FORM GEN. 160 (Rev. 6-80)

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

DATE: October 22, 2015

TO: Timeyin Dafeta, Plant Manager
Hyperion Treatment Plant

Mark Starr, Plant Manager
Terminal Island Water Reclamation Plant

FROM: Masahiro Dojiri, Division Manager
Environmental Monitoring Division

SUBJECT: **ASSESSMENT OF BIOSOLIDS FOR SEPTEMBER 2015**

This report contains data from the analysis of composite biosolids and digested sludge samples collected in September 2015 at the Hyperion Treatment Plant and Terminal Island Water Reclamation Plant, respectively. 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 Treatment 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, Tables 1 and 3. Cadmium, Zinc, and Potassium results for September were slightly higher than their 12-month averages (Table 1 and 2). Please note that the concentration of Molybdenum was substantially higher than its 12-month average (Table 1). Also for September, fecal coliform and *Salmonella* results were below the EPA 40 CFR Part 503 limit for Class A biosolids (Table 6). The September helminth ova and enteric virus results were below the limits for Class A biosolids. The September 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.

For September 2015, the metals and nutrient analyses data are presented in Tables 3 and 4. Please note that the concentrations of Chromium and Nickel were substantially higher than their 12-month average in September (Table 3). All metals detected in the composite sample were below their respective aforementioned limits. Dioxin and polychlorinated biphenyl results were non-detect (Table 5). Fecal coliform and *Salmonella* were below the EPA 40 CFR Part 503 limit for Class A biosolids (Table 7).

Graphs of the concentrations of selected metals in HTP 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 Kay Yamamoto 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.

c: Ron Palacios (HTP)

ec:

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Emmanuel Alloh (HTP)	Miguel Medina (HTP)	Lance Thibodeaux (TIWRP)

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									
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
Jun-15	8.8	27.2	0.735	11.8	57.4	750	19.9	24.6	1.61	43.4	ND	1,180
May-15	8.7	26.6	0.752	11.8	70.3	767	20.7	29.7	1.32	45.9	ND	1,290
Apr-15	8.0	27.8	1.98	13.6	70.5	791	19.6	30.9	1.53	48.2	6.12	1,370
Mar-15	8.7	24.2	ND	11.8	56.2	802	19.4	26.3	1.71	46.3	3.55	1,240
Feb-15	8.5	27.2	ND	17.8	50.4	688	18.1	23.5	1.81	36.0	5.22	1,040
Jan-15	8.2	27.6	ND	8.15	45.7	728	17.2	22.1	1.16	37.7	4.46	942
Dec-14	8.3	26.7	ND	11.1	40.4	794	21.6	22.8	1.56	39.3	5.58	996
Nov-14	8.3	28.0	ND	4.75	41.4	864	15.3	12.5	1.71	35.6	ND	1,060
Oct-14	8.6	27.1 ^	ND	8.12	47.6	893	26.8	24.4	1.44	35.4	3.76	1,050
Average	8.5	26.8	0.289	11.1	51.9	786	21.3	23.8	1.45	40.9	2.39	1,160
Maximum	8.8	28.0	1.98	17.8	70.5	893	29.1	30.9	1.81	48.2	6.12	1,370
Minimum	8.0	24.2	ND	4.75	40.4	688	15.3	12.5	0.985	35.4	ND	942
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

^ The value represents the average of two analysis performed for the month
* 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										
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
Jun-15	27.2	4,300	38,200	34,900	1,220	6,760	29.4	30,600	1,380	7,460	39,700
May-15	26.6	4,700	42,100	35,200	1,380	5,790	15.0	27,000	1,320	7,140	40,600
Apr-15	27.8	4,400	46,400	43,200	1,770	7,810	10.8	24,800	1,430	6,800	34,300
Mar-15	24.2	4,100	47,100	43,800	1,490	8,060	8.26	31,800	1,560	8,260	51,700
Feb-15	27.2	3,800	44,900	39,300	1,320	7,280	18.4	27,500	1,330	9,040	45,600
Jan-15	27.6	3,800	40,600	43,100	1,570	7,170	18.1	28,600	1,160	7,610	39,100
Dec-14	26.7	4,500	43,400	42,700	1,920	6,930	22.5	29,100	1,460	7,870	37,200
Nov-14	28.0	4,400	42,500	39,300	1,080	7,000	10.7	28,600	1,350	7,680	41,100
Oct-14	27.1 ^	4,300	40,600	44,600	1,310	7,120	18.5	31,800	1,340	8,410	39,900
Average	26.8	4,280	42,000	39,100	1,520	6,990	18.3	28,600	1,420	7,990	41,200
Maximum	28.0	4,700	47,100	44,600	2,350	8,060	29.4	31,800	1,660	10,000	51,700
Minimum	24.2	3,800	37,800	28,900	1,080	5,790	8.26	24,800	1,160	6,800	34,300

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^ The value represents the average of two analysis performed for the month

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											
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
Jun-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
May-15	7.3	1.6	ND	7.32	28.0	207	30.5	18.3	2.62	36.6	48.8	1,160
Apr-15	7.7	1.6	ND	4.32	ND	181	25.3	14.8	4.65	ND	59.3	1,050
Mar-15	7.6	1.7	ND	4.14	ND	135	17.2	11.2	1.11	ND	33.7	899
Feb-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Jan-15	7.7	1.7	ND	3.49	ND	153	30.2	15.7	1.20	ND	29.7	826
Dec-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nov-14	7.6	1.8	ND	ND	20.7	197	25.1	7.82	2.06	22.3	27.4	855
Oct-14	7.6	1.8 ^	ND	3.80	ND	198	28.3	12.5	1.00	ND	42.4	837
Average	7.5	1.7	ND	4.29	12.2	176	25.2	12.9	1.90	13.7	37.2	955
Maximum	7.7	1.8	ND	7.32	28.0	207	30.5	18.3	4.65	36.6	59.3	1,160
Minimum	7.3	1.6	ND	ND	ND	135	17.2	7.82	0.689	ND	22.6	826
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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^ The value represents the average of two analysis performed for the month
* 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										
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
Jun-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
May-15	1.6	4,900	28,900	52,000	9,510	9,630	ND	26,500	43,500	58,500	21,500
Apr-15	1.6	3,600	29,000	52,500	10,600	10,900	ND	28,600	44,700	62,400	32,500
Mar-15	1.7	2,800	29,800	55,600	10,100	11,500	ND	27,500	45,500	59,200	31,200
Feb-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Jan-15	1.7	2,700	25,800	40,700	10,300	11,200	ND	29,100	41,100	67,400	33,600
Dec-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nov-14	1.8	3,700	27,700	35,400	ND	12,400	ND	30,700	45,900	53,500	30,700
Oct-14	1.8 ^	2,900	28,600	40,600	9,460	11,100	ND	32,000	41,500	28,200	51,700
Average	1.7	3,600	27,200	44,900	8,480	11,000	ND	29,000	42,600	54,700	33,300
Maximum	1.8	4,900	29,800	55,600	10,600	12,400	ND	32,000	45,900	67,400	51,700
Minimum	1.6	2,700	22,100	35,400	ND	9,630	ND	26,500	37,100	28,200	21,500

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^ The value represents the average of two analysis performed for the month
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**							Total PCBs***
		AR 1016	AR 1221	AR 1232	AR 1242	AR 1248	AR 1254	AR 1260	
		ppm (mg/kg) wet weight							ppm (mg/kg wet wt.)
HTP BIOSOLIDS									
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
Jun-15	<0.50000 *	<0.00430	<0.02500	<0.02400	<0.00620	<0.00440	<0.00830	<0.00290	ND
May-15	<0.50000 *	<0.00430	<0.02500	<0.02400	<0.00620	<0.00440	<0.00830	<0.00290	ND
Apr-15	<0.00100 ^^	<0.00430	<0.02500	<0.02400	<0.00620	<0.00440	<0.00830	<0.00290	ND
Mar-15	<0.50000 *	<0.00430	<0.02500	<0.02400	<0.00620	<0.00440	<0.00830	<0.00290	ND
Feb-15	<0.50000 *	<0.00430	<0.02500	<0.02400	<0.00620	<0.00440	<0.00830	<0.00290	ND
Jan-15	<0.00100 ^^	<0.00300	<0.01100	<0.00630	<0.00320	<0.00670	<0.00640	<0.00440	ND
Dec-14	<0.50000 *	<0.01700	<0.03000	<0.02100	<0.02400	<0.03800	<0.02600	<0.00130	ND
Nov-14	<0.50000 *	<0.01700	<0.03000	<0.02100	<0.02400	<0.03800	<0.02600	<0.00130	ND
Oct-14	<0.00100 ^^	<0.01700	<0.03000	<0.02100	<0.02400	<0.03800	<0.02600	<0.00130	ND
TIWRP BIOSOLIDS / DIGESTED SLUDGE @, #									
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
Jun-15	NS	NS	NS	NS	NS	NS	NS	NS	NS
May-15	<0.50000 *	<0.00430	<0.02500	<0.02400	<0.00620	<0.00440	<0.00830	<0.00290	ND
Apr-15	<0.00100 ^^	<0.00430	<0.02500	<0.02400	<0.00620	<0.00440	<0.00830	<0.00290	ND
Mar-15	<0.50000 *	<0.00430	<0.02500	<0.02400	<0.00620	<0.00440	<0.00830	<0.00290	ND
Feb-15	NS	NS	NS	NS	NS	NS	NS	NS	NS
Jan-15	<0.00100 ^^	<0.00300	<0.01100	<0.00630	<0.00320	<0.00670	<0.00640	<0.00440	ND
Dec-14	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nov-14	<0.50000 *	<0.01700	<0.03000	<0.02100	<0.02400	<0.03800	<0.02600	<0.00130	ND
Oct-14	<0.00100 ^^	<0.01700	<0.03000	<0.02100	<0.02400	<0.03800	<0.02600	<0.00130	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) Silo#/Farm		SALMONELLA, sp. MPN/4 grams TS (dry wt) Silo#/Farm		HELMINTH OVA Viable Helminth Ova/4 grams TS (dry wt) Raw Sludge	HELMINTH OVA Silo#/Farm		ENTERIC VIRUS PFU/4 grams TS (dry wt) Raw Sludge	ENTERIC VIRUS PFU/4 grams TS (dry wt) Silo#/Farm	
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
June 9, 2015	26.5	Silo #3	<6.8	Silo #3	<1.7	4.7	Silo #3	<0.5	9.9	Silo #3	<0.5
May 5, 2015	25.1	Silo	<7.2	Silo	<1.6	4.6	Silo	<0.5	11.6	Silo	<0.5
April 7, 2015	24.6	Farm	8.1	Farm	<1.7	1.9	Farm	<0.5	8.6	Farm	<0.5
March 10, 2015	26.8	Silo	7.5	Silo	<1.6	5.5	Silo	<0.5	4.8	Silo	<0.4
February 10, 2015	26.3	Silo #3	103.4	Silo #3	<1.6	8.5	Silo #3	<0.5	17.0	Silo #3	<0.5
January 6, 2015	26.8	Farm	<6.7	Farm	<1.5	6.3	Farm	<0.5	6.0	Farm	<0.5
December 9, 2014	27.1	Silo #2	16.6	Silo #2	<1.5	5.5	Silo #2	<0.5	8.2	Silo #2	<0.5
November 4, 2014	25.9	Silo #2	<6.9	Silo #2	<1.6	6.0	Silo #2	<0.5	15.2	Silo #2	<0.5
October 7, 2014	26.4	Farm	<6.8	Farm	<1.6	9.4	Farm	<0.5	13.2	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	
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
Jun-15	NS	NS	NS	NS	NS	NS
May-15	TIWRP Digester Sludge	1.77	TIWRP Digester Sludge	<10.2	TIWRP Digester Sludge	<1.5
Apr-15	NS	NS	NS	NS	NS	NS
Mar-15	TIWRP Digester Sludge	1.66	TIWRP Digester Sludge	<10.8	TIWRP Digester Sludge	<1.4
Feb-15	NS	NS	NS	NS	NS	NS
Jan-15	TIWRP Digester Sludge	1.60	TIWRP Digester Sludge	<11.3	TIWRP Digester Sludge	NT
Dec-14	NS	NS	NS	NS	NS	NS
Nov-14	TIWRP Digester Sludge	1.83	TIWRP Digester Sludge	<9.8	TIWRP Digester Sludge	<1.6
Oct-14	NS	NS	NS	NS	NS	NS
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.
NT - Sample was not tested - damaged sample bottle during processing.

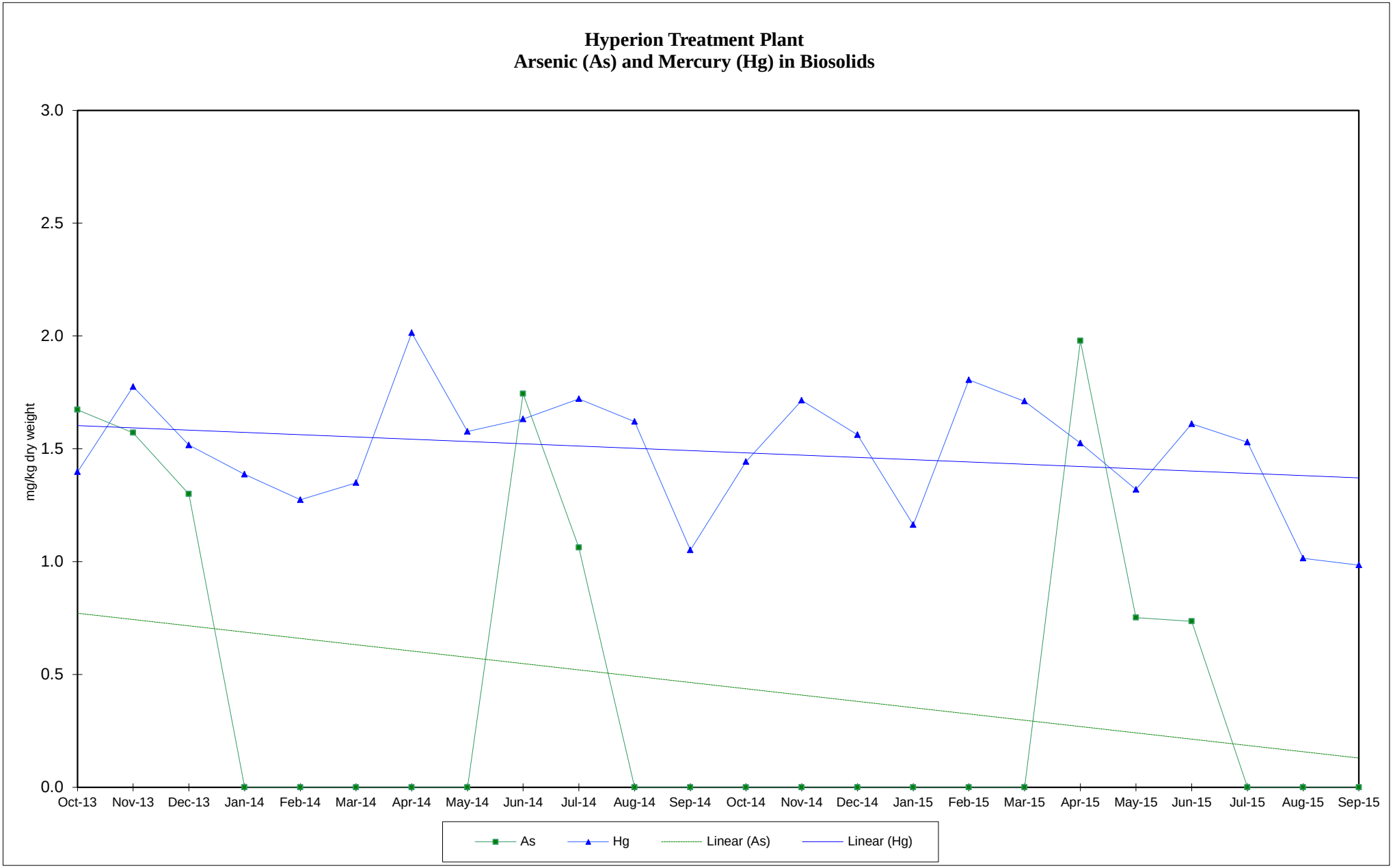

Figure 1. Concentrations of arsenic and mercury in HTP biosolids from October 2013 to September 2015

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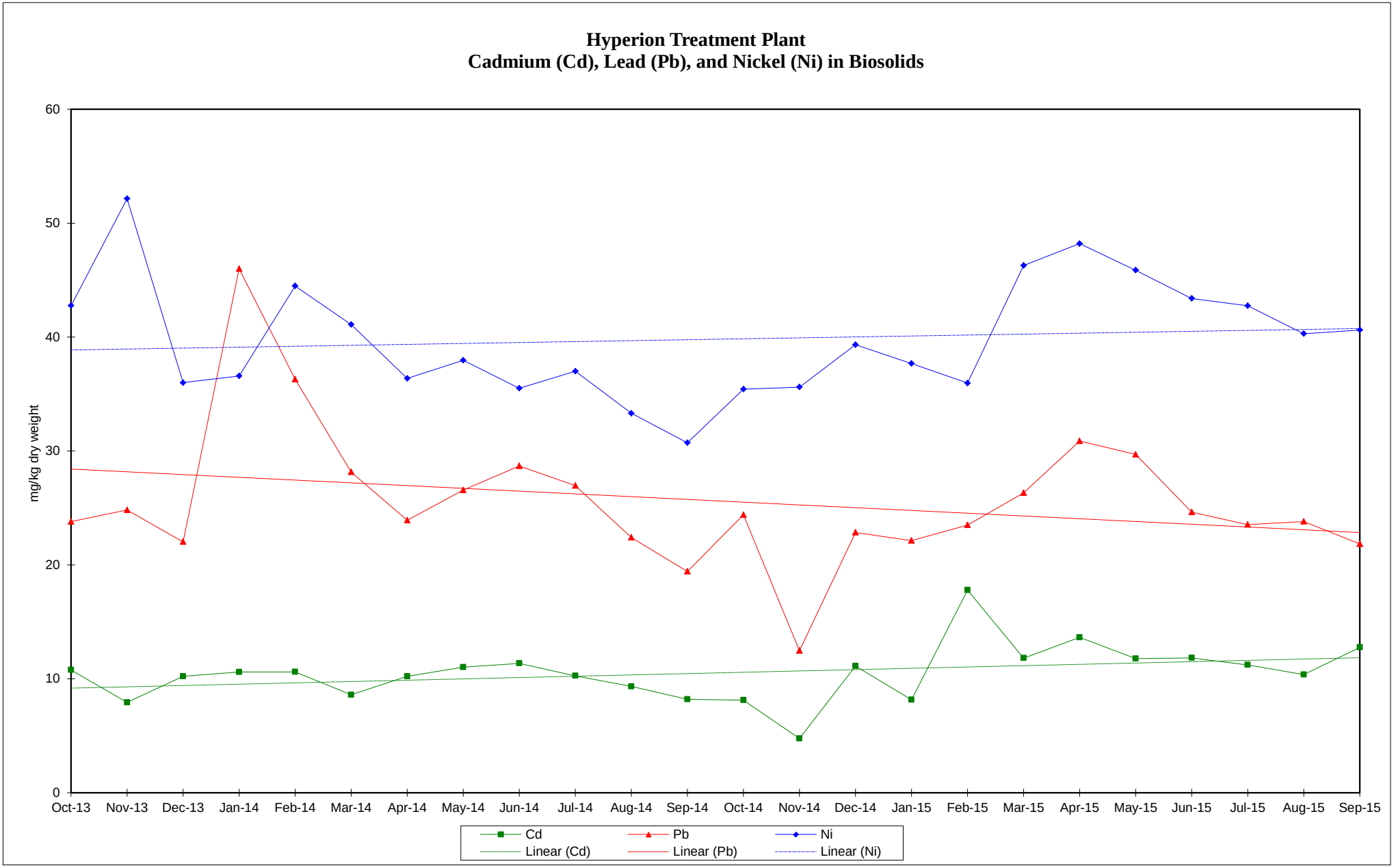

Figure 2. Concentrations of cadmium, lead, and nickel in HTP biosolids from October 2013 to September 2015

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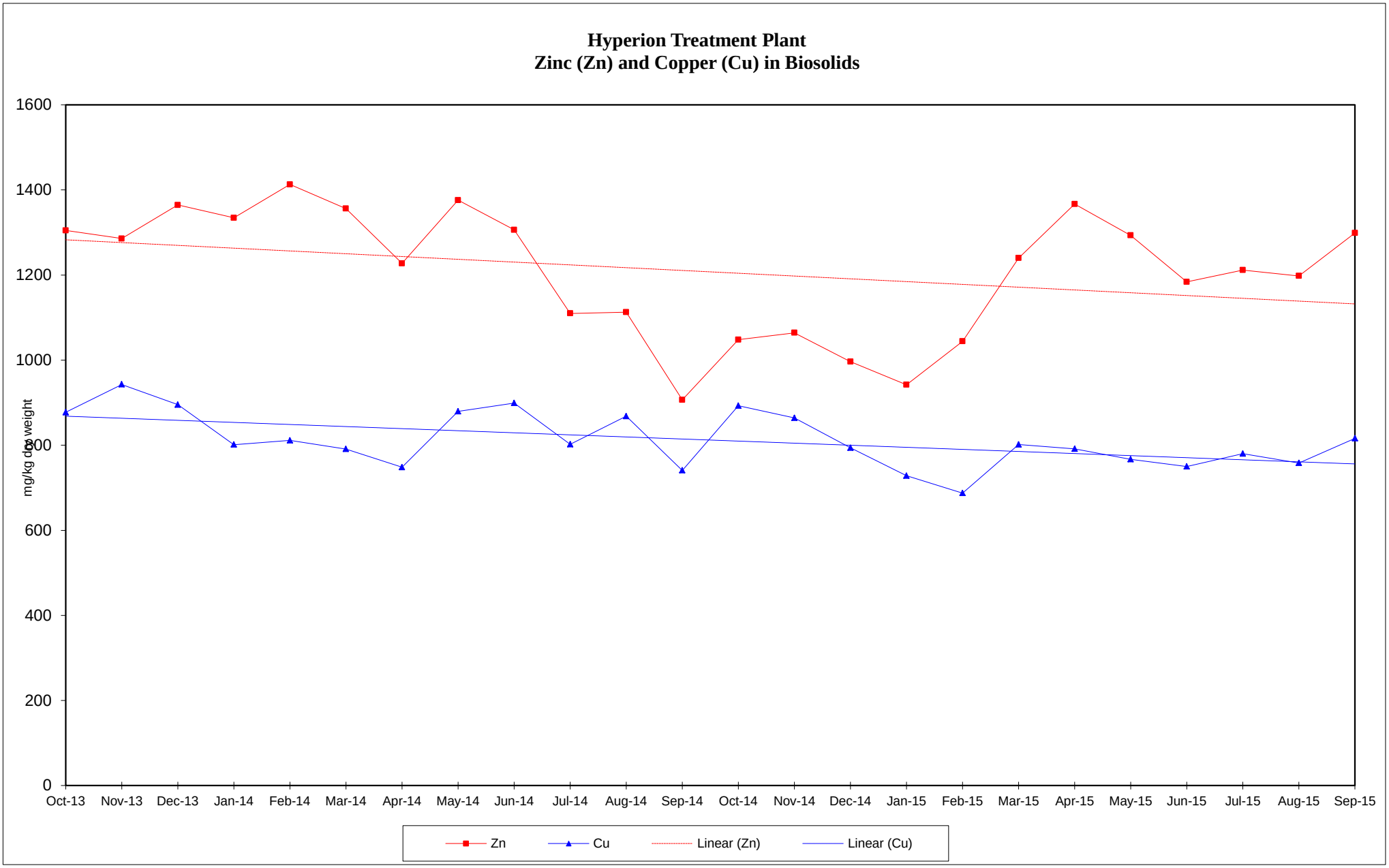

Figure 3. Concentrations of zinc and copper in HTP biosolids from October 2013 to September 2015

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WISARD - Biosolids Management - HTP TITP Biosolids

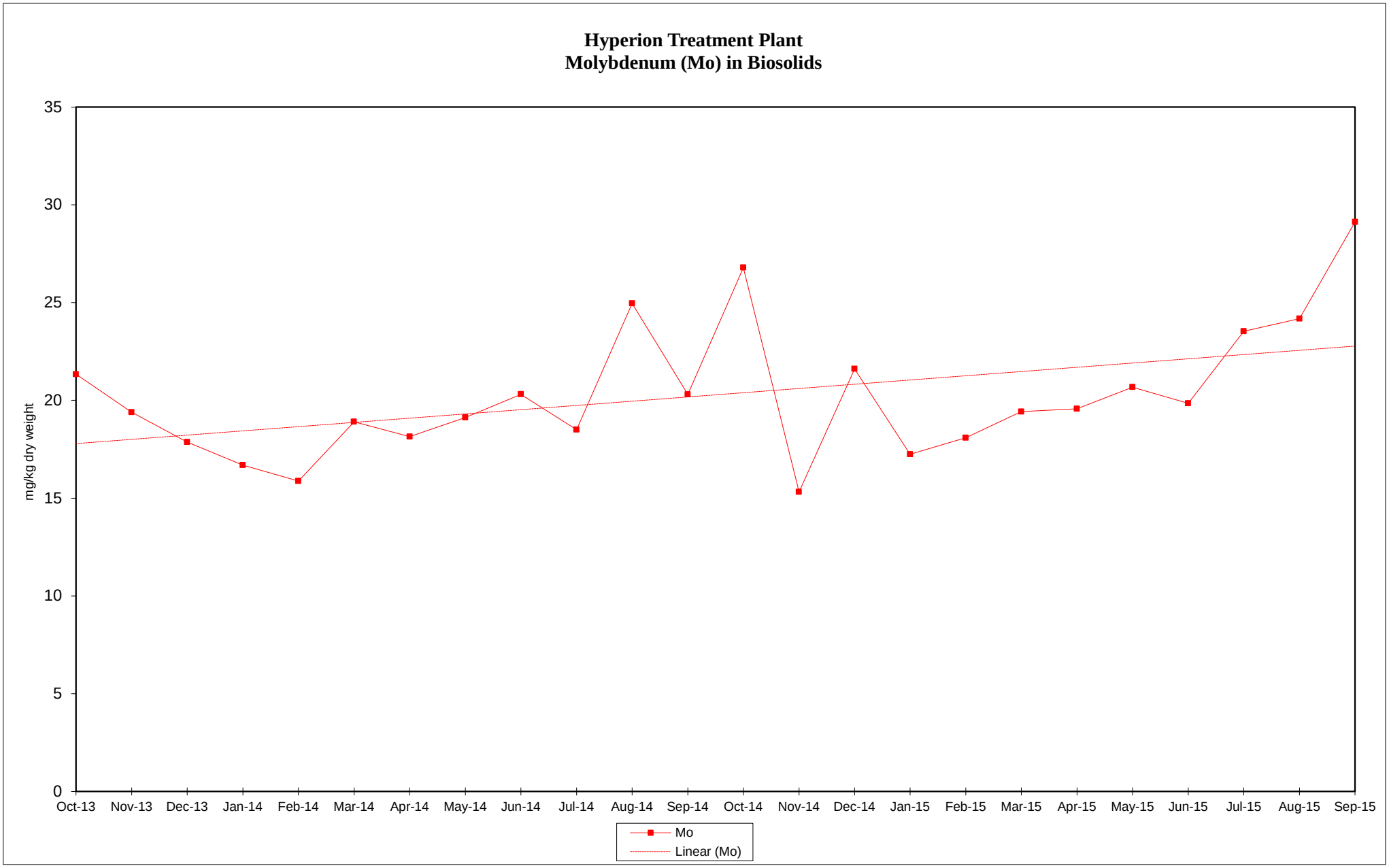

Figure 4. Concentrations of molybdenum in HTP biosolids from October 2013 to September 2015

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WISARD - Biosolids Management - HTP TITP Biosolids

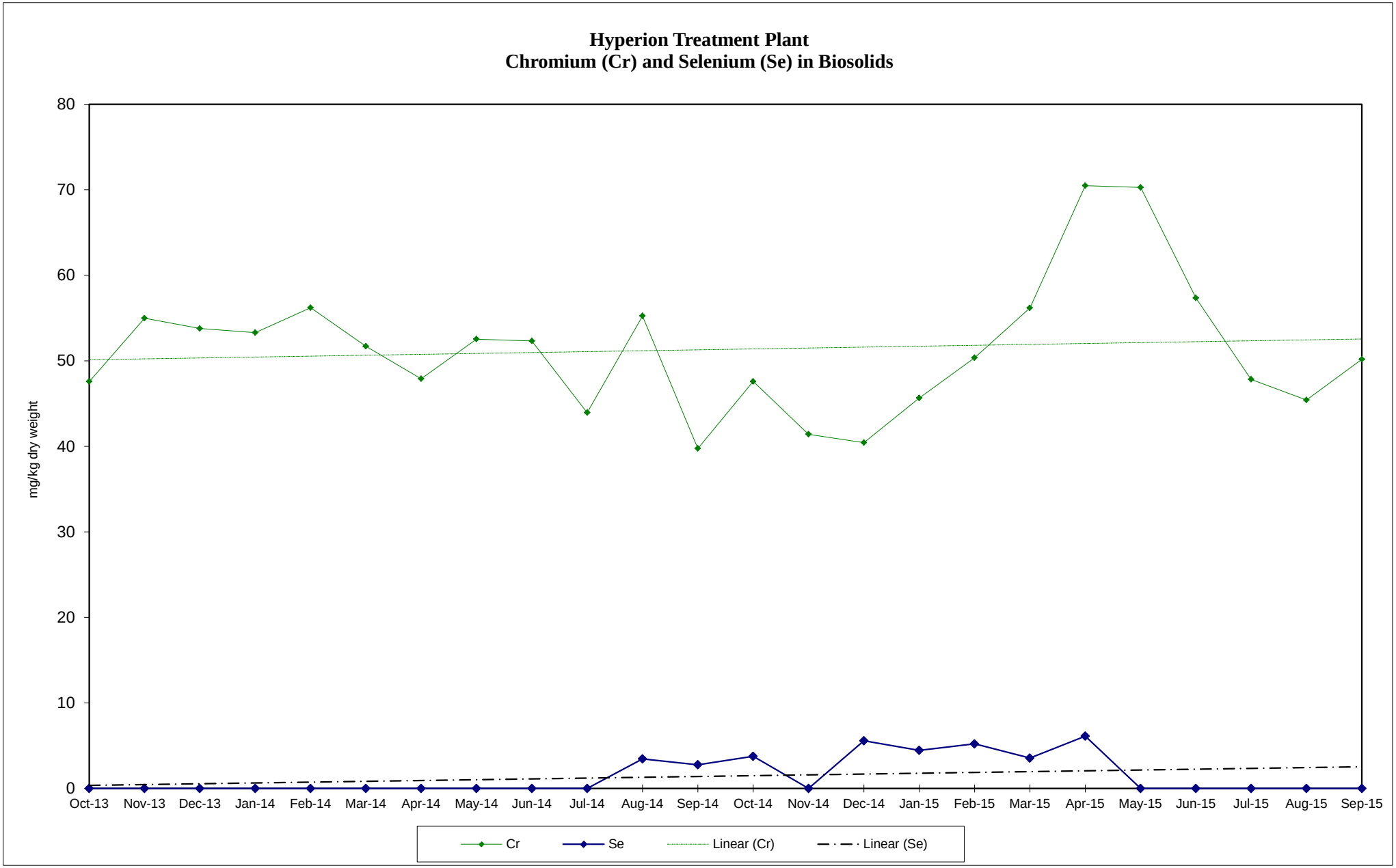

Figure 5. Concentrations of chromium and selenium in HTP biosolids from October 2013 to September 2015

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WISARD - Biosolids Management - HTP TITP Biosolids

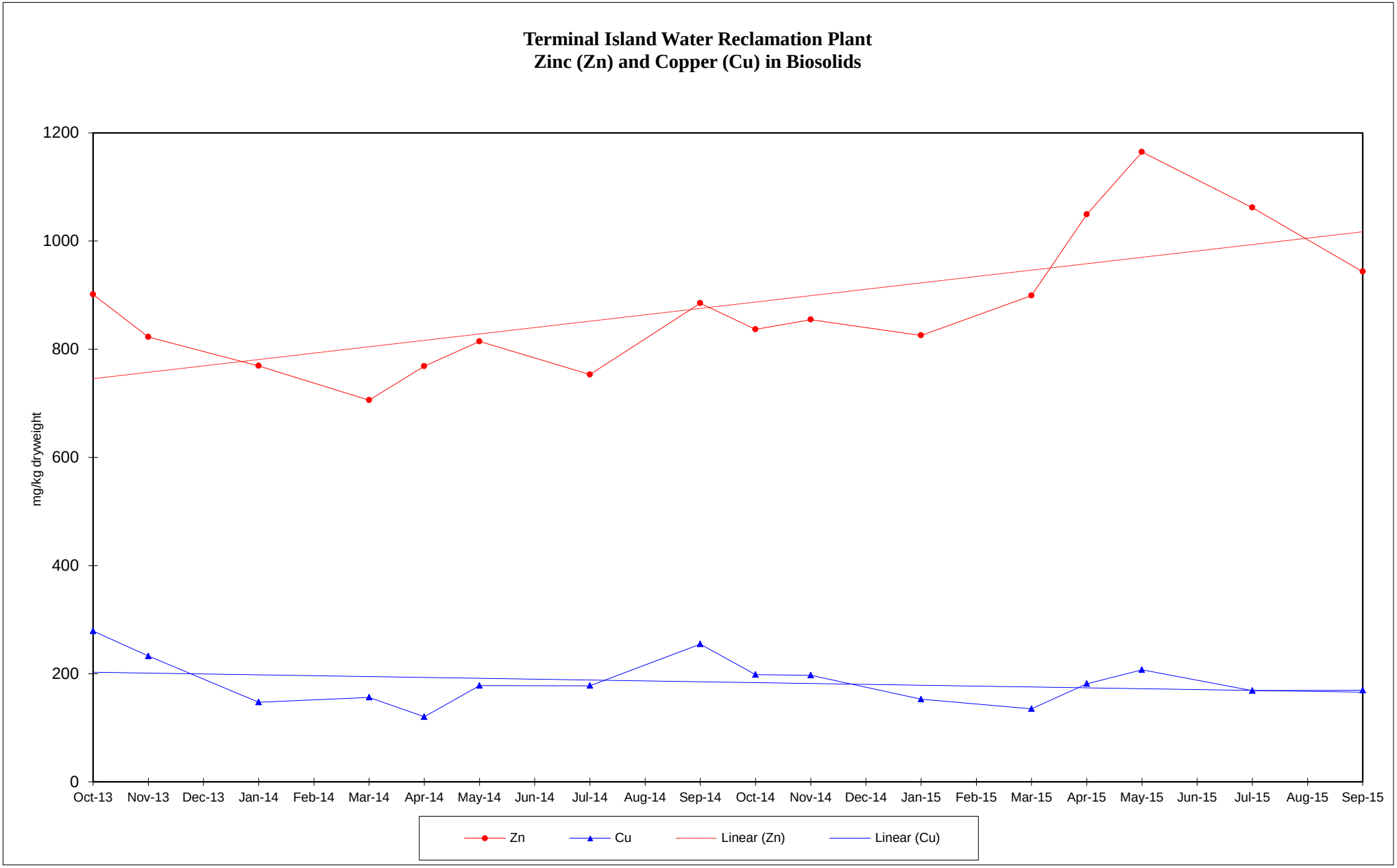

Figure 6. Concentrations of zinc and copper in TIWRP biosolids from October 2013 to September 2015

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WISARD - Biosolids Management - HTP TITP Biosolids

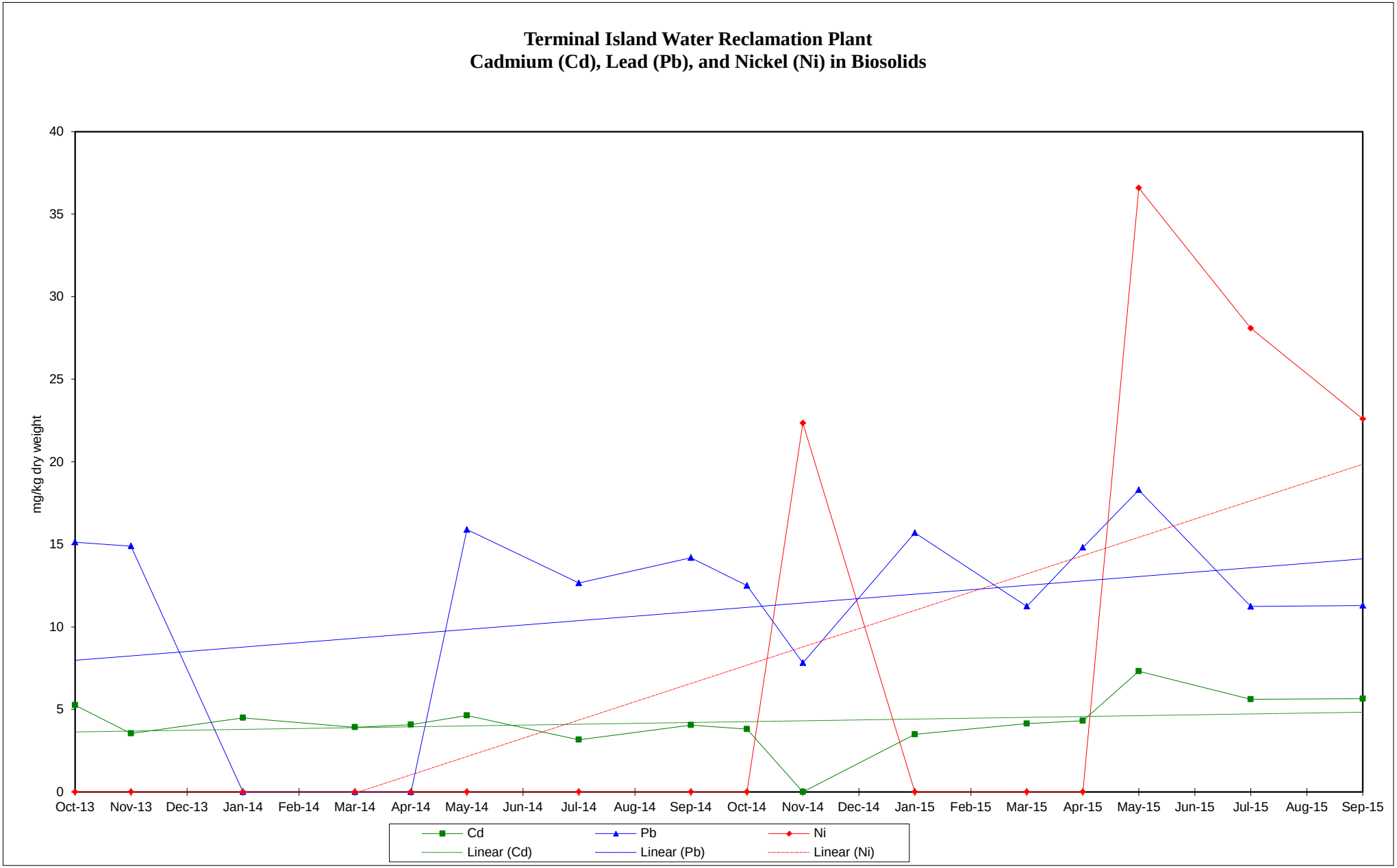

Figure 7. Concentrations of cadmium, lead, and nickel in TIWRP biosolids from October 2013 to September 2015

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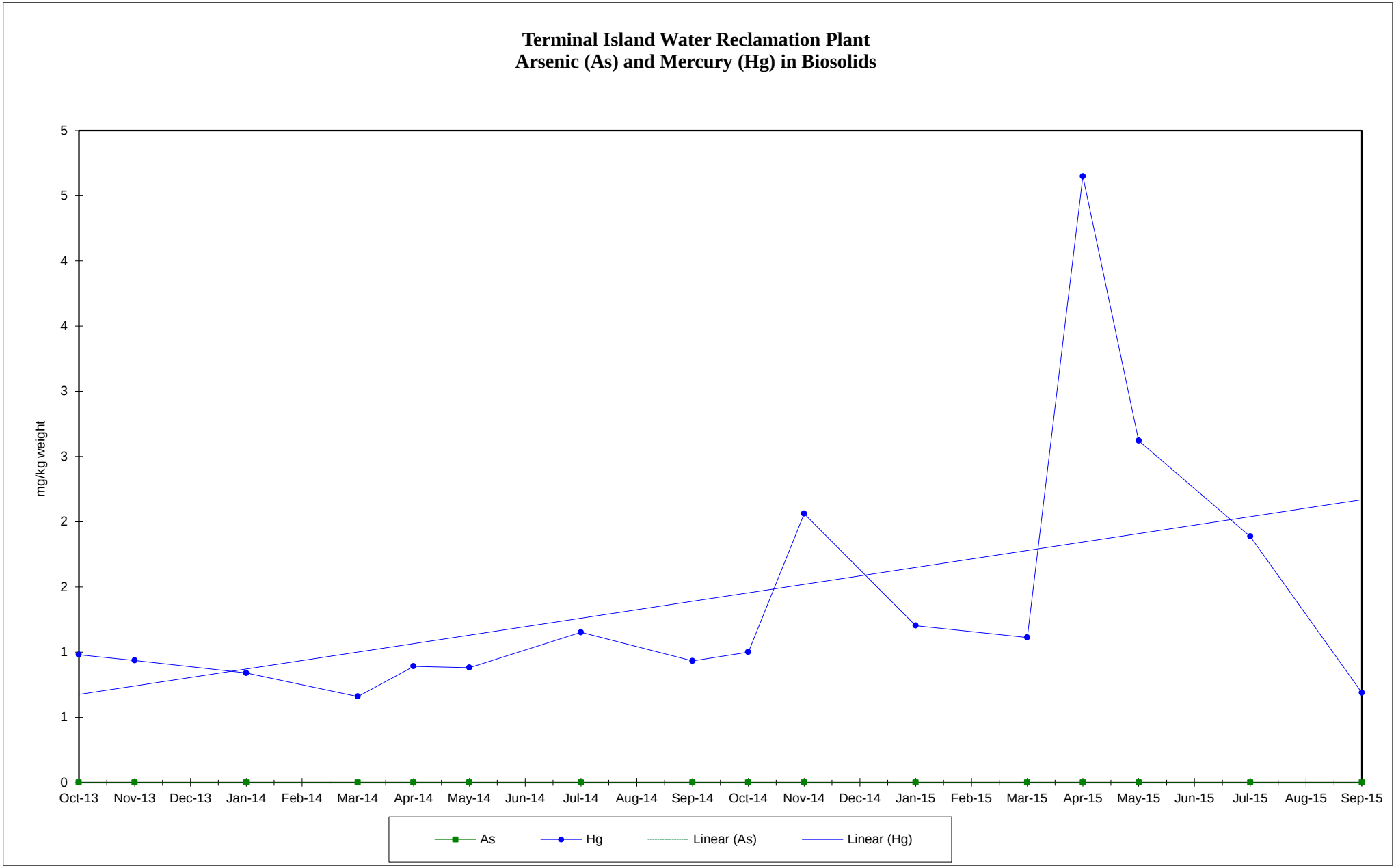

Figure 8. Concentrations of arsenic and mercury in TIWRP biosolids from October 2013 to September 2015

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WISARD - Biosolids Management - HTP TITP Biosolids

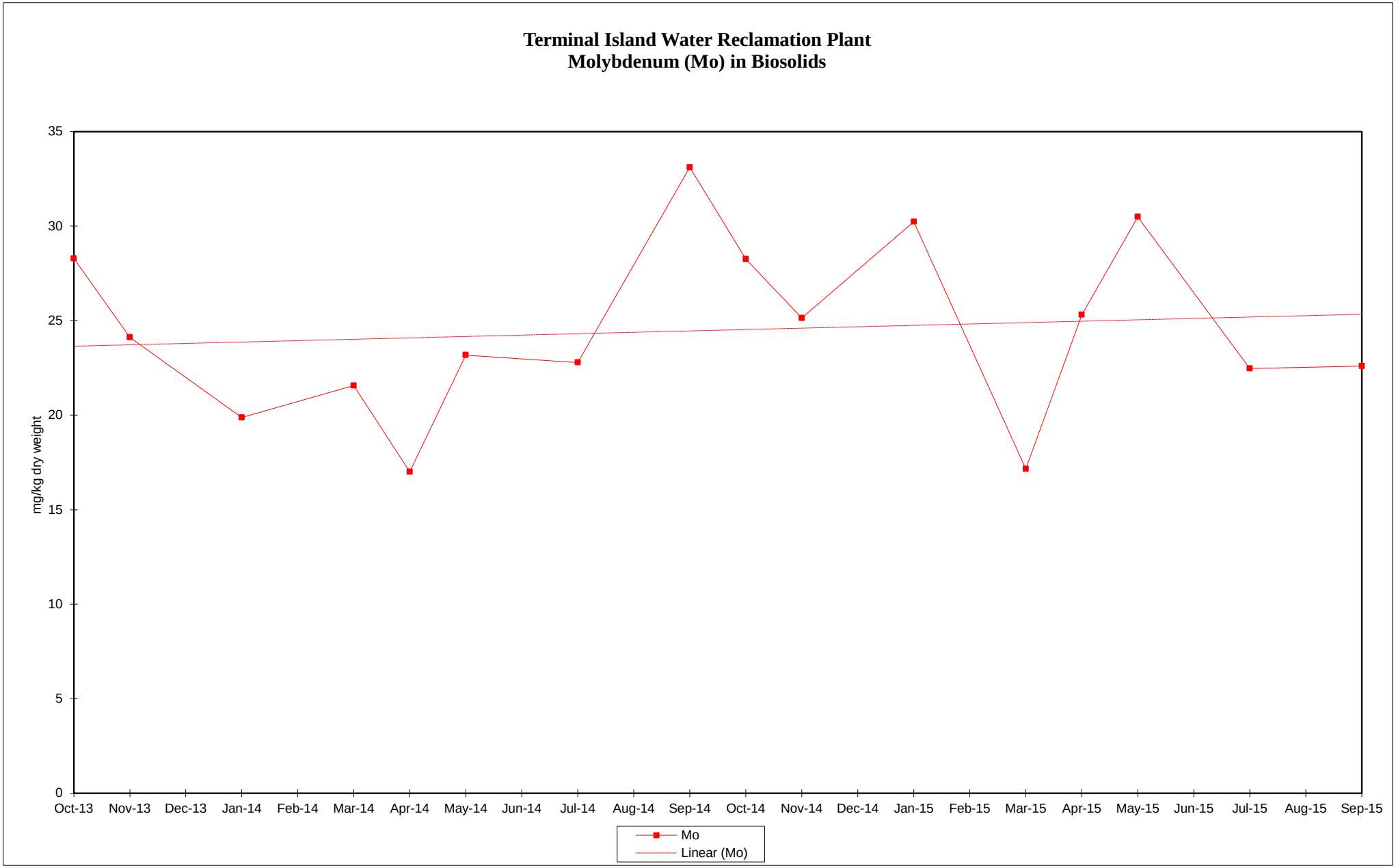

Figure 9. Concentrations of molybdenum in TIWRP Biosolids from October 2013 to September 2015

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WISARD - Biosolids Management - HTP TITP Biosolids

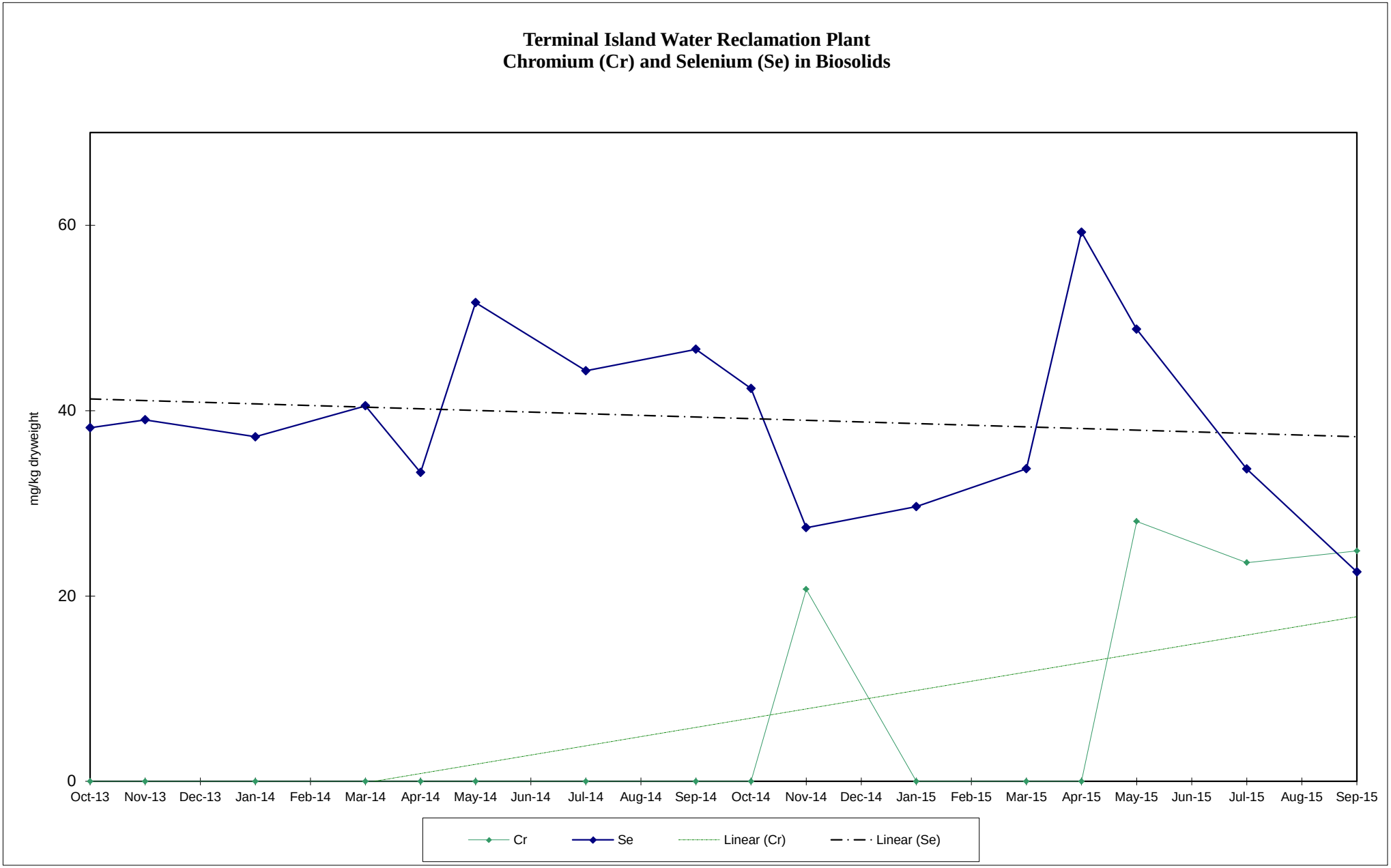

Figure 10. Concentrations of chromium and selenium in TIWRP biosolids from October 2013 to September 2015

Generated by RVALENZU at 10/19/2015 07:27:44 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
September 2015

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: 09/01/2015

Method No. SM 2540 G

Sample*	Total Solids %	Total Volatile Solids %
Raw Sludge	2.44	74.9
TWAS	4.06	81
Digested Sludge	2.12	67.7

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

Sample date: 09/01/2015

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	26.1	ND	12.8	50.2	816	29.1	21.8	40.6	ND	1,300	0.985
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				15-Sep	16-Sep	17-Sep	18-Sep	21-Sep	22-Sep	23-Sep	Geomean
PARAMETERS	Method #	Unit	Req #								
Total Solids	SM 2540G	%	-----	1.78	2.07	1.99	1.93	1.96	1.89	2.05	
Fecal Coliform	SM 9221E	MPN/gram TS(dry wt.)	<2,000,000	7.9E+03	3.8E+05	1.2E+04	1.0E+03	2.5E+05	6.9E+03	1.1E+04	1.8E+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	
9/15/2015	23.0	Silo	<7.8	Silo	<1.9	*****	Silo	*****	*****	Silo	*****

* - 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
September 2015

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: 09/14/2015

Method No. SM 2540 G

Sample*	Total Solids %	Total Volatile Solids %
Raw Sludge	3.96	71.5
TWAS	2.9	74.4
Digested Sludge	1.6	57.9

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

Sample date: 09/01/2015

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	1.8	ND	5.65	24.9	169	22.6	11.3	22.6	22.6	944	0.689
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: 9/15/2015

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	1.77	44.1	<1.3
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