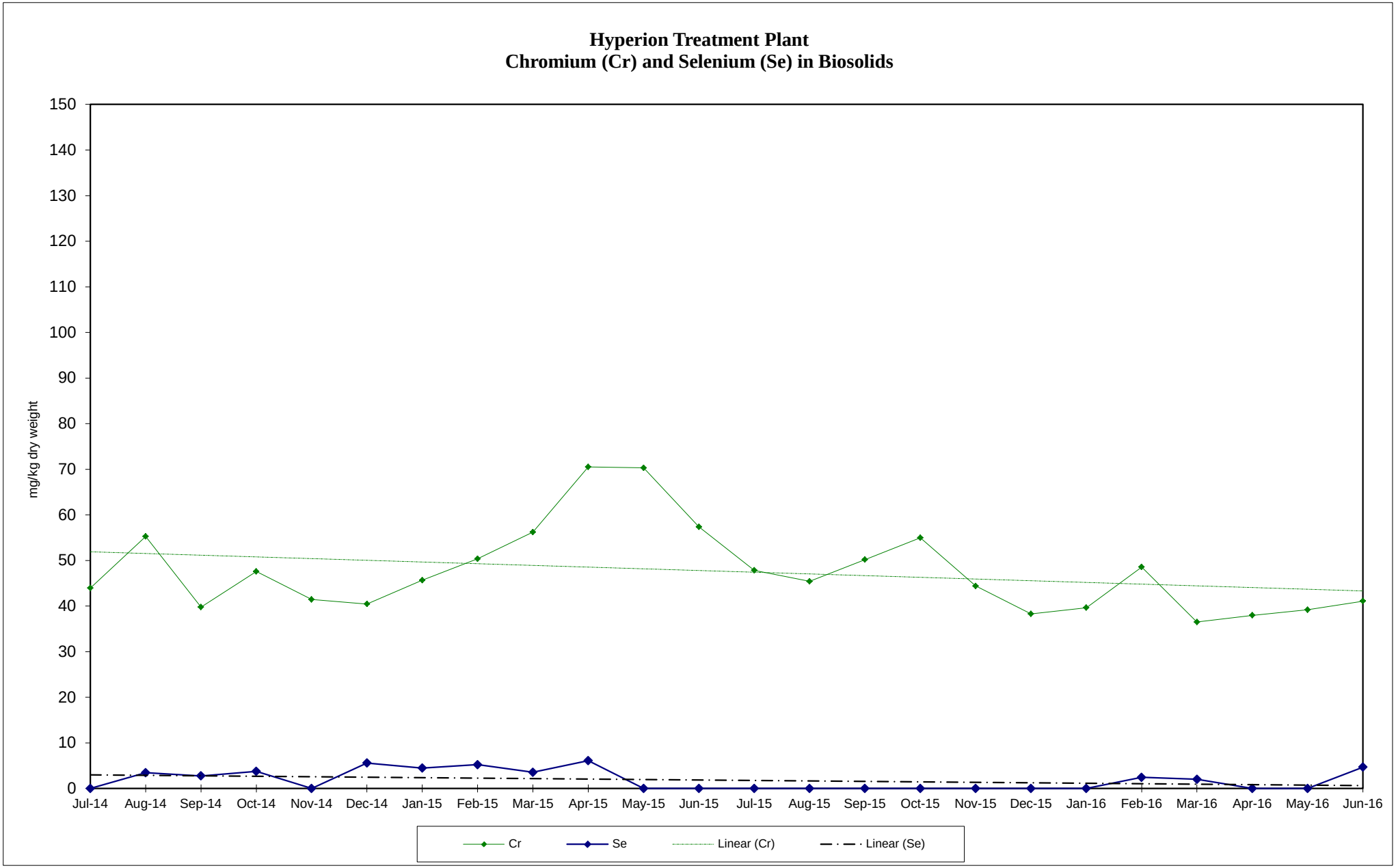

Figure 5. Concentrations of chromium and selenium in HTP biosolids from July 2014 to June 2016

Generated by RVALENZU at 07/11/2016 09:33:23 AM using the Production Database and WISARD V2.0

WISARD - Biosolids Management - HTP TITP Biosolids

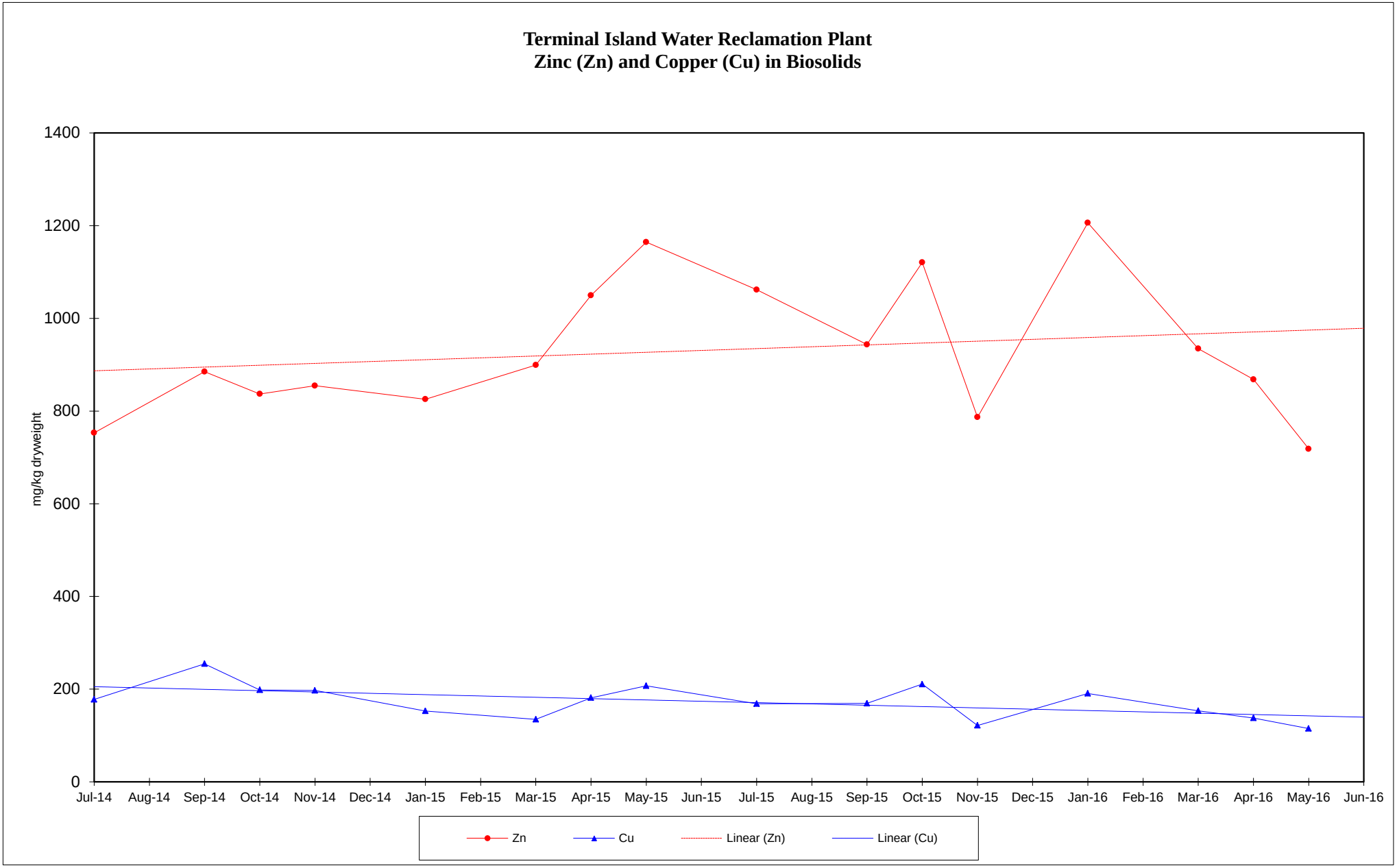

Figure 6. Concentrations of zinc and copper in TIWRP biosolids from July 2014 to June 2016

Generated by RVALENZU at 07/11/2016 09:33:23 AM using the Production Database and WISARD V2.0
WISARD - Biosolids Management - HTP TITP Biosolids

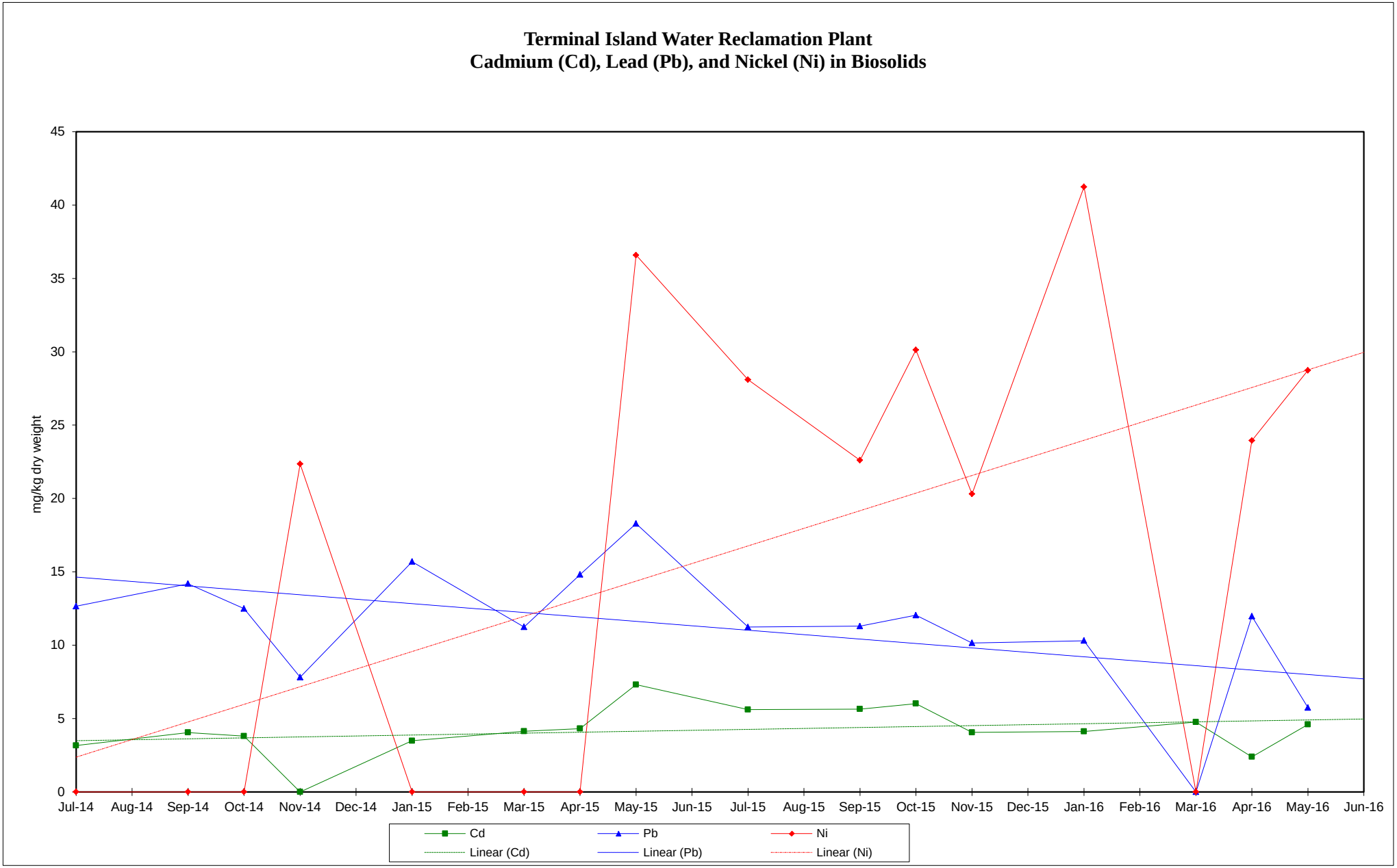

Figure 7. Concentrations of cadmium, lead, and nickel in TIWRP biosolids from July 2014 to June 2016

Generated by RVALENZU at 07/11/2016 09:33:23 AM using the Production Database and WISARD V2.0
WISARD - Biosolids Management - HTP TITP Biosolids

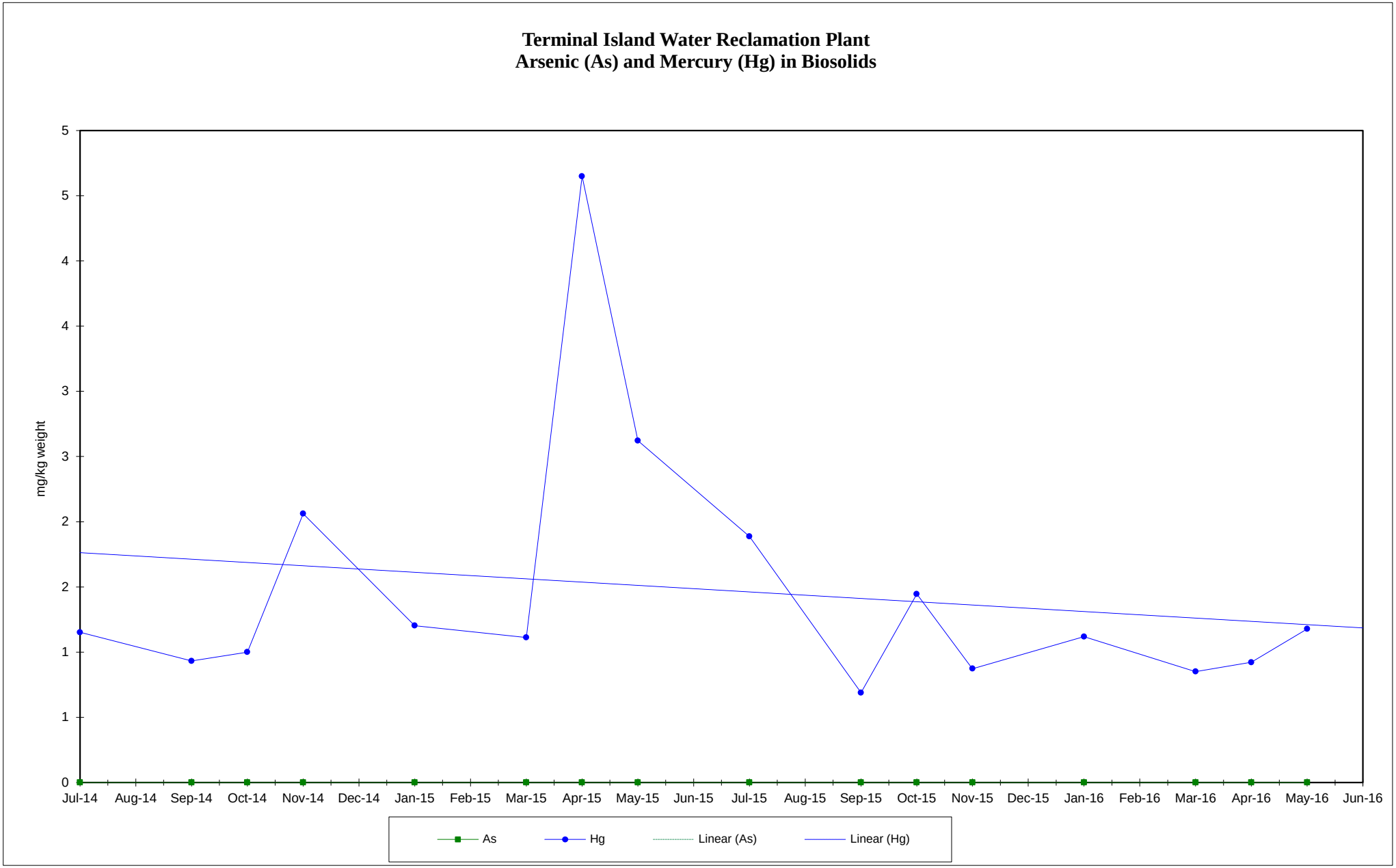

Figure 8. Concentrations of arsenic and mercury in TIWRP biosolids from July 2014 to June 2016

Generated by RVALENZU at 07/11/2016 09:33:23 AM using the Production Database and WISARD V2.0

WISARD - Biosolids Management - HTP TITP Biosolids

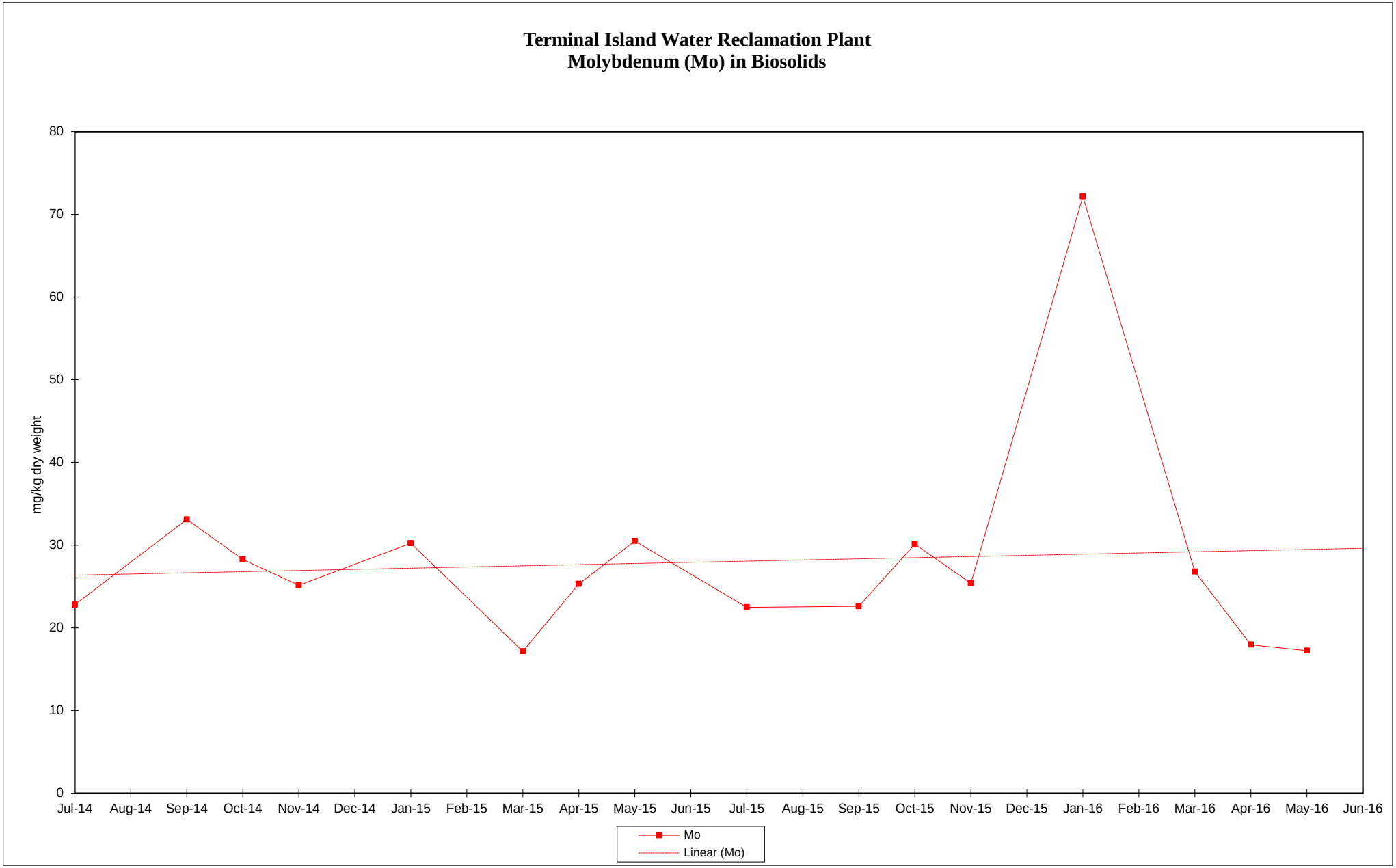

Figure 9. Concentrations of molybdenum in TIWRP Biosolids from July 2014 to June 2016

Generated by RVALENZU at 07/11/2016 09:33:23 AM using the Production Database and WISARD V2.0

WISARD - Biosolids Management - HTP TITP Biosolids

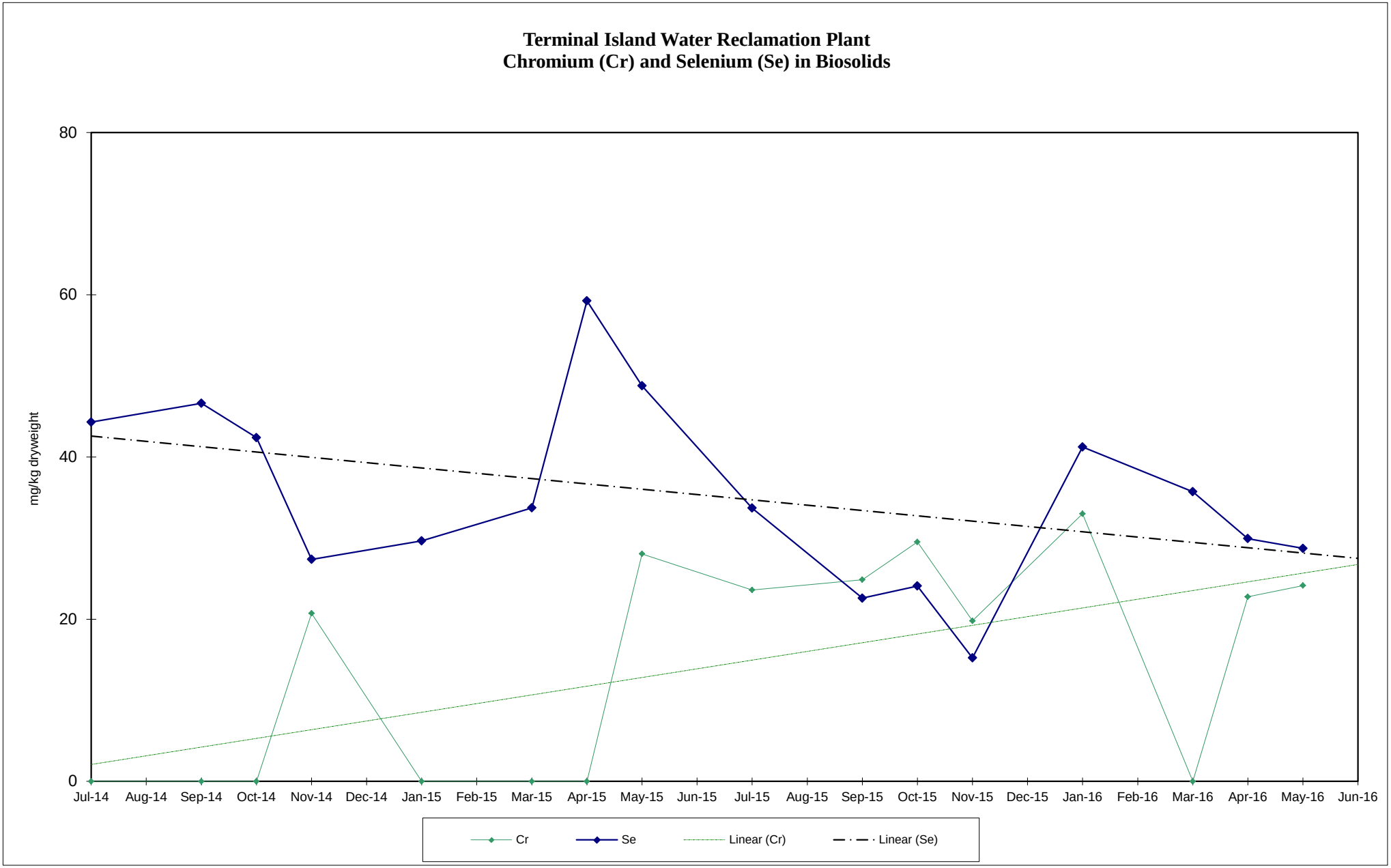

Figure 10. Concentrations of chromium and selenium in TIWRP biosolids from July 2014 to June 2016

Generated by RVALENZU at 07/11/2016 09:33:23 AM using the Production Database and WISARD V2.0

WISARD - Biosolids Management - HTP TITP Biosolids

Appendix 1

Monthly Biosolids Monitoring Report

HYPERION TREATMENT PLANT
MONTHLY BIOSOLIDS MONITORING REPORT FOR ARIZONA STATE
June 2016

Analyzed by Environmental Monitoring Division : Arizona ELAP Lic. No. AZ0690
Dept. of Public Works/ Bureau of Sanitation
City of Los Angeles, CA

Table 1. TOTAL SOLIDS AND TOTAL VOLATILE SOLIDS

Sample date: 06/06/2016
Method No. SM 2540 G

Sample*	Total Solids %	Total Volatile Solids %
Raw Sludge	3.41	83.2
TWAS	5.21	83.9
Digested Sludge	2.04	66.5

Table 2. BENEFICIAL USE ASSESSMENT OF BIOSOLIDS* : METALS DATA

Sample date: 06/06/2016

Parameters	Total Solids	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Molybdenum (Mo)	Lead (Pb)	Nickel (Ni)	Selenium (Se)	Zinc (Zn)	Mercury (Hg)
Method No.	SM 2540 G	EPA 3050/ EPA 6010B									EPA 7471A
Unit	%	mg/kg dry weight									
Results	23.9	3.01	10.7	41.1	720	19.9	19.0	53.1	4.69	1,210	1.01
Ceiling Conc.**	----	75	85	****	4300	75	840	420	100	7500	57
Pollutant Conc.***	----	41	39	****	1500	****	300	420	100	2800	17

TABLE 3. BIOSOLIDS^ - CLASS B COMPLIANCE MICROBIOLOGICAL MONITORING DATA

Sample Date				7-Jun	9-Jun	10-Jun	13-Jun	15-Jun	16-Jun	17-Jun	Geomean
PARAMETERS	Method #	Unit	Req #								
Total Solids	SM 2540G	%	-----	2.20	2.12	2.20	2.13	1.94	2.15	2.23	
Fecal Coliform	SM 9221E	MPN/gram TS(dry wt.)	<2,000,000	3.2E+04	6.1E+05	1.0E+05	<8.5E+02	6.7E+04	6.0E+04	1.5E+05	<5.2E+04

Table 4. HTP BIOSOLIDS - CLASS A COMPLIANCE MONITORING DATA

Analyzed by Environmental Monitoring Division : Arizona ELAP Lic. No. AZ0690 Helminth Ova and Enteric Virus analyzed by Aerotech, an Arizona ELAP Lic No. AZ0611

Sample date	Parameters	FECAL COLIFORM		SALMONELLA, sp.		HELMINTH OVA*			ENTERIC VIRUS*		
		MPN/gram TS (dry wt)		MPN/4 grams TS (dry wt)		Viable Helminth Ova/4 grams TS (dry wt)			MPN IU/4 grams TS (dry wt)^^		
	%TS	Silo#/Farm		Silo#/Farm		Sludge	Silo#/Farm		Sludge	Silo#/Farm	
6/7/2016	25.5	Silo #2	<7.1	Silo #2	<1.7	*****	Silo #2	*****	*****	Silo #2	*****

* - 24- Hour composite sample
** - Ceiling concentration in Table 1 of EPA Part 503 Sludge Regulation
*** - Pollutant concentration in Table 3 of EPA Part 503 Sludge Regulation
**** - Limit was deleted according to Federal Register Vol. 60, No. 206 of Oct. 25, 1995
***** - No lab with Arizona certification available
^ - Grab sample of digested sludge
# - EPA 40 CFR Part 503 Class B requirement
SM - Standard Methods, 20th Ed. 1998

TERMINAL ISLAND WATER RECLAMATION PLANT
MONTHLY BIOSOLIDS MONITORING REPORT FOR ARIZONA STATE
June 2016

Analyzed by Environmental Monitoring Division : Arizona ELAP Lic. No. AZ0690
Dept. of Public Works/ Bureau of Sanitation
City of Los Angeles, CA

Table 1. TOTAL SOLIDS AND VOLATILE SOLIDS

Sample date: 06/13/2016

Method No. SM 2540 G

Sample*	Total Solids %	Total Volatile Solids %
Raw Sludge	5.01	81.7
TWAS	4.36	79.4
Digested Sludge	1.86	58.4

Table 2. BENEFICIAL USE ASSESSMENT OF BIOSOLIDS*: METALS DATA

Sample date:

Parameters	Total Solids	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Molybdenum (Mo)	Lead (Pb)	Nickel (Ni)	Selenium (Se)	Zinc (Zn)	Mercury (Hg)
Method No.	**SM 2540 G**	**EPA 3050/ EPA 6010B**									**EPA 7471A**
Unit	**%**	**mg/kg dry weight**									
Results	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Ceiling Conc.**	----	75	85	****	4300	75	840	420	100	7500	57
Pollutant Conc.***	----	41	39	****	1500	****	300	420	100	2800	17

TABLE 3. BIOSOLIDS^ - CLASS A COMPLIANCE MICROBIOLOGICAL MONITORING DATA

Sample Date:

Parameters	TOTAL SOLIDS	FECAL COLIFORM	SALMONELLA, sp.
Method No.	**SM2540G**	**SM 9221E**	**SM 9260D**
Unit	**%**	**MPN/gram TS (dry wt)**	**MPN/4 grams TS (dry wt)**
Frequency	**6 Times/Year@**	**6 Times/Year@**	**Quarterly**
Results	NS	NS	NS
Requirement#		<1000	<3

* - 24-Hour composite sample
** - Ceiling concentration in Table 1 of EPA Part 503 Sludge Regulation
*** - Pollutant concentration in Table 3 of EPA Part 503 Sludge Regulation
**** - Limit was deleted according to Federal Register Vol. 60, No. 206 of Oct. 25, 1995
@ - Sampling frequency for TIWRP is 6 months/year. The months are: Jan, Mar, May, Jul, Sep and Nov.
# - EPA 40 CFR Part 503 Class A requirements
^ - Grab sample from Farm
NS - Sampling not required
SM - Standard Methods, 20th Ed. 1998