Big Lake Public Works Department
2014 Yearly Report

Full-Time Staff	Position	Length of Service
Michael Goebel	Public Works Director	30 years
Frank Anderson	Foreman, Streets / Parks	31 years
John Moshier	Public Works Employee	34 years
Kurt Goenner	Public Works Employee	26 years
Corey Flagg	Public Works Employee	21 years
Charlie Gammon	Foreman, Water / Wastewater	16 years
Michael Ziemer	Public Works Employee	16 years
Troy Enebak	Public Works Employee	13 years
Randy Bader	Public Works Employee	11 years
Dan Lindula	Public Works Employee	11 years
Phil Kollar	Public Works Employee	8 years
Dan Childs	Public Works Employee	4 years
Cathy Lindberg	Public Works Secretary	13 years
David Sperling	Public Works Employee	3 years

Note: Dan Lindula and John Moshier are no longer employed with the City of Big Lake.
Corey Flagg is out on permanent FMLA.

Normal Public Works Department Business Hours	7:00 a.m. - 3:30 p.m.
Public Works Director Hours - Average 53.6 hrs/week	
Weekends/Holidays (1 full-time employee):	7:00 a.m. - 10:00 a.m.
On-Call (1 full-time employee, 24 hours/day, 7 days/week)	

Big Lake Public Works Department
2014 Yearly Report (Cont'd)

Part-Time Staff	Department
Amy Quella	Lakeside Park Attendant / Warming House
Emily Sabel	Lakeside Park Attendant / Warming House
April Harrison	Lakeside Park Attendant / Warming House / Mowing
Ashley Nielsen	Lakeside Park Attendant
Theresa Spike	Lakeside Park Attendant / Warming House / Flowers
Mike Meinstma	Part-time Seasonal
Thomas Ahrens	Part-time Seasonal
Kayla Rush	Lakeside Park Attendant
Nicole McConnell	Lakeside Park Attendant
Jeff Nagorski	Part-time Seasonal
Matt Reed	Part-time Seasonal

Lakeside Park Employee Hours:	6:00 a.m.-7:30 p.m. (Weekend / Holidays) 8:00 a.m.-7:30 p.m. (Weekdays)
Warming House/Skating Rink Hours:	12:00 p.m.-9:00 p.m. (Weekend/Holidays) 3:30 p.m.-9:00 p.m. (Weekends)
Part-Time Hours:	Varies as needed

The Public Works Employees perform duties in all departments as needed. Although the employees multi task, each department has specialized employees assigned to make sure quality services, and the technical background are provided.

RESTITUTION EMPLOYEES

Sherburne County Sentence To Serve (STS) crew.	996 total employee 37 days

Employee after normal work hour call-outs. Not including plowing and sanding.

58 Total call-outs

19 Water Department

33 Wastewater Department

4 Streets

2 Parks

LEAVES, GRASS, BRUSH AND RECYCLING REPORT

Wood Chips	2,484 cubic yards wood and brush
Leaves/Grass	10,284 cubic yards processed

Grinding Cost: (Paid for by SCORE Grant) *Entered contract with S&S Wood Products for grinding and removal of trees/brush (no charge). Entered contract with Full Circle Organics to take compost leaves/grass ($1.00/yard).*

Contracted Grinding wood and brush = S&S Wood Products
Note: Ground up and hauled off site
Leaves/grass = Full Circle Organics
Note: Hauled off site and mixed with food waste and composted

Number of grindings at Big Lake = 2

SCORE Grant Amount
2014 grant amount for Big Lake = $14,100.00
2015 grant amount for Big Lake = $17,212.00

Maintenance Hours:

117 Hours

Miscellaneous Hours:

35 Hours

Total Cost to City of Big Lake:

Equipment =	$14,098.00
Labor =	$ 6,435.00
Total	$20,533.00

Compost Facility Hours: 9:00 a.m. – 9:00 p.m. year around

Sold 7 Commercial Permits = $1,400.00

Sold 9 Non Sherburne County Resident Permits = $450.00

City of Big Lake permits = 275

Sherburne County Residents = 158

Total # of Access Cards since started in 2012

City of Big Lake Residents = 2,157

Non City of Big Lake Residents = 846

Compost site was used 17,583 times

New Becker compost site puts organic waste to good use

Kirsti Marohn, kmarohn@stcloudtimes.com *8:11 p.m. CDT August 4, 2014*

(Photo: Dave Schwarz, dschwarz@stcloudtimes.com)

BECKER – It may not look like much is happening with the long rows of organic waste lined up on an asphalt pad just south of Becker.p

But as the waste heats up, micro-organisms go to work and convert it to rich, valuable compost — and a potential solution to dealing with a large portion of Minnesota's trash.

Full Circle Organics LLC started operating the compost site about two months ago on 10 leased acres next to the Vonco II landfill. Already, it's collected more than 5,000 tons of organic material — everything from food scraps to yard debris.

The site is part of a growing effort in Minnesota to deal with organic waste in a more environmentally friendly way than disposing of it in a landfill or burning it.

It's estimated that almost a quarter of the garbage produced in Stearns, Benton and the western half of Sherburne counties is organic waste, including food, paper towels, paper plates, pizza boxes and milk cartons.

The Tri-County Solid Waste Management Commission, which oversees trash matters in the three counties, recently set a goal of diverting 5 percent of the total waste stream to organics recycling in 2016. The target will increase by 1 percent each year, reaching 10 percent by 2021.

Right now, there are about 10 source-separated organics recycling sites in the state, mostly near the Twin Cities, said Tim Farnan, organics and recycling specialist with the Minnesota Pollution Control Agency.

The MPCA is almost finished updating its compost rules that should make it easier and less costly for new compost sites to open, Farnan said.

Full Circle's Becker operation is the second organic compost site to open recently in Central Minnesota. Its cooperative member, Tri-County Organics, operates a compost site in east St. Cloud.

Eventually, Full Circle hopes to take in 175 to 200 tons of material a day, making it one of the largest organic composting sites in Minnesota.

The company also operates organics compost sites in Good Thunder and Farley, Iowa, as well as a yard waste-only site in Shakopee.

The Becker compost site is a relatively simple operation. There's a large hoop structure where any liquids or food-grade waste is stored.

Outside, the waste is piled into long windrows that eventually will be as large as 10 feet high and 20 feet wide on a 6-acre asphalt pad. A specially designed machine lifts and turns the material to add air.

Rain that falls onto the asphalt pad runs into a lined collection pond twice the size of a football field.

As with a backyard compost pile, it's critical to get the right mix of waste, Full Circle president Max Milinkovich said.

"We're trying to create a recipe with carbon and nitrogen," he said.

The waste heats to 135-150 degrees, the temperature considered a safe zone to reduce pathogens. In the winter, steam can be seen rising from the top of the piles, Milinkovich said.

"It acts like a chimney," he said.

After 21 days at that temperature, the waste is moved to a curing pile. In about 12 months, it will be a finished compost that can be screened and sold to landscapers, tree companies or for erosion control on road construction projects.

Full Circle takes organic waste from several businesses, including Gold'n Plump, the Becker paper company LDI and Foley food packager PouchTec Industries.

More companies are getting interested in removing organics from their waste stream because there's no tax on recycling, Milinkovich said.

Full Circle also receives organic waste from Hennepin County and yard waste from several area cities, including Big Lake, Becker, Elk River and Zimmerman.

Milinkovich said he's visited many compost sites around the United States and has seen some failures, especially those with high up-front capital investment costs. He hopes to avoid those errors by sharing equipment among the Full Circle sites.

Despite the amount of waste already at the Becker site, most visitors are surprised at how clean the site is and its unoffensive odor, Milinkovich said.

"That's our No. 1 compliment," he said.

Follow Kirsti Marohn on Twitter @kirstimarohn.

Buy Photo

Max Milinkovich of Full Circle Organics walks past a machine used to mix organic material in the composting process. *(Photo: Dave Schwarz, dschwarz@stcloudtimes.com)*

Read or Share this story: http://www.sctimes.com/story/news/local/2014/08/04/becker-compost-site-works-deal-organic-waste/13593879/

STREET DEPARTMENT

- Crack-filled and sealcoated the following streets:

Street	Description
198th Avenue	6,969 feet

Total Cost = $30,315.78
(split with Big Lake Township)

**See Map Included

STREET CRACK FILLING & SEAL COATING MAP

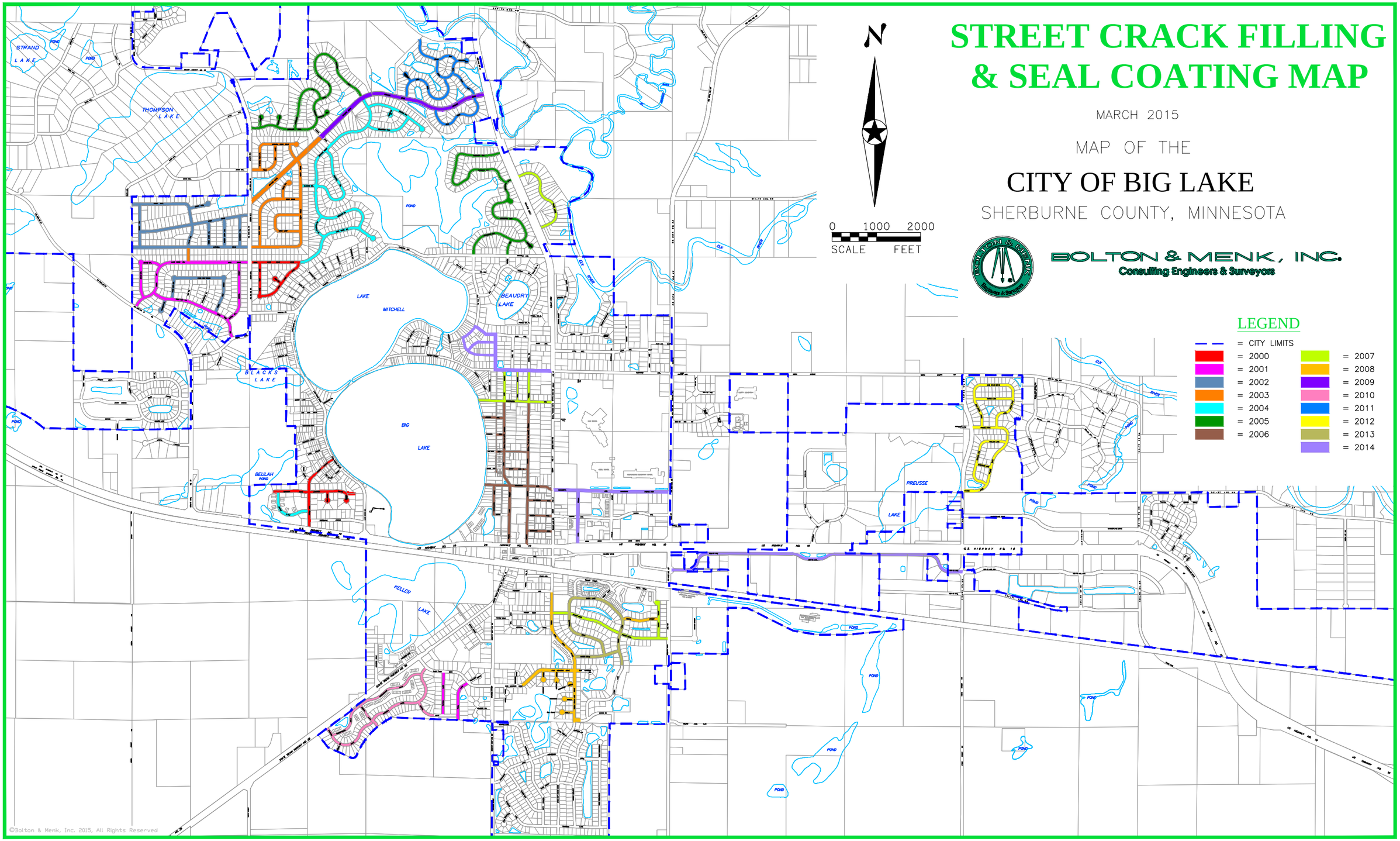
MARCH 2015

MAP OF THE

CITY OF BIG LAKE

SHERBURNE COUNTY, MINNESOTA

BOLTON & MENK, INC.
Consulting Engineers & Surveyors



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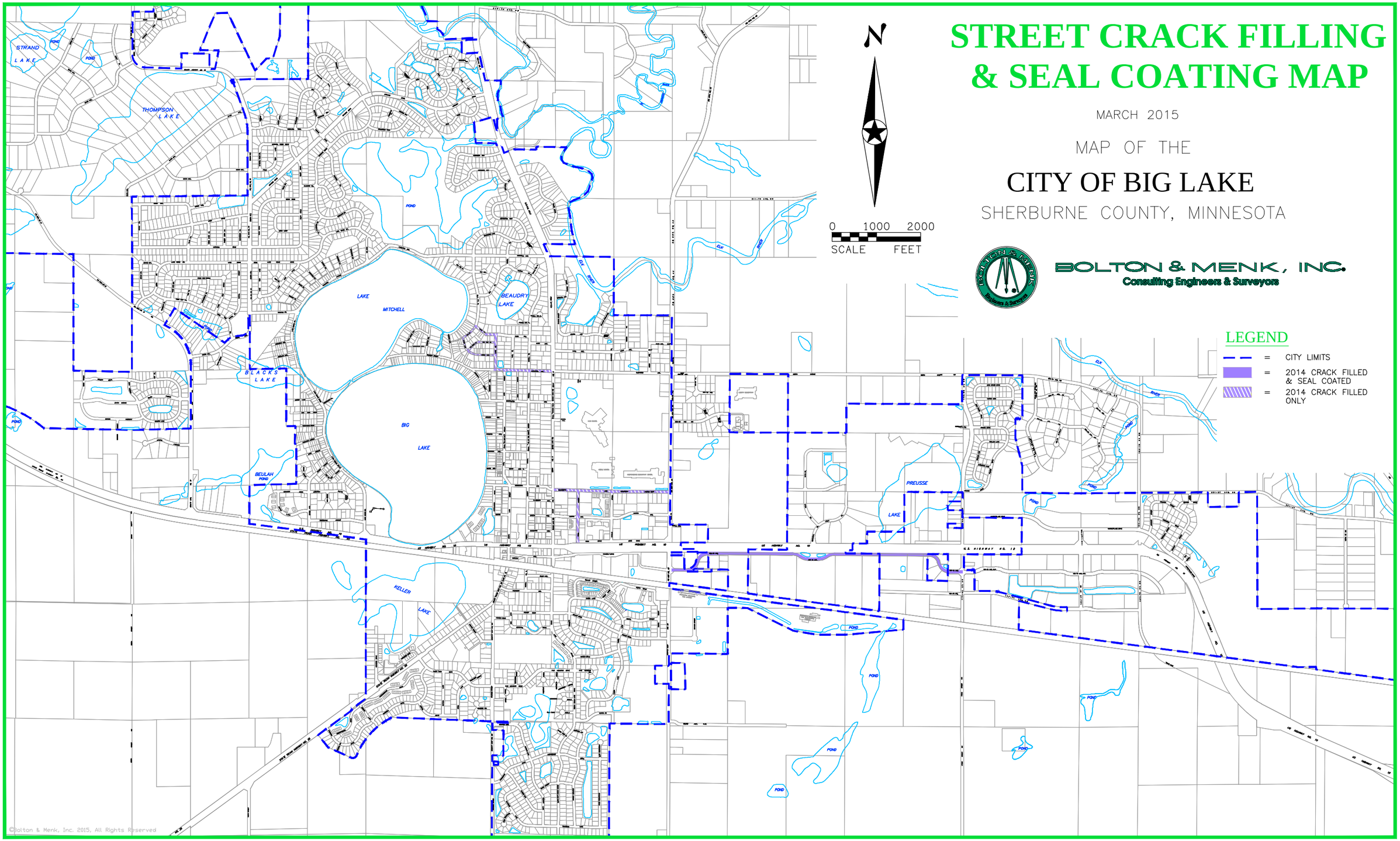
STREET CRACK FILLING & SEAL COATING MAP

MARCH 2015

MAP OF THE

CITY OF BIG LAKE

SHERBURNE COUNTY, MINNESOTA



BOLTON & MENK, INC.
Consulting Engineers & Surveyors

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STREET DEPARTMENT

Street Sweeping:

- Miles of streets swept = 1,583
- Hours of sweeping = 376
- Material swept = 955 ton
- Loads of material hauled to land fill = 63 loads
- Hours hauling to land fill = 60
- Cost hauling to land fill $4.00/Ton - $3,820.00
- Fuel = $2,444.00

Street Inventory:
68 linear miles of streets
43 cul-de-sac's

Street Patches: 600 square feet

Street Curb/Sidewalk Repairs:
Repaired 10 feet of curb
Repaired 25 feet of sidewalk

Street Pot Holes Repaired:
64 hours pot hole repairs
17.5 ton material

Street Sign Maintenance:
55 signs repaired

Street Markings:
160 crosswalks painted
53 arrows painted
22 stop bars painted
7 handicap

STREET DEPARTMENT

Storm Sewer Maintenance:
Cleaned 90 catch basins/sumps – 48 hours
Cleaned 150 inlets/outlets and piping – 87 hours
Cleaned out 180 ton of debris
Maintenance includes repairs to structures, clean debris out of pits, cleaning lines of debris and roots.
Note: We are seeing large volumes of root growth in new under drain system.

Storm Sewer Maintenance Hours – 135 hours

Municipal Separate Storm Sewer System Permit is being amended, for renewal.

Tree Maintenance:
6 trees removed
1,445 hours trimming trees

Started volunteer tree pruning
Group – 24 hours in 2014

10 Nuisance tree inspections on private property.

Sent out 51 grass/weed violation letters.

Cleaned up 16 properties that were in violation of City of Big Lake's Weed/Grass Nuisances Ordinance. Turned over to Carefree Lawn Service (contracted mowing service) for mowing.

Responded to 1,251 Utility locates.
Yearly cost for locate tickets = $1,924.00

Hours working on utility locates = 448

Shop hours for repair and maintenance of equipment = 2,015

Library maintenance hours = 97

Liquor maintenance hours = 25

STREET DEPARTMENT

Snow Removal:

Plowed 31 times
Clean up plowing 15 times, drifts and scraping
94 hours plowing drifts
953 miles plowing drifts
107 hours scraping roads
5,528 miles scraping roads
Total street plowing hours = 1,076 hours
Sanded only 10 times (no plowing)
59 hours sanding only (no plowing)
583 miles sanding only (no plowing)
1,332 ton salt/sand used, 50% salt/50% sand mixture
11,703 miles plowing / sanding
1,497 total hours plowing / sanding
5,187 total gallons of fuel used plowing/sanding

It takes approximately 48 equipment hours to plow snow from streets per 4″ snowfall event.

It takes approximately 9 hours to plow snow from City streets per 4″ snowfall event and approximately 6 to 8 hours to complete second day snowfall clean up.

440 total miles per 4″ snowfall event to plow streets.

Approximately 52 tons of salt/sand used per snowfall event.

Salt/sand cost per snowfall event = $2,000.00

220 gallons fuel per snowfall event.

Fuel cost per 4″ snowfall event $800.00.

Approximate cost to plow 4″ snowfall event = $2,800.00 (not including labor or equipment).

285 hours of snow removal including sidewalks and trails.

169 hours of miscellaneous snow removal.

Cleaned 9 sidewalks that were in violation of not being cleaned. 2014 season.

1 Street excavation permits.

45 Right of way permits.

Big Lake Public Works Department
2014 Yearly Report (Cont'd)

New Equipment Purchased:
6 foot John Deere Mower
2001 Used Chevy Silverado

Fleet Inventory:
2008 Pickup with Dump Box
2007 Holder Tractor
2006 Street Sweeper
2006 John Deere Commercial Mower (with broom and snow blower attachments)
2006 Case 580sm Loader with backhoe attachment
2006 John Deere 624J Wheel Loader (with wing and snow plow attachments)
2005 ¾ ton with Service Body
2005 International Tandem Dump Truck
2005 International Single Axle Dump Truck
2005 Ford ½ ton pick-up Truck – Super Cab
2005 John Deere Turf Tractor
2005 International Tandem Dump Truck
2002 Ford Tandem Dump Truck
2002 1 ½ Ton Dump Truck
2001 1 ½ Ton Bucket Truck
2002 544 John Deere Loader
2002 ¾ Truck with Service Body
2002 Ranger Truck
2002 6 Foot John Deere Mower
2002 10 ½ Foot John Deere Mower
2000 250 John Deere Skid Steer
2000 19 Foot Tow Master Trailer
2000 Air Compressor
1999 One Ton Dump Truck
1998 624 John Deere Loader
1996 Trailer
1994 Single Axle Dump Truck
1987 Single Axle Dump Truck
1985 580 E Case Loader
1971 Single Axle Dump Truck

Buildings:

32,691 square ft	Main Public Works Building
40 ft x 40 ft	Heated Storage Building
30 ft x 20 ft	Cold Storage Building

PARKS

Weed control in Big Lake and Mitchell Lake, Curly-Leaf Pondweed and Eurasian Watermilfoil (see enclosed maps).

Total acres treated for Eurasian Watermilfoil – 11.62, Curly-Leaf Pondweed – 10.8

Big Lake – 4.2 acres Curly Leaf Pondweed

Big Lake – 10.58 acres Eurasian Watermilfoil

Mitchell Lake – 6.6 acres Curly Leaf Pondweed

Mitchell Lake – 1.04 acres Eurasian Watermilfoil

Curly Leaf Pondweed Treatment Cost = $4,407.00

Eurasian Watermilfoil Treatment Cost = $5,779.00

Total cost for treatment = $10,186.00

Lake Association paid $7,948.00 towards treatment cost.

Received $2,238.00 in grant money.

Watercraft Inspection Grant – 485 hours - $3,880.00

Removed 5 muskrats to prevent lakeshore deterioration and other damage.

Treated for swimmer's itch in the beach area.

6 Trees planted

2,359 hours maintenance of Parks, not including skate rinks.

1,400 hours mowing grass.

70 hours weed whipping.

146 hours skate rink maintenance not including STS hours.

385 hours warming house attendant. 2014 – 2015 Season

A total of 10,530 vehicles entered Lakeside Park while Park Attendants were working. Note: this number does not include visitors that entered Park while Park Attendants were absent. Note: Does not include Music In The Park Event, or Graniteman

Highest daily number of vehicles that entered Lakeside Park was 542.

Vehicles – No Pass / No Trailer = 5,852
Vehicles - No Pass / With Trailer = 531
Vehicles with Pass / No Trailer = 2,891
Vehicles with Pass / With Trailer = 1,113
Launch and Leave = 143
Permanent Number of Boat on Mitchell and Big Lake:
Motorized = 83, Canoe = 13, Sail Boats = 11, Kayaks = 16, Pontoons = 90,
Row Boats = 29, Paddle Boats = 47, Personal Water Craft = 38

PARKS

Number of vehicles that entered Lakeside Park for Farmer's Market
- June 4th – 50 vehicles
- June 11th – 80 vehicles
- June 25th – 142 vehicles
- July 9th – 73 vehicles
- July 16th – 105 vehicles
- July 23rd – 102 vehicles
- August 6th – 129 vehicles
- August 13th – 139 vehicles
- August 20th – 93 vehicles
- August 27th – 57 vehicles

Walleye Stocking:
- Lake Association – 217 lbs.
- DNR – 234 lbs. (500 fish)

DNR Watercraft Inspection:
- Inspection Hours = 60 DNR (regular inspections)
- Inspection Hours = 485 Grant
- Inspections = 1,556

See Report:

PARKS

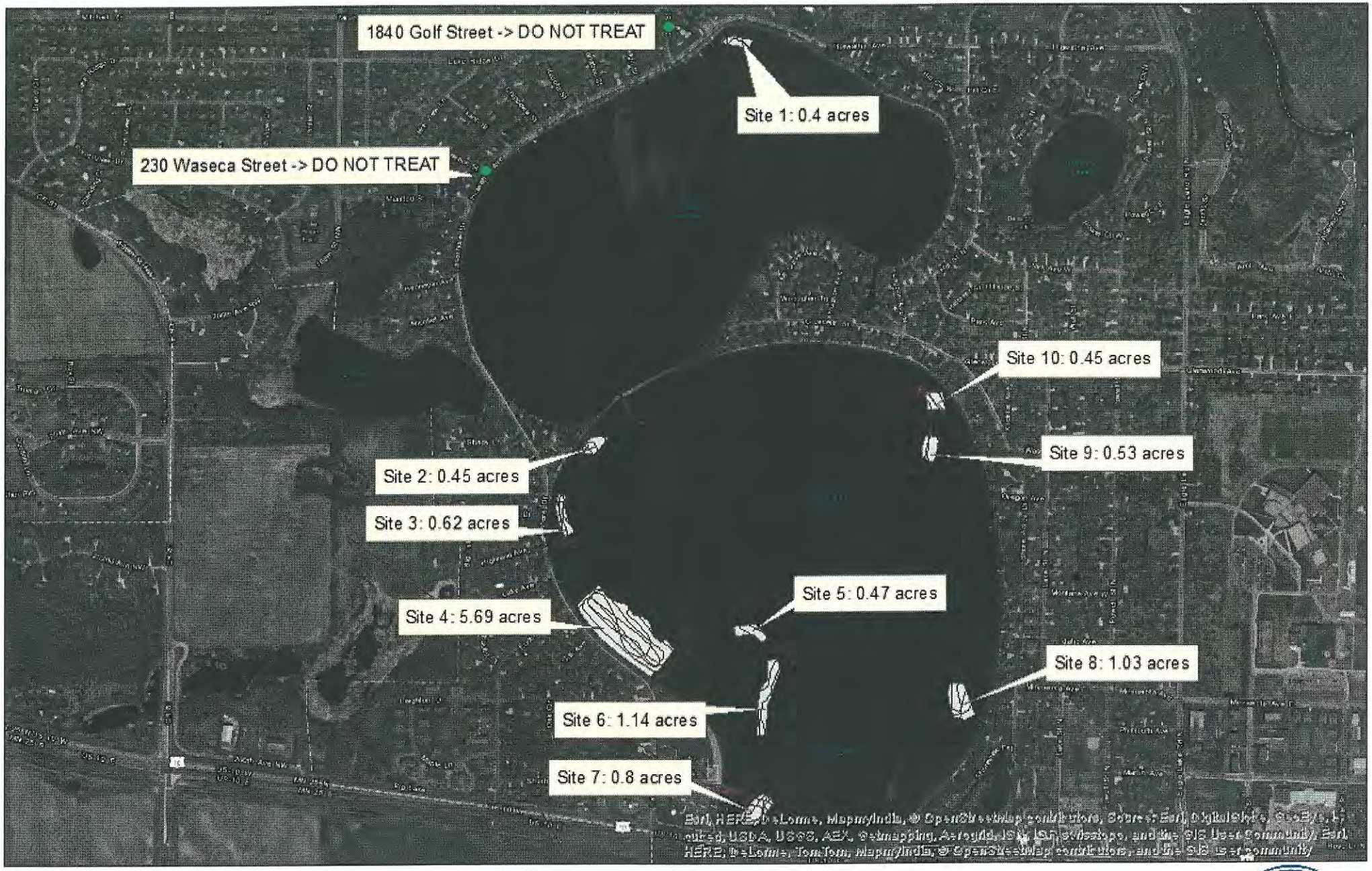
Grants:

$2,238.00 – DNR Weed Treatment Grant
$8,000.00 – Central Minnesota Arts Board Grant
$2,500.00 – Initiative Grant
$7,500.00 – SHIP Grant
$3,880.00 – DNR Boat Inspection Grant

Projects / Events:

Granitman Triathlon Event at Lakeside Park
Kids Fish 'N' Fun Event at Lakeside Park
Family Reading Event in Lakeside Park and Highline Park
Community Garden – 6 reserved
Team Liam Family Fun Run
Youth Church Event
Fishing Clinic, Lakeside Park
Canoeing Clinic, Lakeside Park
Yoga Classes
Farmers Market
Music in the Park
Easter Egg Hunt
Fishing Contest
Shelter Rental = 29 - $870.00
Highland Park and Lake Ridge Park use for summer school softball
Christmas Tree Lighting
Winterfest
River Oaks Park Design

Big and Mitchell Lakes EWM 2014



N
W E
S

0 145 290 580 870 1,160 Meters

Big and Mitchell Total Acres: 11.58

Treatment track

Big & Mitchell Lakes CLP 2014

N
W E
S

0 120 240 480 720 960 Meters

2014 Big CLP; 4.2 Acres

2014 Mitchell CLP; 6.6 Acres

Big & Mitchell CLP Treatment Tracks 5-16-14

2014 Summary Report of Watercraft Inspection Results at Big Lake

Author: Evan Freeman
Regional Watercraft Inspection Supervisor
Region 4, Ecological and Water Resources, MN DNR
December 30, 2014

Introduction:
The watercraft inspection program's goal is to reduce the spread of aquatic invasive species into and around the state. To accomplish this we conducted watercraft inspections and decontaminations at public water accesses throughout the state, worked with citizen groups concerned about AIS, and educated the public at events such as the state fair.

In January of 2008 the MN DNR Invasive Species Unit created a grant program to allow citizen groups to increase the number of hours of inspection at water accesses important to them. This was done as a way to increase watercraft inspections throughout the state, and satisfy requests from citizen groups for more hours of inspections at accesses important to them.

Inspection Process:
The inspection process involves the watercraft inspector visually and tactilely searching for aquatic invasive species or anything else that could potentially spread aquatic invasive species such as water, mud, plants or other debris. Watercraft inspectors also complete a survey while educating boaters about the issues surrounding aquatic invasive species. Survey questions focus on boater knowledge and behavior with information given on the impacts of aquatic invasive species and what can be done to prevent their spread.

Inspectors are trained to observe and document when watercraft enter a public water access with any violations, including boats with attached vegetation as well as watercraft whose drain plugs have not been removed. Information gathered by DNR and LGU authorized inspectors can help show potential risk of transporting AIS. During the inspection process watercraft users are asked to voluntarily disclose the last water body visited, as well as the location of the next planned trip. This information can be used in the future to gauge potential risks if multiple boaters report zebra mussel infested water bodies as their last visited lake.

Inspection Results:
The City of Big Lake received a prevention grant from the MN DNR in April of 2014 for 485 hours of Level 1 inspection time during the 2014 watercraft inspection season. The contract dates were March 31st through Sept 30th of 2014. One DNR watercraft inspector was hired to work in Sherburne County in order to accomplish both the grant hours (485) and the DNR goal hours (60).

The following figures and tables show the results of the inspection program at Big Lake for the 2014 season. All data is reflective of DNR personnel as there was not a partnership available with an LGU.

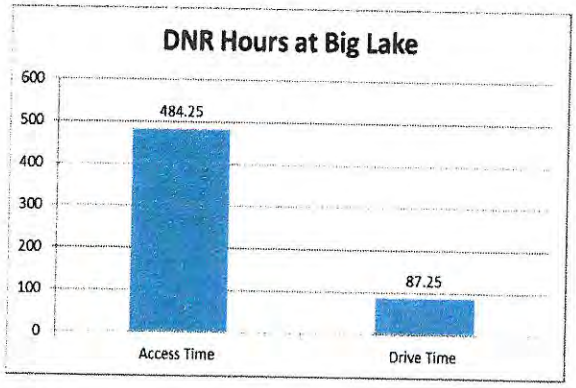


Figure 1: MNDNR Level 1 Watercraft Inspectors worked 571.5 hours (484.25 hours of access time and 87.25 hours of drive time) at Big Lake.

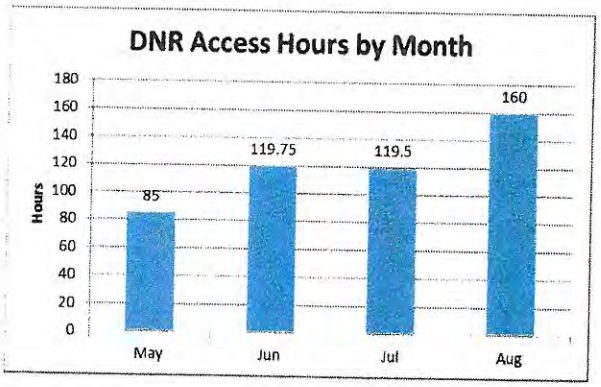


Figure 2: MNDNR Watercraft Inspectors worked 484.25 hours on Big Lake. These hours do not include drive time.

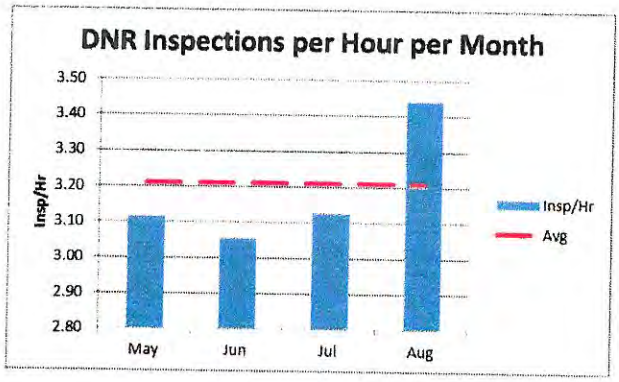


Figure 3: Inspections per hour per month as seen by DNR Inspectors at Big Lake.

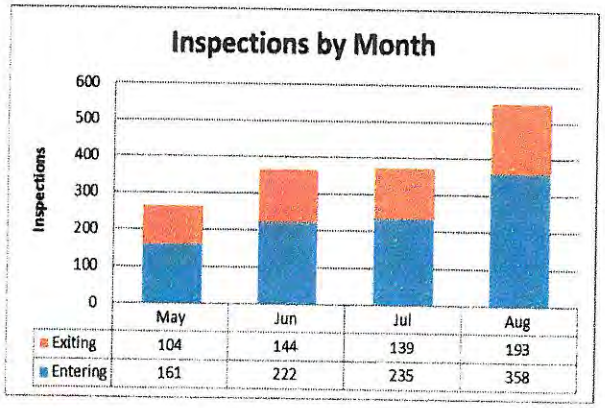


Figure 4: During the 2014 season 1,556 inspections were conducted Big Lake by DNR inspectors.

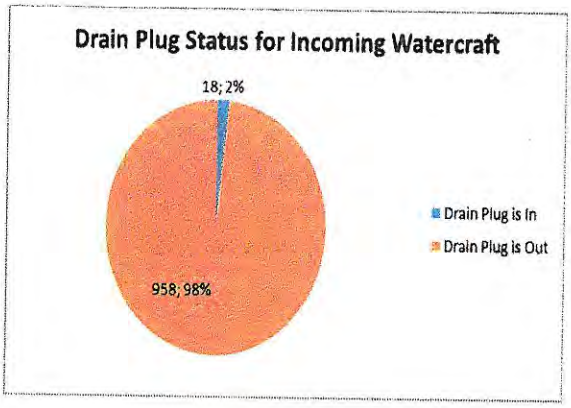
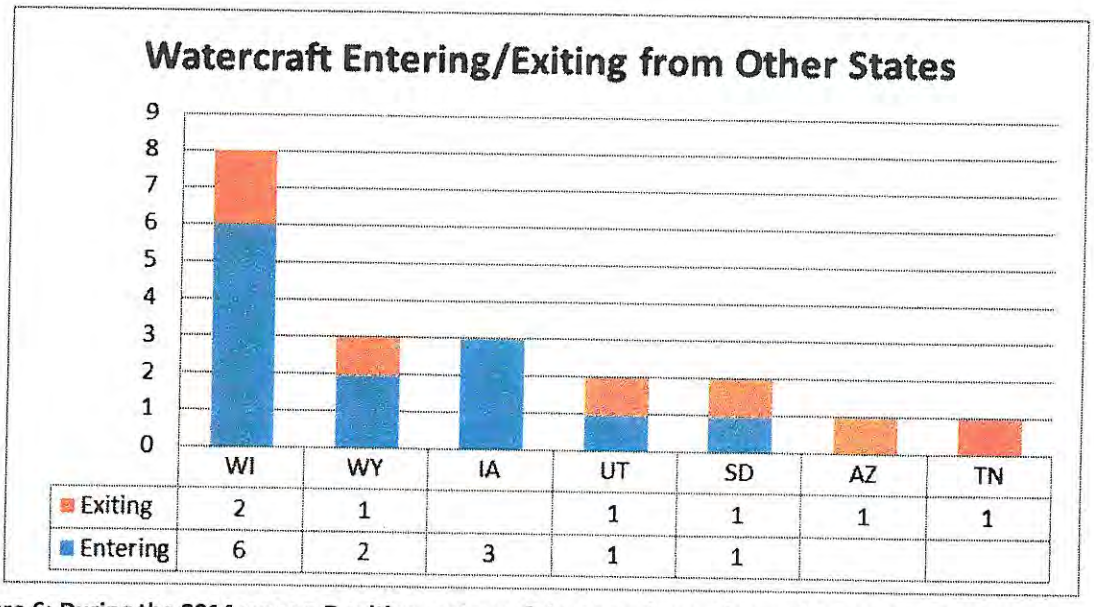
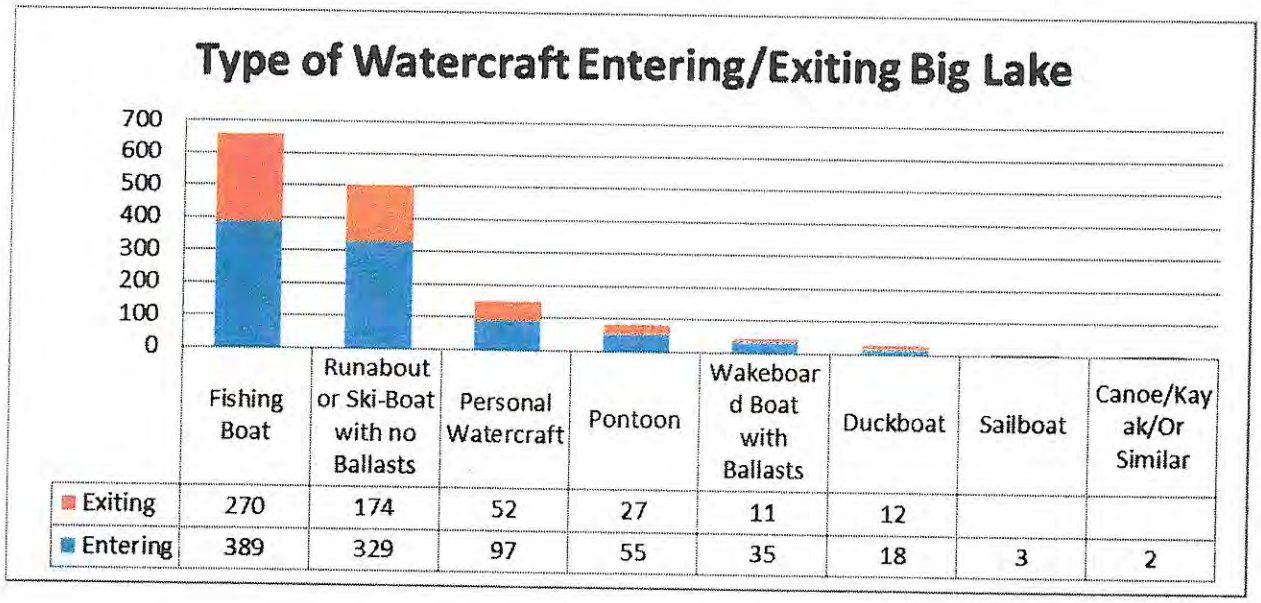


Figure 5: Number of incoming watercraft to Big Lake with drain plugs installed. These users were directed away from the access to pull their plugs and drain any standing water.



	WI	WY	IA	UT	SD	AZ	TN
Exiting	2	1		1	1	1	1
Entering	6	2	3	1	1		

Figure 6: During the 2014 season 7 exiting watercraft inspected were from other states. There were 13 incoming watercraft from states other than MN.



	Fishing Boat	Runabout or Ski-Boat with no Ballasts	Personal Watercraft	Pontoon	Wakeboard Boat with Ballasts	Duckboat	Sailboat	Canoe/Kayak/Or Similar
Exiting	270	174	52	27	11	12		
Entering	389	329	97	55	35	18	3	2

Figure 7: Breakdown of watercraft type entering and exiting Big Lake during the 2014 season.

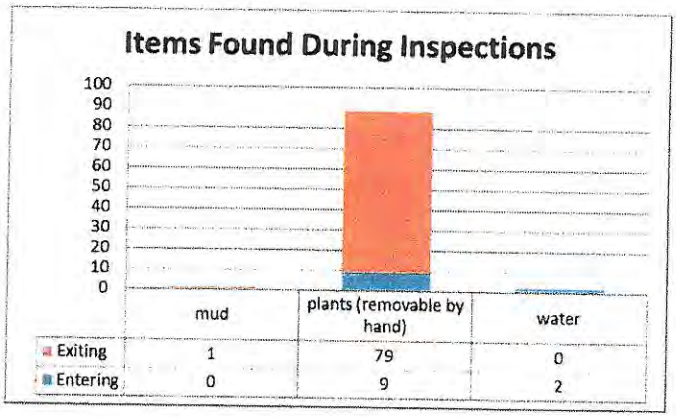
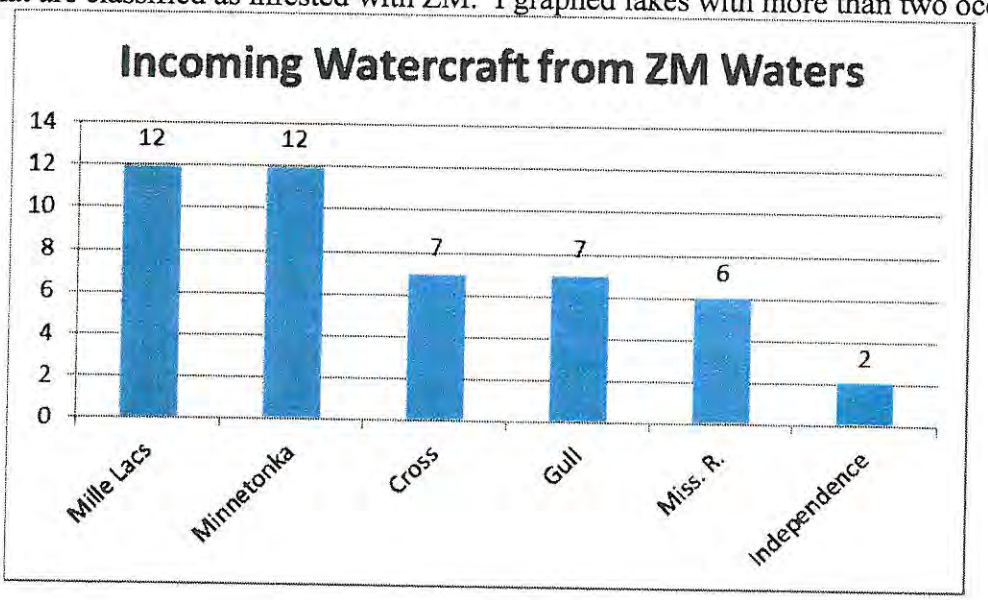


Figure 8: There were 11 entering watercraft found in violation of the clean and drain portion of the law.

Zebra Mussel Waters: The following graph shows previous waters for boaters coming to Big Lake that are classified as infested with ZM. I graphed lakes with more than two occurrences.



Conclusion:

Our goal was to accomplish 485 total grant hours and 60 goal hours on Big Lake. We accomplished 571.5 hours at this lake, which includes drive time. We were able to exceed our level 1 hour total by 26.5 hours. We were able to exceed our hour goals due to hiring one watercraft inspector to exclusively work at Big Lake.

DNR inspectors conducted 1,556 inspections from May until August on Big Lake. During these contacts, inspectors are trained to help educate users about aquatic invasive species, state statutes, and help identify areas on the individual's watercraft that may be likely to contain invasive species.

CITY OF BIG LAKE
Lake Levels: Overflow at 926.5

8-7-87 = 925.26
8-14-87 = 925.25
8-21-87 = 925.20
8-28-87 = 925.06
9-4-87 = 924.96
9-11-87 = 924.88
9-18-87 = 924.90
9-25-87 = 924.85
10-2-87 = 924.70
10-9-87 = 924.66
10-16-87 = 924.50
10-23-87 = 924.47
10-30-87 = 924.44
11-6-87 = 924.41
11-13-87 = 924.36
11-20-87 = 924.37
5-13-88 = 924.13
5-25-88 = 923.98
6-4-88 = 923.84
6-10-88 = 923.55
6-17-88 = 923.55
6-24-88 = 923.41
7-1-88 = 923.10
7-8-88 = 923.04
7-12-88 = 922.92
7-29-88 = 922.64
8-19-88 = 922.48
8-26-88 = 922.30
9-2-88 = 922.22
9-9-88 = 922.10
9-16-88 = 922.00
9-23-88 = 924.04
9-30-88- = 922.00
10-7-88 = 921.90
10-14-88 = 921.82
10-21-88 = 921.80
10-27-88 = 921.70
11-4-88 = 921.69
11-11-88 = 921.65
11-21-88 = 921.72
6-5-89 = 921.72
7-7-89 = 921.41
7-21-89 = 921.27
7-28-89 = 921.14
8-11-89 = 920.90
8-18-89 = 920.85
8-25-89 = 920.79
9-19-89 = 920.85
9-29-89 = 920.75
10-27-89 = 920.48
11-20-89 = 920.45
5-5-90 = 920.53
5-11-90 = 920.48
5-18-90 = 920.57
6-8-90 = 920.70
6-17-90 = 921.20
6-29-90 = 921.25
7-20-90 = 921.24
9-11-90 = 921.90
9-21-90 = 921.91
10-23-90 = 921.90
5-31-91 = 923.08
6-18-91 = 923.06
7-8-91 = 923.20
8-20-91 = 923.75
9-3-91 = 923.64
9-9-91 = 924.21
9-26-91 = 924.19
10-4-91 = 924.26
5-1-92 = 925.52
5-27-92 = 925.46
7-13-92 = 925.56
8-24-92 = 925.20
9-21-92 = 925.20
5-26-93 = 925.67
7-7-93 = 926.02
7-14-93 = 926.19
8-5-93 = 926.06
8-9-93 = 926.19
8-13-93 = 926.25
8-18-93 = 926.51
10-15-93 = 926.44
3-3-94 = flowing through outlet
3-24-94 = flowing through outlet
3-28-94 = flowing through outlet
4-1-94 = flowing through outlet
4-20-94 = 926.74 flowing through outlet
4-25-94 = 926.74 flowing through outlet

Lake Levels: *(page 2)*

4-26-94 = 926.83 flowing through outlet
4-27-94 = 926.85 flowing through outlet
5-2-94 = 926.81 flowing through outlet
5-13-94 = 926.66
6-2-94 = 926.53
6-2-94 = no longer flowing outlet at 926.53
6-9-94 = 926.53
6-29-94 = 926.52
7-11-94 = 926.74
7-25-94 = 926.76
8-1-94 = 926.55
8-22-94 = 926.34
9-15-94 = 926.35
10-20-94 = 926.26
11-7-94 = 926.20
4-28-95 = 926.50
6-21-94 = 926.46
7-10-95 = 926.14
8-3-95 = 925.91
8-28-95 = 925.99
9-21-95 = 925.63
10-25-95 = 925.66
6-10-96 = 926.22
7-10-96 = 926.18
7-30-96 = 926.29
8-29-96 = 925.98
9-18-96 = 925.60
10-16-96 = 925.37
4-25-97 = 926.22
6-11-97 = 925.96
7-25-97 = 926.18
8-4-97 = 926.12
10-15-97 = 925.84
6-4-98 = 923.88
7-31-98 = 922.60
11-5-98 = 921.86
6-3-99 = 925.19
7-26-99 = 925.33
9-15-99 = 924.96
10-27-99 = 924.60
4-25-00 = 924.22
5-5-00 = 924.16
5-30-00 = 923.96
7-10-00 = 923.88
9-5-00 = below gauge
9-8-00 = 922.93
10-24-00 = 922.30
6-11-01 = 923.69
6-20-01 = 923.76
7-17-01 = 923.30
8-20-01 = 923.24
10-10-01 = 922.80
6-14-02 = 923.74
6-27-02 = 923.82
7-12-02 = 924.02
8-13-02 = 924.25
9-9-02 = 924.63
10-17-02 = 924.74
5-5-03 = 925.38
6-16-03 = 925.53
6-30-03 = 926.01
7-15-03 = 926.21
9-9-03 = 925.45
5-3-04 = 925.09
5-26-04 = 925.18
6-2-04 = 925.31
6-30-04 = 925.43
10-4-04 = 925.14
5-16-05 = 925.48
6-16-05 = 925.74
7-11-05 = 925.62
8-9-05 = 925.04
9-13-05 = 925.55
9-23-05 = 925.70
10-6-05 = 926.17
4-12-06 = 926.54
5-2-06 = 926.61
5-10-06 = 926.56
5-25-06 = 926.50
6-26-06 = 926.21
8-2-06 = 925.48
9-6-06 = 925.49
11-15-06 = 925.24
5-21-07 = 925.64
6-24-07 = 925.35
8-1-07 = 924.79
8-14-07 = 924.75
10-11-07 = 924.72
10-22-07 = 924.82
11-16-07 = 924.66

Lake Levels: *(page 3)*

5-1-08 = 924.99
6-13-08 = 925.48
7-18-08 = 925.05
9-16-08 = 924.43
10-30-08 = 924.20
11-26-08 = 924.13
4-17-09 = 924.38
5-5-09 = 924.33
6-18-09 = 923.93
7-17-09 = 923.64
8-14-09 = 923.48
9-15-09 = 923.51
10-26-09 = 923.54
4-16-10 = 923.90
5-14-10 = 923.92
6-18-10 = 923.99
7-20-10 = 924.29
8-13-10 = 924.34
9-10-10 = 924.33
10-13-10 = 924.52
5-3-11 = 925.65
5-19-11 = 925.84
6-6-11 = 926.18
6-28-11 = 926.28
7-15-11 = Flowing over
7-18-11 = 926.72
8-8-11 = 926.78
9-7-11 = 926.50 Not flowing over
11-28-11 = 926.00
4-2-12 = 926.20
5-1-12 = 926.08
5-7-12 = 926.36
5-25-12 = 926.66 Flowing over outlet
6-7-12 = 926.62 Flowing over outlet
7-11-12 = 926.40
8-20-12 = 925.91
9-10-12 = 925.58
10-9-12 = 925.11
11-14-12 = 924.92
5-8-13 = 925.31
6-7-13 = 925.44
7-8-13 = 925.41
8-2-13 = 925.26
9-25-13 = 924.79
10-28-13 = 924.58

5-2-14 = 925.19
5-15-14 = 925.50
5-28-14 = 925.75
6-3-14 = 926.10
6-23-14 = 926.48
7-8-14 = 926.36
8-14-14 = 926.14
8-29-14 = 926.24
10-21-14 = 926.16

WATER DEPARTMENT

Total gallons pumped from wells = 372,058,000
Total gallons metered = 309,030,870
Difference = 63,027,130 gallons well meters, 44,259,130 Water Plant Effluent
% unaccounted = 16.5% well meters, 12.5% Water Plant Effluent
Water Plant Influent = 341,990,000
Water Plant Effluent = 353,290,000
Highest daily use = 2,735,000 gallons
Yearly daily average = 1,019,337 gallons

Residential Use = 236,552,400 gallons
Commercial and School Use = 47,005,100 gallons
Industrial = 21,582,000
Other Use = 3,891,370 gallons
Total Connection = 4,662

Water Use Ban: N/A in 2014
1 water main breaks
251 water service turn on/off
160 water meter repairs = 157 hours
Flushed and inspected fire hydrants at dead ends and problem areas, 157 fire hydrants, 68 hours of labor.
10 hydrants repaired
29 utility inspections – CO's
11 sod inspections – CO's
5 water service leak
2 siding inspections
1,220 meter reads – 358 hours
72 water service freeze ups

2,354 hours operation of water treatment plant

Operated and inspected 926 water main valves, 388 hours of labor
Repaired 12 valves that were found damaged

2014 - Delinquent Water Shut offs – Total 45

June 9, 2014	38 properties had water turned off
July 14, 2014	5 properties had water turned off
August 18, 2014	1 property had water turned off
September 22, 2014	1 property had water turned off

Yearly Totals for Vacant/Foreclosed Homes – Letters Sent & Water Shut Offs From Mailing
22 Letters sent
9 Shut offs

WATER DEPARTMENT

Facilities:

7 wells

- #1 well 555 gallons per minute
- #2 well 695 gallons per minute
- #3 well 810 gallons per minute
- #4 well 860 gallons per minute
- #5 well 626 gallons per minute
- #6 well 505 gallons per minute
- #7 well Averages 500 gallons per minute

3 Water Towers:

- 200,000 gallons
- 500,000 gallons
- 1,000,000 gallons
- 900,000 inground storage tank

1 Water Treatment Plant

Fire Hydrants = 825

Gate Valves = 1,789

73 miles of water main

Wellhead Protection Plan Amendment

The City of Big Lake is currently implementing a Wellhead Protection Plan (WHP), which was approved on November 29, 2005, and is in effect until November 29, 2015. The WHP rule (Minnesota Rule, part 4720.5570, subpart 3) requires a public water supplier to begin the process of reviewing and amending a WHP Plan eight years after the date of the last approval of a plan by the Minnesota Department of Health. The Wellhead Protection Plan Amendment is completed in two phases.

Part I identifies the area that provides the source of drinking water for the public water supply so that the Public Water Supply can develop land use or management practices to protect their groundwater resource from contamination. The cost to complete Part I is $16,500.00. Part 1 is completed.

Part II develops land use or management practices to protect the groundwater resources. Cost to complete Part II is $17,999.00.

This Wellhead Protection Plan is Federal and State mandated without funding.

WFRS
Water Fluoridation
Reporting System

2013

Water Fluoridation Quality Award

Big Lake

State of Minnesota

The Centers for Disease Control and Prevention commends this water system for its consistent and professional adjustment of the water fluoride content to the optimum level for oral health for 12 consistent months. Consistent, high-quality water fluoridation practice, as demonstrated by this water system, is a safe and effective method to prevent tooth decay, improving the oral health of community residents of all ages.

Presented by the
Centers for Disease Control and Prevention
United States Department of Health & Human Services

National Fluoridation Engineer, Division of Oral Health
National Center for Chronic Disease Prevention
and Health Promotion

Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion

CONSUMER CONFIDENCE REPORT

PWSID: 1710002

City of Big Lake

2014 Drinking Water Report

The City of Big Lake is issuing the results of monitoring done on its drinking water for the period from January 1 to December 31, 2014. The purpose of this report is to advance consumers' understanding of drinking water and heighten awareness of the need to protect precious water resources.

Source of Water

The City of Big Lake provides drinking water to its residents from a groundwater source: six wells ranging from 178 to 230 feet deep, that draw water from the Mt.Simon-Fond Du Lac, Mt. Simon, Mt.Simon-Red Clastics, and Mt. Simon-Hinckley aquifers.

The Minnesota Department of Health has made a determination as to how vulnerable our systems' source(s) of water may be to future contamination incidents. If you wish to obtain the entire source water assessment regarding your drinking water, please call 651-201-4700 or 1-800-818-9318 (and press 5) during normal business hours. Also, you can view it on line at www.health.state.mn.us/divs/eh/water/swp/swa.

Call Big Lake Public Works Department 763-263-2268 if you have questions about the City of Big Lake drinking water or would like information about opportunities for public participation in decisions that may affect the quality of the water.

Results of Monitoring

No contaminants were detected at levels that violated federal drinking water standards. However, some contaminants were detected in trace amounts that were below legal limits. The table that follows shows the contaminants that were detected in trace amounts last year. (Some contaminants are sampled less frequently than once a year; as a result, not all contaminants were sampled for in 2014. If any of these contaminants were detected the last time they were sampled for, they are included in the table along with the date that the detection occurred.)

Key to abbreviations:
MCLG—Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MCL—Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MRDL—Maximum Residual Disinfectant Level.

PWSID: 1710002

MRDLG—Maximum Residual Disinfectant Level Goal.

AL—Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirement which a water system must follow.

90th Percentile Level—This is the value obtained after disregarding 10 percent of the samples taken that had the highest levels. (For example, in a situation in which 10 samples were taken, the 90th percentile level is determined by disregarding the highest result, which represents 10 percent of the samples.) Note: In situations in which only 5 samples are taken, the average of the two with the highest levels is taken to determine the 90th percentile level.

pCi/l—PicoCuries per liter (a measure of radioactivity).

ppm—Parts per million, which can also be expressed as milligrams per liter (mg/l).

ppb—Parts per billion, which can also be expressed as micrograms per liter (µg/l).

N/A—Not Applicable (does not apply).

Contaminant (units)	MCLG	MCL	Level Found		Typical Source of Contaminant
			Range (2014)	Average/ Result*	
Alpha Emitters (pCi/l) (04/16/2013)	0	15.4	N/A	4.9	Erosion of natural deposits.
Barium (ppm) (04/06/2011)	2	2	N/A	.07	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Fluoride (ppm)	4	4	1-1.2	1.13	State of Minnesota requires all municipal water systems to add fluoride to the drinking water to promote strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories.
Haloacetic Acids (HAA5) (ppb)	0	60	4.4-5.3	5.3	By-product of drinking water disinfection.
Nitrate (as Nitrogen) (ppm)	10.4	10.4	3.6-5.8	5.8	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

CONSUMER CONFIDENCE REPORT

PWSID: 1710002

Contaminant (units)	MCLG	MCL	Level Found		Typical Source of Contaminant
			Range (2014)	Average/ Result*	
TTHM (Total trihalomethanes) (ppb)	0	80	12.9-15.4	15.4	By-product of drinking water disinfection.

*This is the value used to determine compliance with federal standards. It sometimes is the highest value detected and sometimes is an average of all the detected values. If it is an average, it may contain sampling results from the previous year.

Nitrate in drinking water at levels above 10 parts per million is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask advice from your health care provider.

Contaminant (units)	MRDLG	MRDL	****	*****	Typical Source of Contaminant
Chlorine (ppm)	4	4	.1-.7	.63	Water additive used to control microbes.

****Highest and Lowest Monthly Average.
*****Highest Quarterly Average.

Contaminant (units)	MCLG	AL	90% Level	# sites over AL	Typical Source of Contaminant
Copper (ppm) (07/25/2013)	1.3	1.3	.37	0 out of 20	Corrosion of household plumbing systems; Erosion of natural deposits.
Lead (ppb) (07/25/2013)	0	15	1	0 out of 20	Corrosion of household plumbing systems; Erosion of natural deposits.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. City of Big Lake is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

PWSID: 1710002

Monitoring may have been done for additional contaminants that do not have MCLs established for them and are not required to be monitored under the Safe Drinking Water Act. Results may be available by calling 651-201-4700 or 1-800-818-9318 during normal business hours.

Monitoring for unregulated contaminants as required by U.S. Environmental Protection Agency rules (40 CFR 141.40) was conducted in 2014. Results of the unregulated contaminant monitoring are available upon request from Cindy Swanson, Minnesota Department of Health, at 651/201-4656.

Compliance with National Primary Drinking Water Regulations

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U. S. Environmental Protection Agency (EPA) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

PWSID: 1710002

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Protecting, maintaining and improving the health of all Minnesotans

To: Community Water Supply Owner/Operator

From: Community Water Supply Unit
Section of Drinking Water Protection

Subject: Sample Analysis Results for your Public Water Supply

Attached are the results of analyses performed on water samples collected from your public water supply. These results show that your system is in compliance with maximum contaminant levels set by the state and federal Safe Drinking Water Rules for the contaminants analyzed. These results must be kept in your files for a minimum of ten (10) years.

Analyses are attached for the contaminant groups checked below.

- ☐ Coliform Bacteria
- ☐ Nitrate
- ☐ Nitrite
- ☒ Inorganics
- ☐ Other_____
- ☒ Volatile Organics
- ☐ Trihalomethanes/Haloacetic Acids
- ☒ Synthetic Organics
- ☐ Radiochemical(s)

If you have any questions concerning these results, please contact your Department of Health district engineer.

Bemidji
Todd Johnson 218/308-2110

Duluth
Mike Luhrsen 218/302-6178

Fergus Falls
Steve Pederson 218/332-5146

Mankato
Mark Sweers 507/344-2736
Amy Lynch 507/344-2713

Marshall
John Blomme 507/537-7308

Rochester
Paul Halvorson 507/206-2724

St. Cloud
Jon Groethe 320/223-7339
Kim Larsen 320/223-7330
Dave Schultz 320/223-7328

St. Paul
Bassam Banat 651/201-3973
Lucas Martin 651/201-4144
Isaac Bradlich 651/201-3971

Rev. 12/2012
O:\DwpCpws/Checkbox Letters/Generic Checkbox Letter

Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1710002
System Name: Big Lake
City: Big Lake

Program Code: HC

Type: B

Date Received: 07/30/14 11:14
Rep. Temp. (°C): 14.5

Collector Name: Kim Anding Larsen
Collector ID: 7923

MDH Sample Number: 14G2420-01

Location ID: D01
Sampling Point: Distribution - COBORNS
Field Number: BLKDIS

Collect Date: 07/29/14
Collect Time: 11:30
Matrix: Drinking Water

Field Residual Chlorine Result: None
Field Fluoride Result: None
Field pH Result: None
Field PO_4 Result: None

Results were produced by the Minnesota Department of Health, except where noted.

General Chemistry Parameters

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
Fluoride, Total	**1.0**	0.20	mg/L	B4G0924	07/31/14 15:01	08/01/14 11:00	NMT	SM 4500-F C 21st ED	

MDH Sample Number: 14G2420-02

Location ID: E06
Sampling Point: TREATMENT PLANT #1
Field Number: BLK

Collect Date: 07/29/14
Collect Time: 11:30
Matrix: Drinking Water

Field Residual Chlorine Result: None
Field Fluoride Result: None
Field pH Result: None
Field PO_4 Result: None

Results were produced by the Minnesota Department of Health, except where noted.

General Chemistry Parameters

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
Sulfate	**20.6**	1.00	mg/L	B4G0922	08/08/14 00:41	08/08/14 00:41	NMT	EPA 300.1	

Metal Parameters

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
Sodium	**8.01**	0.50	mg/L	B4H0538	08/19/14 11:03	08/19/14 15:42	DVH	EPA 200.7	

Herbicides by GC/ECD

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
2,4,5-TP (Silvex)	<	0.20	ug/L	B4H0102	08/05/14 08:57	08/14/14 21:55	JJR	EPA 515.4	
2,4-D	<	0.50	ug/L	B4H0102	08/05/14 08:57	08/14/14 21:55	JJR	EPA 515.4	
Dalapon [2C]	<	0.50	ug/L	B4H0102	08/05/14 08:57	08/14/14 21:55	JJR	EPA 515.4	

FINAL REPORT

Report ID: 08282014152641

Generated: 8/28/2014 3:26:40PM

Authorized by:

The results in this report apply only to the samples analyzed.
This report must not be reproduced, except in full, without the written approval of the laboratory.

Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1710002

MDH Sample Number: 14G2420-02

Location ID: E06
Sampling Point: TREATMENT PLANT #1
Field Number: BLK

Collect Date: 07/29/14
Collect Time: 11:30
Matrix: Drinking Water

Field Residual Chlorine Result: None
Field Fluoride Result: None
Field pH Result: None
Field PO_4 Result: None

Results were produced by the Minnesota Department of Health, except where noted.

Herbicides by GC/ECD - Continued

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
Dinoseb	<	0.50	ug/L	B4H0102	08/05/14 08:57	08/14/14 21:55	JJR	EPA 515.4	
Pentachlorophenol (PCP)	<	0.10	ug/L	B4H0102	08/05/14 08:57	08/14/14 21:55	JJR	EPA 515.4	
Picloram	<	0.50	ug/L	B4H0102	08/05/14 08:57	08/14/14 21:55	JJR	EPA 515.4	
Surrogate: Bromopropionic Acid	*108*	*70-130*	%	*B4H0102*	*08/05/14 08:57*	*08/14/14 21:55*	*JJR*	*EPA 515.4*	

VOCs by GCMS

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
1,1,1,2-Tetrachloroethane	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,1,1-Trichloroethane	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,1,2,2-Tetrachloroethane	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,1,2-Trichloroethane	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,1,2-Trichlorotrifluoroethane	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,1-Dichloroethane	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,1-Dichloroethene	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,1-Dichloropropene	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,2,3-Trichlorobenzene	<	1.0	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,2,3-Trichloropropane	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,2,4-Trichlorobenzene	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,2,4-Trimethylbenzene	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	L3, V4, Z-01b
1,2-Dibromo-3-chloropropane (DBCP)	<	2.0	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,2-Dibromoethane (EDB)	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,2-Dichlorobenzene	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,2-Dichloroethane	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,2-Dichloropropane	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,3,5-Trimethylbenzene	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	L3, V4, Z-01b
1,3-Dichlorobenzene	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,3-Dichloropropana	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
1,4-Dichlorobenzene	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
2,2-Dichloropropane	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
2-Chlorotoluene	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
4-Chlorotoluene	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Acetone	<	20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Allyl chloride	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Benzene	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Bromobenzene	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Bromochloromethane	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1710002

MDH Sample Number: 14G2420-02

Location ID: E06
Sampling Point: TREATMENT PLANT #1
Field Number: BLK

Collect Date: 07/29/14
Collect Time: 11:30
Matrix: Drinking Water

Field Residual Chlorine Result: None
Field Fluoride Result: None
Field pH Result: None
Field PO_4 Result: None

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
Bromodichloromethane	**1.8**	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Bromoform	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Bromomethane	<	1.0	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	Z-01a
Carbon tetrachloride	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Chlorobenzene	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Chlorodibromomethane	**1.5**	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Chloroethane	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Chloroform	**1.4**	0.10	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Chloromethane	<	1.0	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
cis-1,2-Dichloroethene	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
cis-1,3-Dichloropropene	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Dibromomethane	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Dichlorodifluoromethane	<	1.0	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Dichlorofluoromethane	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Ethyl ether	<	2.0	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Ethylbenzene	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Hexachlorobutadiene	<	1.0	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Isopropylbenzene	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Methyl ethyl ketone (MEK)	<	10	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Methyl isobutyl ketone (MIBK)	<	5.0	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Methyl tertiary butyl ether (MTBE)	<	2.0	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Methylene chloride	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Naphthalene	<	1.0	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
n-Butylbenzene	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
n-Propylbenzene	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
o-Xylene	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
p&m-Xylene	<	0.30	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
p-Isopropyltoluene	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
sec-Butylbenzene	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Styrene	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
tert-Butylbenzene	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Tetrachloroethene	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Tetrahydrofuran (THF)	<	10	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Toluene	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
trans-1,2-Dichloroethene	<	0.10	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
trans-1,3-Dichloropropene	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Trichloroethene (TCE)	<	0.10	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Trichlorofluoromethane	<	0.50	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1710002

MDH Sample Number: 14G2420-02

Location ID: E06
Sampling Point: TREATMENT PLANT #1
Field Number: BLK

Collect Date: 07/29/14
Collect Time: 11:30
Matrix: Drinking Water

Field Residual Chlorine Result: None
Field Fluoride Result: None
Field pH Result: None
Field PO_4 Result: None

Results were produced by the Minnesota Department of Health, except where noted.

VOCs by GCMS - Continued

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
Vinyl chloride	<	0.20	ug/L	B4G0882	07/31/14 03:51	07/31/14 03:51	KCB	EPA 524.2	
Surrogate: 1,2-Dichlorobenzene-d4	*92*	*70-130*	*%*	*B4G0882*	*07/31/14 03:51*	*07/31/14 03:51*	*KCB*	*EPA 524.2*	
Surrogate: 1,2-Dichloroethane-d4	*93*	*70-130*	*%*	*B4G0882*	*07/31/14 03:51*	*07/31/14 03:51*	*KCB*	*EPA 524.2*	
Surrogate: 4-Bromofluorobenzene	*92*	*70-130*	*%*	*B4G0882*	*07/31/14 03:51*	*07/31/14 03:51*	*KCB*	*EPA 524.2*	
Surrogate: Dibromofluoromethane	*99*	*70-130*	*%*	*B4G0882*	*07/31/14 03:51*	*07/31/14 03:51*	*KCB*	*EPA 524.2*	
Surrogate: Toluene-d8	*92*	*70-130*	*%*	*B4G0882*	*07/31/14 03:51*	*07/31/14 03:51*	*KCB*	*EPA 524.2*	

BNAs, SDWA

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
Alachlor	<	0.15	ug/L	B4H0065	08/04/14 13:28	08/21/14 18:40	JJR	EPA 508.1	
Atrazine	<	0.10	ug/L	B4H0065	08/04/14 13:28	08/21/14 18:40	JJR	EPA 508.1	
Butachlor	<	0.25	ug/L	B4H0065	08/04/14 13:28	08/21/14 18:40	JJR	EPA 508.1	
Dieldrin	<	0.20	ug/L	B4H0065	08/04/14 13:28	08/21/14 18:40	JJR	EPA 508.1	
Endrin	<	0.10	ug/L	B4H0065	08/04/14 13:28	08/21/14 18:40	JJR	EPA 508.1	
Heptachlor	<	0.10	ug/L	B4H0065	08/04/14 13:28	08/21/14 18:40	JJR	EPA 508.1	V1
Hexachlorocyclopentadiene	<	0.30	ug/L	B4H0065	08/04/14 13:28	08/21/14 18:40	JJR	EPA 508.1	
Methoxychlor	<	0.10	ug/L	B4H0065	08/04/14 13:28	08/21/14 18:40	JJR	EPA 508.1	
Metolachlor	<	0.25	ug/L	B4H0065	08/04/14 13:28	08/21/14 18:40	JJR	EPA 508.1	
Propachlor	<	0.20	ug/L	B4H0065	08/04/14 13:28	08/21/14 18:40	JJR	EPA 508.1	
Simazine	<	0.20	ug/L	B4H0065	08/04/14 13:28	08/21/14 18:40	JJR	EPA 508.1	
Technical Chlordane	<	0.10	ug/L	B4H0065	08/04/14 13:28	08/21/14 18:40	JJR	EPA 508.1	
Toxaphene	<	0.80	ug/L	B4H0065	08/04/14 13:28	08/21/14 18:40	JJR	EPA 508.1	
Surrogate: 4,4'-Dibromobiphenyl	*108*	*70-130*	*%*	*B4H0065*	*08/04/14 13:28*	*08/21/14 18:40*	*JJR*	*EPA 508.1*	
Aldrin	<	0.25	ug/L	B4H0065	08/04/14 13:28	08/26/14 12:10	JJR	EPA 525.2	V1
Benzo[a]pyrene	<	0.050	ug/L	B4H0065	08/04/14 13:28	08/26/14 12:10	JJR	EPA 525.2	
Di(2-ethylhexyl) adipate	<	0.60	ug/L	B4H0065	08/04/14 13:28	08/26/14 12:10	JJR	EPA 525.2	Z-01
Di(2-ethylhexyl) phthalate	<	1.8	ug/L	B4H0065	08/04/14 13:28	08/26/14 12:10	JJR	EPA 525.2	Z-01
g-BHC (Lindane)	<	0.10	ug/L	B4H0065	08/04/14 13:28	08/26/14 12:10	JJR	EPA 525.2	
Heptachlor epoxide	<	0.10	ug/L	B4H0065	08/04/14 13:28	08/26/14 12:10	JJR	EPA 525.2	
Hexachlorobenzene	<	0.090	ug/L	B4H0065	08/04/14 13:28	08/26/14 12:10	JJR	EPA 525.2	L2, V1
Metribuzin	<	0.50	ug/L	B4H0065	08/04/14 13:28	08/26/14 12:10	JJR	EPA 525.2	V1
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*119*	*70-130*	*%*	*B4H0065*	*08/04/14 13:28*	*08/26/14 12:10*	*JJR*	*EPA 525.2*	
Surrogate: Perylene-d12	*79*	*70-130*	*%*	*B4H0065*	*08/04/14 13:28*	*08/26/14 12:10*	*JJR*	*EPA 525.2*	
Surrogate: Pyrene-d10	*129*	*70-130*	*%*	*B4H0065*	*08/04/14 13:28*	*08/26/14 12:10*	*JJR*	*EPA 525.2*	
Surrogate: Triphenyl Phosphate	*82*	*70-130*	*%*	*B4H0065*	*08/04/14 13:28*	*08/26/14 12:10*	*JJR*	*EPA 525.2*	

Carbamates, SDWA

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1710002

MDH Sample Number: 14G2420-02

Location ID: E06
Sampling Point: TREATMENT PLANT #1
Field Number: BLK

Collect Date: 07/29/14
Collect Time: 11:30
Matrix: Drinking Water

Field Residual Chlorine Result: None
Field Fluoride Result: None
Field pH Result: None
Field PO_4 Result: None

Results were produced by the Minnesota Department of Health, except where noted.

Carbamates, SDWA - Continued

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
3-Hydroxycarbofuran	<	0.40	ug/L	B4H0150	08/07/14 08:03	08/07/14 08:03	DEN	EPA 531.1	
Aldicarb	<	0.40	ug/L	B4H0150	08/07/14 08:03	08/07/14 08:03	DEN	EPA 531.1	
Aldicarb sulfone	<	0.40	ug/L	B4H0150	08/07/14 08:03	08/07/14 08:03	DEN	EPA 531.1	
Aldicarb sulfoxide	<	0.40	ug/L	B4H0150	08/07/14 08:03	08/07/14 08:03	DEN	EPA 531.1	
Carbaryl	<	0.40	ug/L	B4H0150	08/07/14 08:03	08/07/14 08:03	DEN	EPA 531.1	
Carbofuran	<	0.40	ug/L	B4H0150	08/07/14 08:03	08/07/14 08:03	DEN	EPA 531.1	
Methomyl	<	0.40	ug/L	B4H0150	08/07/14 08:03	08/07/14 08:03	DEN	EPA 531.1	
Oxamyl	<	0.40	ug/L	B4H0150	08/07/14 08:03	08/07/14 08:03	DEN	EPA 531.1	

Glyphosate, SDWA

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
Glyphosate	<	5.0	ug/L	B4H0090	08/05/14 12:42	08/05/14 12:42	DEN	EPA 547	

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Public Health Laboratory, Minnesota Department of Health

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Final Report

PWSID: 1710002

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Batch B4G0922 - General Chemistry Prep

Blank (B4G0922-BLK1) — **Prepared: 08/07/14 18:43 Analyzed: 08/07/14 18:43**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Sulfate	<	1.00	mg/L							NMT	

LCS (B4G0922-BS1) — **Prepared: 08/07/14 18:57 Analyzed: 08/07/14 18:57**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Sulfate	98.0		mg/L	100.02		98	85-115			NMT	

Duplicate (B4G0922-DUP2) — Source: 14G2072-01 — **Prepared: 08/07/14 19:55 Analyzed: 08/07/14 19:55**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Sulfate	45.1	1.00	mg/L		45.1			0.004	10	NMT	

Duplicate (B4G0922-DUP3) — Source: 14G2062-01RE1 — **Prepared: 08/07/14 20:52 Analyzed: 08/09/14 02:30**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Sulfate	<	5.00	mg/L		<				10	NMT	

Matrix Spike (B4G0922-MS1) — Source: 14G2072-02 — **Prepared: 08/07/14 20:23 Analyzed: 08/07/14 20:23**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Sulfete	134		mg/L	100.02		99	85-115			NMT	

Matrix Spike (B4G0922-MS2) — Source: 14G2081-01 — **Prepared: 08/07/14 20:52 Analyzed: 08/07/14 20:52**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Sulfate	116		mg/L	100.02		98	85-115			NMT	

Batch B4G0924 - General Chemistry Prep

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Public Health Laboratory, Minnesota Department of Health

Final Report

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Public Health Laboratory
Environmental Laboratory Section
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651-201-5300

PWSID: 1710002

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Batch B4G0924 - General Chemistry Prep

Blank (B4G0924-BLK1) — **Prepared: 07/31/14 15:01 Analyzed: 08/01/14 10:43**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Fluoride, Total	<	0.20	mg/L							NMT	

LCS (B4G0924-BS1) — **Prepared: 07/31/14 15:01 Analyzed: 08/01/14 10:46**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Fluoride, Total	1.97		mg/L	2		99	90-110			NMT	

Duplicate (B4G0924-DUP1) — Source: 14G2403-01 — **Prepared: 07/31/14 15:01 Analyzed: 08/01/14 10:52**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Fluoride, Total	1.11	0.20	mg/L		1.11			0	10	NMT	

Duplicate (B4G0924-DUP2) — Source: 14G2405-01 — **Prepared: 07/31/14 15:01 Analyzed: 08/01/14 10:57**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Fluoride, Total	1.17	0.20	mg/L		1.16			0.5	10	NMT	

Matrix Spike (B4G0924-MS1) — Source: 14G2420-01 — **Prepared: 07/31/14 15:01 Analyzed: 08/01/14 11:03**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Fluoride, Total	3.01		mg/L	2		100	90-110			NMT	

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Final Report

PWSID: 1710002

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Batch B4H0538 - Metals Preservation

Blank (B4H0538-BLK1) — **Prepared: 08/19/14 11:03 Analyzed: 08/19/14 15:30**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Sodium	<	0.50	mg/L							DVH	

LCS (B4H0538-BS1) — **Prepared: 08/19/14 11:03 Analyzed: 08/19/14 15:33**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Sodium	10.1		mg/L	10		101	85-115			DVH	

Duplicate (B4H0538-DUP1) — Source: 14G2417-01 — **Prepared: 08/19/14 11:03 Analyzed: 08/19/14 15:39**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Sodium	58.9	0.50	mg/L		59.3			0.8	20	DVH	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

MINNESOTA MDH DEPARTMENT of HEALTH

Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1710002

Results were produced by Minnesota Department of Health, except where noted.

Batch B4H0102 - Herbicide Extraction

Blank (B4H0102-BLK1) — **Prepared: 08/05/14 08:57 Analyzed: 08/14/14 12:51**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
2,4,5-TP (Silvex)	<	0.20	ug/L							JJR	
2,4-D	<	0.50	ug/L							JJR	
Dalapon [2C]	<	0.50	ug/L							JJR	
Dinoseb	<	0.50	ug/L							JJR	
Pentachlorophenol (PCP)	<	0.10	ug/L							JJR	
Picloram	<	0.50	ug/L							JJR	
Surrogate: Bromopropionic Acid	*113*	*70-130*	*%*	*6*						JJR	

LCS (B4H0102-BS1) — **Prepared: 08/05/14 08:57 Analyzed: 08/14/14 12:22**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
2,4,5-TP (Silvex)	0.25	0.20	ug/L	0.20		123	70-130			JJR	
2,4-D	0.58	0.50	ug/L	0.5		116	70-130			JJR	
Dalapon [2C]	0.59	0.50	ug/L	0.5		118	70-130			JJR	
Dinoseb	0.65	0.50	ug/L	0.5		130	70-130			JJR	
Pentachlorophenol (PCP)	0.11	0.10	ug/L	0.1		114	70-130			JJR	
Picloram	0.56	0.50	ug/L	0.5		113	70-130			JJR	
Surrogate: Bromopropionic Acid	*109*	*70-130*	*%*	*6*						JJR	

LCS (B4H0102-BS2) — **Prepared: 08/05/14 08:57 Analyzed: 08/14/14 19:03**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
2,4,5-TP (Silvex)	1.2	0.20	ug/L	1.00		119	70-130			JJR	
2,4-D	2.8	0.50	ug/L	2.5		112	70-130			JJR	
Dalapon [2C]	3.0	0.50	ug/L	2.5		122	70-130			JJR	
Dinoseb	3.0	0.50	ug/L	2.5		120	70-130			JJR	
Pentachlorophenol (PCP)	0.53	0.10	ug/L	0.5		106	70-130			JJR	
Picloram	2.9	0.50	ug/L	2.5		118	70-130			JJR	
Surrogate: Bromopropionic Acid	*105*	*70-130*	*%*	*6*						JJR	

LCS Dup (B4H0102-BSD2) — **Prepared: 08/05/14 08:57 Analyzed: 08/14/14 23:20**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
2,4,5-TP (Silvex)	1.2	0.20	ug/L	1.00		119	70-130	0.3	30	JJR	
2,4-D	2.9	0.50	ug/L	2.5		114	70-130	2	30	JJR	

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Public Health Laboratory, Minnesota Department of Health

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Batch B4H0102 - Herbicide Extraction

LCS Dup (B4H0102-BSD2) **Prepared: 08/05/14 08:57 Analyzed: 08/14/14 23:20**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Dalapon [2C]	3.2	0.50	ug/L	2.5		128	70-130	5	30	JJR	
Dinoseb	3.0	0.50	ug/L	2.5		119	70-130	0.6	30	JJR	
Pentachlorophenol (PCP)	0.52	0.10	ug/L	0.5		105	70-130	2	30	JJR	
Picloram	2.9	0.50	ug/L	2.5		117	70-130	0.3	30	JJR	
Surrogate: Bromopropionic Acid	*103*	*70-130*	%	*6*						JJR	

Matrix Spike (B4H0102-MS1) Source: 14G1614-02 **Prepared: 08/05/14 08:57 Analyzed: 08/14/14 13:19**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
2,4,5-TP (Silvex)	1.7	0.20	ug/L	1.60	<	103	70-130			JJR	
2,4-D	4.0	0.50	ug/L	4	<	101	70-130			JJR	
Dalapon [2C]	4.3	0.50	ug/L	4	<	108	70-130			JJR	
Dinoseb	4.8	0.50	ug/L	4	<	120	70-130			JJR	
Pentachlorophenol (PCP)	0.87	0.10	ug/L	0.8	<	109	70-130			JJR	
Picloram	3.8	0.50	ug/L	4	<	95	70-130			JJR	
Surrogate: Bromopropionic Acid	*112*	*70-130*	%	*6*						JJR	

Matrix Spike Dup (B4H0102-MSD1) Source: 14G1614-02 **Prepared: 08/05/14 08:57 Analyzed: 08/14/14 13:48**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
2,4,5-TP (Silvex)	1.7	0.20	ug/L	1.60	<	104	70-130	0.9	30	JJR	
2,4-D	4.0	0.50	ug/L	4	<	99	70-130	2	30	JJR	
Dalapon [2C]	5.1	0.50	ug/L	4	<	128	70-130	17	30	JJR	
Dinoseb	4.7	0.50	ug/L	4	<	118	70-130	2	30	JJR	
Pentachlorophenol (PCP)	0.81	0.10	ug/L	0.8	<	101	70-130	8	30	JJR	
Picloram	3.9	0.50	ug/L	4	<	99	70-130	3	30	JJR	
Surrogate: Bromopropionic Acid	*108*	*70-130*	%	*6*						JJR	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

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Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

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Batch B4G0882 - EPA 5030B Preparation

Blank (B4G0882-BLK1) **Prepared: 07/31/14 00:57 Analyzed: 07/31/14 00:57**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
1,1,1,2-Tetrachloroethane	<	0.20	ug/L							KCB	
1,1,1-Trichloroethane	<	0.20	ug/L							KCB	
1,1,2,2-Tetrachloroethane	<	0.20	ug/L							KCB	
1,1,2-Trichloroethane	<	0.20	ug/L							KCB	
1,1,2-Trichlorotrifluoroethane	<	0.20	ug/L							KCB	
1,1-Dichloroethane	<	0.20	ug/L							KCB	
1,1-Dichloroethene	<	0.50	ug/L							KCB	
1,1-Dichloropropene	<	0.20	ug/L							KCB	
1,2,3-Trichlorobenzene	<	1.0	ug/L							KCB	
1,2,3-Trichloropropane	<	0.50	ug/L							KCB	
1,2,4-Trichlorobenzene	<	0.50	ug/L							KCB	
1,2,4-Trimethylbenzene	<	0.50	ug/L							KCB	
1,2-Dibromo-3-chloropropane (DBCP)	<	2.0	ug/L							KCB	
1,2-Dibromoethane (EDB)	<	0.50	ug/L							KCB	
1,2-Dichlorobenzene	<	0.20	ug/L							KCB	
1,2-Dichloroethane	<	0.20	ug/L							KCB	
1,2-Dichloropropane	<	0.20	ug/L							KCB	
1,3,5-Trimethylbenzene	<	0.50	ug/L							KCB	
1,3-Dichlorobenzene	<	0.20	ug/L							KCB	
1,3-Dichloropropane	<	0.20	ug/L							KCB	
1,4-Dichlorobenzene	<	0.20	ug/L							KCB	
2,2-Dichloropropane	<	0.50	ug/L							KCB	
2-Chlorotoluene	<	0.50	ug/L							KCB	
4-Chlorotoluene	<	0.50	ug/L							KCB	
Acetone	<	20	ug/L							KCB	
Allyl chloride	<	0.50	ug/L							KCB	
Benzene	<	0.20	ug/L							KCB	
Bromobenzene	<	0.20	ug/L							KCB	
Bromochloromethane	<	0.50	ug/L							KCB	
Bromodichloromethane	<	0.20	ug/L							KCB	
Bromoform	<	0.50	ug/L							KCB	
Bromomethane	<	1.0	ug/L							KCB	
Carbon tetrachloride	<	0.20	ug/L							KCB	
Chlorobenzene	<	0.20	ug/L							KCB	
Chlorodibromomethane	<	0.50	ug/L							KCB	
Chloroethane	<	0.50	ug/L							KCB	
Chloroform	<	0.10	ug/L							KCB	
Chloromethane	<	1.0	ug/L							KCB	
cis-1,2-Dichloroethene	<	0.20	ug/L							KCB	
cis-1,3-Dichloropropene	<	0.20	ug/L							KCB	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

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Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
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Batch B4G0882 - EPA 5030B Preparation

Blank (B4G0882-BLK1) **Prepared: 07/31/14 00:57 Analyzed: 07/31/14 00:57**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Dibromomethane	<	0.50	ug/L							KCB	
Dichlorodifluoromethane	<	1.0	ug/L							KCB	
Dichlorofluoromethane	<	0.50	ug/L							KCB	
Ethyl ether	<	2.0	ug/L							KCB	
Ethylbenzene	<	0.50	ug/L							KCB	
Hexachlorobutadiene	<	1.0	ug/L							KCB	
Isopropylbenzene	<	0.50	ug/L							KCB	
Methyl ethyl ketone (MEK)	<	10	ug/L							KCB	
Methyl isobutyl ketone (MIBK)	<	5.0	ug/L							KCB	
Methyl tertiary butyl ether (MTBE)	<	2.0	ug/L							KCB	
Methylene chloride	<	0.50	ug/L							KCB	
Naphthalene	<	1.0	ug/L							KCB	
n-Butylbenzene	<	0.50	ug/L							KCB	
n-Propylbenzene	<	0.50	ug/L							KCB	
o-Xylene	<	0.20	ug/L							KCB	
p&m-Xylene	<	0.30	ug/L							KCB	
p-Isopropyltoluene	<	0.50	ug/L							KCB	
sec-Butylbenzene	<	0.50	ug/L							KCB	
Styrene	<	0.50	ug/L							KCB	
tert-Butylbenzene	<	0.50	ug/L							KCB	
Tetrachloroethene	<	0.20	ug/L							KCB	
Tetrahydrofuran (THF)	<	10	ug/L							KCB	
Toluene	<	0.20	ug/L							KCB	
trans-1,2-Dichloroethene	<	0.10	ug/L							KCB	
trans-1,3-Dichloropropene	<	0.20	ug/L							KCB	
Trichloroethene (TCE)	<	0.10	ug/L							KCB	
Trichlorofluoromethane	<	0.50	ug/L							KCB	
Vinyl chloride	<	0.20	ug/L							KCB	
Surrogate: 1,2-Dichlorobenzene-d4	*86*	*70-130*	*%*	*10*						KCB	
Surrogate: 1,2-Dichloroethane-d4	*99*	*70-130*	*%*	*10*						KCB	
Surrogate: 4-Bromofluorobenzene	*89*	*70-130*	*%*	*10*						KCB	
Surrogate: Dibromofluoromethane	*99*	*70-130*	*%*	*10*						KCB	
Surrogate: Toluene-d8	*91*	*70-130*	*%*	*10*						KCB	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

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Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

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Batch B4G0882 - EPA 5030B Preparation

LCS (B4G0882-BS1) **Prepared: 07/30/14 23:59 Analyzed: 07/30/14 23:59**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
1,1,1,2-Tetrachloroethane	4.6	0.20	ug/L	5		93	70-130			KCB	
1,1,1-Trichloroethane	5.3	0.20	ug/L	5		107	70-130			KCB	
1,1,2,2-Tetrachloroethane	4.6	0.20	ug/L	5		91	70-130			KCB	
1,1,2-Trichloroethane	4.8	0.20	ug/L	5		96	70-130			KCB	
1,1,2-Trichlorotrifluoroethane	5.5	0.20	ug/L	5		110	70-130			KCB	
1,1-Dichloroethane	5.1	0.20	ug/L	5		103	70-130			KCB	
1,1-Dichloroethene	5.2	0.50	ug/L	5		105	70-130			KCB	
1,1-Dichloropropene	5.4	0.20	ug/L	5		108	70-130			KCB	
1,2,3-Trichlorobenzene	4.8	1.0	ug/L	5		97	70-130			KCB	
1,2,3-Trichloropropane	4.8	0.50	ug/L	5		96	70-130			KCB	
1,2,4-Trichlorobenzene	4.8	0.50	ug/L	5		97	70-130			KCB	
1,2,4-Trimethylbenzene	5.4	0.50	ug/L	5		108	70-130			KCB	
1,2-Dibromo-3-chloropropane (DBCP)	4.2	2.0	ug/L	5		83	70-130			KCB	
1,2-Dibromoethane (EDB)	4.9	0.50	ug/L	5		97	70-130			KCB	
1,2-Dichlorobenzene	5.0	0.20	ug/L	5		99	70-130			KCB	
1,2-Dichloroethane	5.4	0.20	ug/L	5		107	70-130			KCB	
1,2-Dichloropropane	5.2	0.20	ug/L	5		104	70-130			KCB	
1,3,5-Trimethylbenzene	4.8	0.50	ug/L	5		96	70-130			KCB	
1,3-Dichlorobenzene	4.7	0.20	ug/L	5		95	70-130			KCB	
1,3-Dichloropropane	4.8	0.20	ug/L	5		96	70-130			KCB	
1,4-Dichlorobenzene	4.6	0.20	ug/L	5		93	70-130			KCB	
2,2-Dichloropropane	4.5	0.50	ug/L	5		91	70-130			KCB	
2-Chlorotoluene	4.6	0.50	ug/L	5		92	70-130			KCB	
4-Chlorotoluene	4.7	0.50	ug/L	5		94	70-130			KCB	
Acetone	57	20	ug/L	50		114	70-130			KCB	
Allyl chloride	5.2	0.50	ug/L	5		103	70-130			KCB	
Benzene	5.0	0.20	ug/L	5		101	70-130			KCB	
Bromobenzene	4.9	0.20	ug/L	5		98	70-130			KCB	
Bromochloromethane	5.4	0.50	ug/L	5		107	70-130			KCB	
Bromodichloromethane	5.2	0.20	ug/L	5		103	70-130			KCB	
Bromoform	4.3	0.50	ug/L	5		86	70-130			KCB	
Bromomethane	5.8	1.0	ug/L	5		115	70-130			KCB	
Carbon tetrachloride	5.3	0.20	ug/L	5		106	70-130			KCB	
Chlorobenzene	4.8	0.20	ug/L	5		96	70-130			KCB	
Chlorodibromomethane	4.6	0.50	ug/L	5		92	70-130			KCB	
Chloroethane	5.7	0.50	ug/L	5		114	70-130			KCB	
Chloroform	5.4	0.10	ug/L	5		107	70-130			KCB	
Chloromethane	5.3	1.0	ug/L	5		106	70-130			KCB	
cis-1,2-Dichloroethene	5.4	0.20	ug/L	5		108	70-130			KCB	
cis-1,3-Dichloropropene	4.4	0.20	ug/L	5		87	70-130			KCB	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

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Batch B4G0882 - EPA 5030B Preparation

LCS (B4G0882-BS1) **Prepared: 07/30/14 23:59 Analyzed: 07/30/14 23:59**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Dibromomethane	5.2	0.50	ug/L	5		105	70-130			KCB	
Dichlorodifluoromethane	5.0	1.0	ug/L	5		99	70-130			KCB	
Dichlorofluoromethane	5.4	0.50	ug/L	5		108	70-130			KCB	
Ethyl ether	5.2	2.0	ug/L	5		105	70-130			KCB	
Ethylbenzene	4.8	0.50	ug/L	5		95	70-130			KCB	
Hexachlorobutadiene	4.8	1.0	ug/L	5		96	70-130			KCB	
Isopropylbenzene	4.6	0.50	ug/L	5		92	70-130			KCB	
Methyl ethyl ketone (MEK)	28	10	ug/L	25		113	70-130			KCB	
Methyl isobutyl ketone (MIBK)	23	5.0	ug/L	25		91	70-130			KCB	
Methyl tertiary butyl ather (MTBE)	4.9	2.0	ug/L	5		99	70-130			KCB	
Methylene chloride	5.4	0.50	ug/L	5		109	70-130			KCB	
Naphthalene	4.6	1.0	ug/L	5		91	70-130			KCB	
n-Butylbenzene	4.4	0.50	ug/L	5		89	70-130			KCB	
n-Propylbenzene	4.5	0.50	ug/L	5		91	70-130			KCB	
o-Xylene	4.8	0.20	ug/L	5		95	70-130			KCB	
p&m-Xylene	4.7	0.30	ug/L	5		94	70-130			KCB	
p-Isopropyltoluene	4.5	0.50	ug/L	5		91	70-130			KCB	
sec-Butylbenzene	4.5	0.50	ug/L	5		90	70-130			KCB	
Styrene	4.5	0.50	ug/L	5		89	70-130			KCB	
tert-Butylbenzene	4.6	0.50	ug/L	5		91	70-130			KCB	
Tetrachloroethene	4.9	0.20	ug/L	5		98	70-130			KCB	
Tetrahydrofuran (THF)	53	10	ug/L	50		106	70-130			KCB	
Toluene	4.9	0.20	ug/L	5		97	70-130			KCB	
trans-1,2-Dichloroethene	5.5	0.10	ug/L	5		111	70-130			KCB	
trans-1,3-Dichloropropene	4.3	0.20	ug/L	5		86	70-130			KCB	
Trichloroethene (TCE)	5.4	0.10	ug/L	5		108	70-130			KCB	
Trichlorofluoromethane	5.4	0.50	ug/L	5		109	70-130			KCB	
Vinyl chloride	5.5	0.20	ug/L	5		109	70-130			KCB	
Surrogate: 1,2-Dichlorobenzene-d4	*98*	*70-130*	*%*	*10*						KCB	
Surrogate: 1,2-Dichloroethane-d4	*94*	*70-130*	*%*	*10*						KCB	
Surrogate: 4-Bromofluorobenzene	*96*	*70-130*	*%*	*10*						KCB	
Surrogate: Dibromofluoromethane	*102*	*70-130*	*%*	*10*						KCB	
Surrogate: Toluene-d8	*93*	*70-130*	*%*	*10*						KCB	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

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Environmental Laboratory Section
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Batch B4G0882 - EPA 5030B Preparation

LCS Dup (B4G0882-BSD1) **Prepared: 07/31/14 07:42 Analyzed: 07/31/14 07:42**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
1,1,1,2-Tetrachloroethane	4.5	0.20	ug/L	5		90	70-130	3	30	KCB	
1,1,1-Trichloroethane	5.1	0.20	ug/L	5		102	70-130	4	30	KCB	
1,1,2,2-Tetrachloroethane	4.3	0.20	ug/L	5		85	70-130	7	30	KCB	
1,1,2-Trichloroethane	4.9	0.20	ug/L	5		97	70-130	1	30	KCB	
1,1,2-Trichlorotrifluoroethane	5.4	0.20	ug/L	5		109	70-130	0.9	30	KCB	
1,1-Dichloroethane	5.0	0.20	ug/L	5		100	70-130	3	30	KCB	
1,1-Dichloroethene	5.2	0.50	ug/L	5		104	70-130	1	30	KCB	
1,1-Dichloropropene	5.2	0.20	ug/L	5		104	70-130	4	30	KCB	
1,2,3-Trichlorobenzene	3.8	1.0	ug/L	5		77	70-130	23	30	KCB	
1,2,3-Trichloropropane	4.8	0.50	ug/L	5		96	70-130	0.8	30	KCB	
1,2,4-Trichlorobenzene	3.8	0.50	ug/L	5		77	70-130	23	30	KCB	
1,2,4-Trimethylbenzene	3.5	0.50	ug/L	5		70	70-130	43	30	KCB	Z-01b, L3, V4
1,2-Dibromo-3-chloropropane (DBCP)	4.0	2.0	ug/L	5		80	70-130	4	30	KCB	
1,2-Dibromoethane (EDB)	4.8	0.50	ug/L	5		96	70-130	2	30	KCB	
1,2-Dichlorobenzene	4.1	0.20	ug/L	5		83	70-130	18	30	KCB	
1,2-Dichloroethane	5.4	0.20	ug/L	5		108	70-130	0.9	30	KCB	
1,2-Dichloropropane	5.2	0.20	ug/L	5		103	70-130	0.6	30	KCB	
1,3,5-Trimethylbenzene	3.2	0.50	ug/L	5		64	70-130	40	30	KCB	Z-01b, L3, V4
1,3-Dichlorobenzene	4.0	0.20	ug/L	5		79	70-130	18	30	KCB	
1,3-Dichloropropane	4.9	0.20	ug/L	5		97	70-130	1	30	KCB	
1,4-Dichlorobenzene	3.8	0.20	ug/L	5		76	70-130	20	30	KCB	
2,2-Dichloropropane	3.7	0.50	ug/L	5		74	70-130	20	30	KCB	
2-Chlorotoluene	3.9	0.50	ug/L	5		77	70-130	17	30	KCB	
4-Chlorotoluene	3.8	0.50	ug/L	5		75	70-130	22	30	KCB	
Acetone	61	20	ug/L	50		122	70-130	6	30	KCB	
Allyl chloride	4.8	0.50	ug/L	5		97	70-130	6	30	KCB	
Benzene	5.0	0.20	ug/L	5		99	70-130	1	30	KCB	
Bromobenzene	4.5	0.20	ug/L	5		90	70-130	9	30	KCB	
Bromochloromethane	5.2	0.50	ug/L	5		104	70-130	3	30	KCB	
Bromodichloromethane	5.0	0.20	ug/L	5		100	70-130	3	30	KCB	
Bromoform	3.8	0.50	ug/L	5		75	70-130	14	30	KCB	
Bromomethane	5.5	1.0	ug/L	5		111	70-130	4	30	KCB	
Carbon tetrachloride	5.0	0.20	ug/L	5		100	70-130	5	30	KCB	
Chlorobenzene	4.6	0.20	ug/L	5		92	70-130	4	30	KCB	
Chlorodibromomethane	4.2	0.50	ug/L	5		84	70-130	9	30	KCB	
Chloroethane	5.5	0.50	ug/L	5		109	70-130	4	30	KCB	
Chloroform	5.3	0.10	ug/L	5		106	70-130	0.9	30	KCB	
Chloromethane	5.3	1.0	ug/L	5		105	70-130	0.4	30	KCB	
cis-1,2-Dichloroethene	5.4	0.20	ug/L	5		107	70-130	0.9	30	KCB	
cis-1,3-Dichloropropene	4.2	0.20	ug/L	5		83	70-130	5	30	KCB	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

Final Report

PWSID: 1710002

Results were produced by Minnesota Department of Health, except where noted.

Batch B4G0882 - EPA 5030B Preparation

LCS Dup (B4G0882-BSD1) **Prepared: 07/31/14 07:42 Analyzed: 07/31/14 07:42**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Dibromomethane	5.3	0.50	ug/L	5		107	70-130	2	30	KCB	
Dichlorodifluoromethane	4.8	1.0	ug/L	5		96	70-130	3	30	KCB	
Dichlorofluoromethane	5.4	0.50	ug/L	5		107	70-130	0.7	30	KCB	
Ethyl ether	5.2	2.0	ug/L	5		104	70-130	1	30	KCB	
Ethylbenzene	4.4	0.50	ug/L	5		89	70-130	7	30	KCB	
Hexachlorobutadiene	4.1	1.0	ug/L	5		82	70-130	16	30	KCB	
Isopropylbenzene	4.0	0.50	ug/L	5		80	70-130	14	30	KCB	
Methyl ethyl ketone (MEK)	28	10	ug/L	25		112	70-130	1	30	KCB	
Methyl isobutyl ketone (MIBK)	23	5.0	ug/L	25		93	70-130	3	30	KCB	
Methyl tertiary butyl ether (MTBE)	4.8	2.0	ug/L	5		97	70-130	2	30	KCB	
Methylene chloride	5.4	0.50	ug/L	5		109	70-130	0.4	30	KCB	
Naphthalene	3.6	1.0	ug/L	5		72	70-130	23	30	KCB	
n-Butylbenzene	3.6	0.50	ug/L	5		72	70-130	21	30	KCB	
n-Propylbenzene	3.7	0.50	ug/L	5		75	70-130	19	30	KCB	
o-Xylene	4.0	0.20	ug/L	5		81	70-130	17	30	KCB	
p&m-Xylene	4.0	0.30	ug/L	5		79	70-130	17	30	KCB	
p-Isopropyltoluene	3.6	0.50	ug/L	5		72	70-130	24	30	KCB	
sec-Butylbenzene	3.7	0.50	ug/L	5		74	70-130	20	30	KCB	
Styrene	3.9	0.50	ug/L	5		78	70-130	14	30	KCB	
tert-Butylbenzene	3.7	0.50	ug/L	5		74	70-130	20	30	KCB	
Tetrachloroethene	4.7	0.20	ug/L	5		95	70-130	4	30	KCB	
Tetrahydrofuran (THF)	53	10	ug/L	50		106	70-130	0.3	30	KCB	
Toluene	4.8	0.20	ug/L	5		97	70-130	0.8	30	KCB	
trans-1,2-Dichloroethene	5.4	0.10	ug/L	5		108	70-130	2	30	KCB	
trans-1,3-Dichloropropene	4.0	0.20	ug/L	5		81	70-130	6	30	KCB	
Trichloroethene (TCE)	5.6	0.10	ug/L	5		112	70-130	4	30	KCB	
Trichlorofluoromethane	5.3	0.50	ug/L	5		106	70-130	3	30	KCB	
Vinyl chloride	5.3	0.20	ug/L	5		105	70-130	4	30	KCB	
Surrogate: 1,2-Dichlorobenzene-d4	*86*	*70-130*	*%*	*10*						KCB	
Surrogate: 1,2-Dichloroethane-d4	*95*	*70-130*	*%*	*10*						KCB	
Surrogate: 4-Bromofluorobenzene	*90*	*70-130*	*%*	*10*						KCB	
Surrogate: Dibromofluoromethane	*98*	*70-130*	*%*	*10*						KCB	
Surrogate: Toluene-d8	*94*	*70-130*	*%*	*10*						KCB	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

Final Report

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Batch B4H0065 - BNA SDWA Extraction

Blank (B4H0065-BLK1) **Prepared: 08/04/14 13:28 Analyzed: 08/21/14 17:25**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Alachlor	<	0.15	ug/L							JJR	
Atrazine	<	0.10	ug/L							JJR	
Butachlor	<	0.25	ug/L							JJR	
Dieldrin	<	0.20	ug/L							JJR	
Endrin	<	0.10	ug/L							JJR	
Heptachlor	<	0.10	ug/L							JJR	
Hexachlorocyclopentadiene	<	0.30	ug/L							JJR	
Methoxychlor	<	0.10	ug/L							JJR	
Metolachlor	<	0.25	ug/L							JJR	
Propachlor	<	0.20	ug/L							JJR	
Simazine	<	0.20	ug/L							JJR	
Technical Chlordane	<	0.10	ug/L							JJR	
Toxaphene	<	0.80	ug/L							JJR	
Surrogate: 4,4'-Dibromobiphenyl	*104*	*70-130*	*%*	*0.50*						JJR	

Blank (B4H0065-BLK2) **Prepared: 08/04/14 13:28 Analyzed: 08/26/14 10:41**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Aldrin	<	0.25	ug/L							JJR	
Benzo[a]pyrene	<	0.050	ug/L							JJR	
Di(2-ethylhexyl) adipate	<	0.60	ug/L							JJR	Z-01
Di(2-ethylhexyl) phthalate	<	1.8	ug/L							JJR	Z-01
g-BHC (Lindane)	<	0.10	ug/L							JJR	
Heptachlor epoxide	<	0.10	ug/L							JJR	
Hexachlorobenzene	<	0.090	ug/L							JJR	
Metribuzin	<	0.50	ug/L							JJR	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*122*	*70-130*	*%*	*5*						JJR	
Surrogate: Perylene-d12	*78*	*70-130*	*%*	*5*						JJR	
Surrogate: Pyrene-d10	*123*	*70-130*	*%*	*5*						JJR	
Surrogate: Triphenyl Phosphate	*78*	*70-130*	*%*	*5*						JJR	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

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Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

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Batch B4H0065 - BNA SDWA Extraction

LCS (B4H0065-BS1) **Prepared: 08/04/14 13:28 Analyzed: 08/21/14 21:08**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Alachlor	0.73	0.15	ug/L	0.75		97	70-130			JJR	
Atrazine	0.45	0.10	ug/L	0.5		90	70-130			JJR	
Butachlor	1.2	0.25	ug/L	1.25		99	70-130			JJR	
Dieldrin	0.94	0.20	ug/L	1		94	70-130			JJR	
Endrin	0.99	0.10	ug/L	1		99	70-130			JJR	
Heptachlor	0.74	0.10	ug/L	0.75		99	70-130			JJR	
Hexachlorocyclopentadiene	0.51	0.30	ug/L	0.88		58	20-130			JJR	
Methoxychlor	0.95	0.10	ug/L	1		95	70-130			JJR	
Metolachlor	1.2	0.25	ug/L	1.25		97	70-130			JJR	
Propachlor	0.74	0.20	ug/L	1		74	70-130			JJR	
Simazine	0.88	0.20	ug/L	1		88	70-130			JJR	
Surrogate: 4,4'-Dibromobiphenyl	*106*	*70-130*	*%*	*0.50*						JJR	

LCS (B4H0065-BS2) **Prepared: 08/04/14 13:28 Analyzed: 08/26/14 09:12**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Aldrin	1.3	0.25	ug/L	1.25		106	70-130			JJR	
Benzo[a]pyrene	0.14	0.050	ug/L	0.25		54	20-130			JJR	
Di(2-ethylhexyl) adipate	2.6	0.60	ug/L	3		88	70-130			JJR	
Di(2-ethylhexyl) phthalate	6.4	1.8	ug/L	9		71	70-130			JJR	
g-BHC (Lindane)	0.59	0.10	ug/L	0.5		118	70-130			JJR	
Heptachlor epoxide	0.48	0.10	ug/L	0.5		95	70-130			JJR	
Hexachlorobenzene	0.61	0.090	ug/L	0.45		136	70-130			JJR	L1
Metribuzin	1.3	0.50	ug/L	1.50		87	20-130			JJR	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*122*	*70-130*	*%*	*5*						JJR	
Surrogate: Perylene-d12	*78*	*70-130*	*%*	*5*						JJR	
Surrogate: Pyrene-d10	*124*	*70-130*	*%*	*5*						JJR	
Surrogate: Triphenyl Phosphate	*78*	*70-130*	*%*	*5*						JJR	

LCS (B4H0065-BS3) **Prepared: 08/04/14 13:28 Analyzed: 08/21/14 21:58**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Technical Chlordane	0.48	0.10	ug/L	0.50		95	70-130			JJR	
Surrogate: 4,4'-Dibromobiphenyl	*103*	*70-130*	*%*	*0.50*						JJR	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

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Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

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Batch B4H0065 - BNA SDWA Extraction

LCS Dup (B4H0065-BSD1) **Prepared: 08/04/14 13:28 Analyzed: 08/21/14 21:33**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Alachlor	0.74	0.15	ug/L	0.75		98	70-130	0.8	30	JJR	
Atrazine	0.46	0.10	ug/L	0.5		91	70-130	0.9	30	JJR	
Butachlor	1.2	0.25	ug/L	1.25		100	70-130	1	30	JJR	
Dieldrin	0.95	0.20	ug/L	1		95	70-130	0.3	30	JJR	
Endrin	1.0	0.10	ug/L	1		102	70-130	3	30	JJR	
Heptachlor	0.74	0.10	ug/L	0.75		98	70-130	0.9	30	JJR	
Hexachlorocyclopentadiene	0.50	0.30	ug/L	0.88		57	20-130	2	30	JJR	
Methoxychlor	0.94	0.10	ug/L	1		94	70-130	1	30	JJR	
Metolachlor	1.2	0.25	ug/L	1.25		97	70-130	0.3	30	JJR	
Propachlor	0.78	0.20	ug/L	1		78	70-130	5	30	JJR	
Simazine	0.84	0.20	ug/L	1		84	70-130	4	30	JJR	
Surrogate: 4,4'-Dibromobiphenyl	*109*	*70-130*	*%*	*0.50*						JJR	

LCS Dup (B4H0065-BSD2) **Prepared: 08/04/14 13:28 Analyzed: 08/26/14 09:42**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Aldrin	1.3	0.25	ug/L	1.25		105	70-130	1	30	JJR	
Benzo[a]pyrene	0.15	0.050	ug/L	0.25		59	20-130	8	30	JJR	
Di(2-ethylhexyl) adipate	2.8	0.60	ug/L	3		93	70-130	5	30	JJR	
Di(2-ethylhexyl) phthalate	6.6	1.8	ug/L	9		74	70-130	3	30	JJR	
g-BHC (Lindane)	0.62	0.10	ug/L	0.5		123	70-130	4	30	JJR	
Haptachlor epoxide	0.49	0.10	ug/L	0.5		97	70-130	2	30	JJR	
Hexachlorobenzene	0.55	0.090	ug/L	0.45		122	70-130	11	30	JJR	
Metribuzin	1.3	0.50	ug/L	1.50		84	20-130	3	30	JJR	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*108*	*70-130*	*%*	*5*						JJR	
Surrogate: Perylene-d12	*81*	*70-130*	*%*	*5*						JJR	
Surrogate: Pyrene-d10	*125*	*70-130*	*%*	*5*						JJR	
Surrogate: Triphenyl Phosphate	*79*	*70-130*	*%*	*5*						JJR	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

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Environmental Laboratory Section
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St. Paul, MN 55164-0899
651-201-5300

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Batch B4H0150 - Carbamate Preparation

Blank (B4H0150-BLK1) — **Prepared: 08/06/14 14:38 Analyzed: 08/06/14 14:38**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	<	0.40	ug/L							DEN	
Aldicarb	<	0.40	ug/L							DEN	
Aldicarb sulfone	<	0.40	ug/L							DEN	
Aldicarb sulfoxide	<	0.40	ug/L							DEN	
Carbaryl	<	0.40	ug/L							DEN	
Carbofuran	<	0.40	ug/L							DEN	
Methomyl	<	0.40	ug/L							DEN	
Oxamyl	<	0.40	ug/L							DEN	

Blank (B4H0150-BLK2) — **Prepared: 08/07/14 02:50 Analyzed: 08/07/14 02:50**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	<	0.40	ug/L							DEN	
Aldicarb	<	0.40	ug/L							DEN	
Aldicarb sulfone	<	0.40	ug/L							DEN	
Aldicarb sulfoxide	<	0.40	ug/L							DEN	
Carbaryl	<	0.40	ug/L							DEN	
Carbofuran	<	0.40	ug/L							DEN	
Methomyl	<	0.40	ug/L							DEN	
Oxamyl	<	0.40	ug/L							DEN	

Blank (B4H0150-BLK3) — **Prepared: 08/07/14 15:01 Analyzed: 08/07/14 15:01**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	<	0.40	ug/L							DEN	
Aldicarb	<	0.40	ug/L							DEN	
Aldicarb sulfone	<	0.40	ug/L							DEN	
Aldicarb sulfoxide	<	0.40	ug/L							DEN	
Carbaryl	<	0.40	ug/L							DEN	
Carbofuran	<	0.40	ug/L							DEN	
Methomyl	<	0.40	ug/L							DEN	
Oxamyl	<	0.40	ug/L							DEN	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
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Batch B4H0150 - Carbamate Preparation

LCS (B4H0150-BS1) — **Prepared: 08/06/14 12:54 Analyzed: 08/06/14 12:54**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	8.7	0.40	ug/L	10		87	80-120			DEN	
Aldicarb	8.7	0.40	ug/L	10		87	80-120			DEN	
Aldicarb sulfone	8.6	0.40	ug/L	10		86	80-120			DEN	
Aldicarb sulfoxide	8.8	0.40	ug/L	10		88	80-120			DEN	
Carbaryl	8.5	0.40	ug/L	10		85	80-120			DEN	
Carbofuran	8.7	0.40	ug/L	10		87	80-120			DEN	
Methomyl	8.3	0.40	ug/L	10		83	80-120			DEN	
Oxamyl	8.0	0.40	ug/L	10		80	80-120			DEN	

LCS (B4H0150-BS2) — **Prepared: 08/07/14 14:09 Analyzed: 08/07/14 14:09**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	8.8	0.40	ug/L	10		88	80-120			DEN	
Aldicarb	8.4	0.40	ug/L	10		84	80-120			DEN	
Aldicarb sulfone	8.6	0.40	ug/L	10		86	80-120			DEN	
Aldicarb sulfoxide	8.7	0.40	ug/L	10		87	80-120			DEN	
Carbaryl	8.6	0.40	ug/L	10		86	80-120			DEN	
Carbofuran	8.9	0.40	ug/L	10		89	80-120			DEN	
Methomyl	8.3	0.40	ug/L	10		83	80-120			DEN	
Oxamyl	8.1	0.40	ug/L	10		81	80-120			DEN	

LCS Dup (B4H0150-BSD1) — **Prepared: 08/07/14 01:57 Analyzed: 08/07/14 01:57**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	8.7	0.40	ug/L	10		87	80-120	0.3	20	DEN	
Aldicarb	8.4	0.40	ug/L	10		84	80-120	3	20	DEN	
Aldicarb sulfone	8.6	0.40	ug/L	10		86	80-120	1	20	DEN	
Aldicarb sulfoxide	8.8	0.40	ug/L	10		88	80-120	0.2	20	DEN	
Carbaryl	8.8	0.40	ug/L	10		88	80-120	3	20	DEN	
Carbofuran	8.7	0.40	ug/L	10		87	80-120	0.06	20	DEN	
Methomyl	8.4	0.40	ug/L	10		84	80-120	1	20	DEN	
Oxamyl	8.1	0.40	ug/L	10		81	80-120	0.3	20	DEN	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

MINNESOTA MDH DEPARTMENT OF HEALTH

Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1710002

Results were produced by Minnesota Department of Health, except where noted.

Batch B4H0150 - Carbamate Preparation

Matrix Spike (B4H0150-MS1) Source: 14G1946-01 **Prepared: 08/07/14 00:13 Analyzed: 08/07/14 00:13**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	8.6	0.40	ug/L	10	<	86	80-120			DEN	
Aldicarb	8.6	0.40	ug/L	10	<	86	80-120			DEN	
Aldicarb sulfone	8.5	0.40	ug/L	10	<	85	80-120			DEN	
Aldicarb sulfoxide	8.5	0.40	ug/L	10	<	85	80-120			DEN	
Carbaryl	8.5	0.40	ug/L	10	<	85	80-120			DEN	
Carbofuran	8.4	0.40	ug/L	10	<	84	80-120			DEN	
Methomyl	8.0	0.40	ug/L	10	<	80	80-120			DEN	M2
Oxamyl	7.8	0.40	ug/L	10	<	78	80-120			DEN	M2

Matrix Spike (B4H0150-MS2) Source: 14G2645-01 **Prepared: 08/07/14 12:24 Analyzed: 08/07/14 12:24**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	8.8	0.40	ug/L	10	<	88	80-120			DEN	
Aldicarb	8.4	0.40	ug/L	10	<	84	80-120			DEN	
Aldicarb sulfone	8.5	0.40	ug/L	10	<	85	80-120			DEN	
Aldicarb sulfoxide	8.7	0.40	ug/L	10	<	87	80-120			DEN	
Carbaryl	8.5	0.40	ug/L	10	<	85	80-120			DEN	
Carbofuran	8.5	0.40	ug/L	10	<	85	80-120			DEN	
Methomyl	8.2	0.40	ug/L	10	<	82	80-120			DEN	
Oxamyl	7.9	0.40	ug/L	10	<	79	80-120			DEN	M2

Matrix Spike Dup (B4H0150-MSD1) Source: 14G1946-01 **Prepared: 08/07/14 01:05 Analyzed: 08/07/14 01:05**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	8.8	0.40	ug/L	10	<	88	80-120	3	20	DEN	
Aldicarb	8.5	0.40	ug/L	10	<	85	80-120	1	20	DEN	
Aldicarb sulfone	8.6	0.40	ug/L	10	<	86	80-120	2	20	DEN	
Aldicarb sulfoxide	8.8	0.40	ug/L	10	<	88	80-120	4	20	DEN	
Carbaryl	8.7	0.40	ug/L	10	<	87	80-120	3	20	DEN	
Carbofuran	9.1	0.40	ug/L	10	<	91	80-120	8	20	DEN	
Methomyl	8.3	0.40	ug/L	10	<	83	80-120	3	20	DEN	
Oxamyl	8.0	0.40	ug/L	10	<	80	80-120	3	20	DEN	

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Public Health Laboratory, Minnesota Department of Health

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Public Health Laboratory
Environmental Laboratory Section
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Batch B4H0150 - Carbamate Preparation

Matrix Spike Dup (B4H0150-MSD2) Source: 14G2645-01 **Prepared: 08/07/14 13:16 Analyzed: 08/07/14 13:16**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	8.8	0.40	ug/L	10	<	88	80-120	0.03	20	DEN	
Aldicarb	8.4	0.40	ug/L	10	<	84	80-120	0.5	20	DEN	
Aldicarb sulfone	8.6	0.40	ug/L	10	<	86	80-120	2	20	DEN	
Aldicarb sulfoxide	8.6	0.40	ug/L	10	<	86	80-120	0.9	20	DEN	
Carbaryl	9.0	0.40	ug/L	10	<	90	80-120	6	20	DEN	
Carbofuran	9.1	0.40	ug/L	10	<	91	80-120	7	20	DEN	
Methomyl	8.3	0.40	ug/L	10	<	83	80-120	2	20	DEN	
Oxamyl	8.0	0.40	ug/L	10	<	80	80-120	2	20	DEN	

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Final Report

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St. Paul, MN 55164-0899
651-201-5300

PWSID: 1710002

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Batch B4H0090 - Glyphosate Preparation

Blank (B4H0090-BLK1) — **Prepared: 08/05/14 12:00 Analyzed: 08/05/14 12:00**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	<	5.0	ug/L							DEN	

Blank (B4H0090-BLK2) — **Prepared: 08/05/14 14:50 Analyzed: 08/05/14 14:50**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	<	5.0	ug/L							DEN	

Blank (B4H0090-BLK3) — **Prepared: 08/05/14 16:25 Analyzed: 08/05/14 16:25**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	<	5.0	ug/L							DEN	

LCS (B4H0090-BS1) — **Prepared: 08/05/14 11:28 Analyzed: 08/05/14 11:28**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	48	5.0	ug/L	50		95	80-120			DEN	

LCS (B4H0090-BS2) — **Prepared: 08/05/14 16:14 Analyzed: 08/05/14 16:14**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	46	5.0	ug/L	50		93	80-120			DEN	

LCS Dup (B4H0090-BSD1) — **Prepared: 08/05/14 14:39 Analyzed: 08/05/14 14:39**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	48	5.0	ug/L	50		96	80-120	0.6	20	DEN	

Matrix Spike (B4H0090-MS1) Source: 14G2660-01 **Prepared: 08/05/14 14:18 Analyzed: 08/05/14 14:18**

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Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
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Final Report

PWSID: 1710002

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Batch B4H0090 - Glyphosate Preparation

Matrix Spike (B4H0090-MS1) Source: 14G2660-01 **Prepared: 08/05/14 14:18 Analyzed: 08/05/14 14:18**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	45	5.0	ug/L	50	<	90	80-120			DEN	

Matrix Spike (B4H0090-MS2) Source: 14G2660-04 **Prepared: 08/05/14 15:53 Analyzed: 08/05/14 15:53**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	44	5.0	ug/L	50	<	88	80-120			DEN	

Matrix Spike Dup (B4H0090-MSD1) Source: 14G2660-01 **Prepared: 08/05/14 14:28 Analyzed: 08/05/14 14:28**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	44	5.0	ug/L	50	<	87	80-120	3	30	DEN	

Matrix Spike Dup (B4H0090-MSD2) Source: 14G2660-04 **Prepared: 08/05/14 16:04 Analyzed: 08/05/14 16:04**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	45	5.0	ug/L	50	<	90	80-120	2	30	DEN	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1710002

Data Qualifiers and Definitions

D1	Sample required dilution due to matrix. Reporting limit has been raised.
L1	The spike recovery was above laboratory acceptance limits for the associated laboratory control sample and/or laboratory control sample duplicate.
L2	The spike recovery was above laboratory acceptance limits for the associated laboratory control sample and/or laboratory control sample duplicate. Target analyte was not detected in the sample.
L3	The spike recovery was below laboratory acceptance limits for the associated laboratory control sample and/or laboratory control sample duplicate.
M2	Matrix spike and/or matrix spike duplicate recovery was low; the associated laboratory control sample and/or laboratory control sample duplicate recovery was acceptable.
V1	Calibration verification standard recovery was above method acceptance limits. This target analyte was not detected in the sample.
V4	Calibration verification standard recovery was below method acceptance limits. See comments or additional qualifiers.
Z-01	Analyte present in all extracted samples including the Method Blank.
Z-01a	Second-source calibration verification standard recovery was above method acceptance limits. This target analyte was not detected in the sample.
Z-01b	There is no indication of out of control trends with this analyte; failure is random. Laboratory control sample/laboratory control sample duplicate relative percent differance exceeded the laboratory acceptance limit.

Work Order Comments

Samples were received in proper condition.

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Protecting, maintaining and improving the health of all Minnesotans

To: Community Water Supply Owner/Operator

From: Community Water Supply Unit
Section of Drinking Water Protection

Subject: Sample Analysis Results for your Public Water Supply

Attached are the results of analyses performed on water samples collected from your public water supply. These results show that your system is in compliance with maximum contaminant levels set by the state and federal Safe Drinking Water Rules for the contaminants analyzed. These results must be kept in your files for a minimum of ten (10) years.

Analyses are attached for the contaminant groups checked below.

- ☐ Coliform Bacteria
- ☐ Nitrate
- ☐ Nitrite
- ☐ Inorganics
- ☐ Other_____
- ☐ Volatile Organics
- ☐ Trihalomethanes/Haloacetic Acids
- ☑ Synthetic Organics
- ☐ Radiochemical(s)

If you have any questions concerning these results, please contact your Department of Health district engineer.

Bemidji
Todd Johnson 218/308-2110

Duluth
Mike Luhrsen 218/302-6178

Fergus Falls
Steve Pederson 218/332-5146

Mankato
Mark Sweers 507/344-2736
Amy Lynch 507/344-2713

Marshall
John Blomme 507/537-7308

Rochester
Paul Halvorson 507/206-2724

St. Cloud
Jon Groethe 320/223-7339
Kim Larsen 320/223-7330
Dave Schultz 320/223-7328

St. Paul
Bassam Banat 651/201-3973
Lucas Martin 651/201-4144
Isaac Bradlich 651/201-3971

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Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1710002
System Name: Big Lake
City: Big Lake

Program Code: HC

Type: B

Date Received: 11/06/14 11:21
Rep. Temp. (°C): 8.4

Collector Name: Kim Anding Larsen
Collector ID: 7923

MDH Sample Number: 14K0324-01

Location ID: E06
Sampling Point: TREATMENT PLANT #1
Field Number: LAKE

Collect Date: 11/05/14
Collect Time: 12:30
Matrix: Drinking Water

Field Residual Chlorine Result: None
Field Fluoride Result: None
Field pH Result: None
Field PO_4 Result: None

Results were produced by the Minnesota Department of Health, except where noted.

Herbicides by GC/ECD

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
2,4,5-TP (Silvex)	<	0.20	ug/L	B4K0260	11/14/14 08:37	11/25/14 10:36	JJR	EPA 515.4	
2,4-D	<	0.50	ug/L	B4K0260	11/14/14 08:37	11/25/14 10:36	JJR	EPA 515.4	
Dalapon [2C]	<	0.50	ug/L	B4K0260	11/14/14 08:37	11/25/14 10:36	JJR	EPA 515.4	
Dinoseb	<	0.50	ug/L	B4K0260	11/14/14 08:37	11/25/14 10:36	JJR	EPA 515.4	
Pentachlorophenol (PCP)	<	0.10	ug/L	B4K0260	11/14/14 08:37	11/25/14 10:36	JJR	EPA 515.4	
Picloram	<	0.50	ug/L	B4K0260	11/14/14 08:37	11/25/14 10:36	JJR	EPA 515.4	
Surrogate: Bromopropionic Acid	*88*	*70-130*	*%*	*B4K0260*	*11/14/14 08:37*	*11/25/14 10:36*	*JJR*	*EPA 515.4*	

BNAs, SDWA

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
Alachlor	<	0.15	ug/L	B4K0247	11/14/14 10:27	12/02/14 01:49	JJR	EPA 508.1	
Butachlor	<	0.25	ug/L	B4K0247	11/14/14 10:27	12/02/14 01:49	JJR	EPA 508.1	
Dieldrin	<	0.20	ug/L	B4K0247	11/14/14 10:27	12/02/14 01:49	JJR	EPA 508.1	
Endrin	<	0.10	ug/L	B4K0247	11/14/14 10:27	12/02/14 01:49	JJR	EPA 508.1	
Heptachlor	<	0.10	ug/L	B4K0247	11/14/14 10:27	12/02/14 01:49	JJR	EPA 508.1	
Hexachlorocyclopentadiene	<	0.30	ug/L	B4K0247	11/14/14 10:27	12/02/14 01:49	JJR	EPA 508.1	
Methoxychlor	<	0.10	ug/L	B4K0247	11/14/14 10:27	12/02/14 01:49	JJR	EPA 508.1	
Metolachlor	<	0.25	ug/L	B4K0247	11/14/14 10:27	12/02/14 01:49	JJR	EPA 508.1	
Technical Chlordane	<	0.10	ug/L	B4K0247	11/14/14 10:27	12/02/14 01:49	JJR	EPA 508.1	
Toxaphene	<	0.80	ug/L	B4K0247	11/14/14 10:27	12/02/14 01:49	JJR	EPA 508.1	
Surrogate: 4,4'-Dibromobiphenyl	*85*	*70-130*	*%*	*B4K0247*	*11/14/14 10:27*	*12/02/14 01:49*	*JJR*	*EPA 508.1*	
Aldrin	<	0.25	ug/L	B4K0247	11/14/14 10:27	11/26/14 08:36	JJR	EPA 525.2	
Atrazine	<	0.10	ug/L	B4K0247	11/14/14 10:27	11/26/14 08:36	JJR	EPA 525.2	
Benzo[a]pyrene	<	0.050	ug/L	B4K0247	11/14/14 10:27	11/26/14 08:36	JJR	EPA 525.2	
Di(2-ethylhexyl) adipate	<	0.60	ug/L	B4K0247	11/14/14 10:27	11/26/14 08:36	JJR	EPA 525.2	L1
Di(2-ethylhexyl) phthalate	<	1.8	ug/L	B4K0247	11/14/14 10:27	11/26/14 08:36	JJR	EPA 525.2	
g-BHC (Lindane)	<	0.10	ug/L	B4K0247	11/14/14 10:27	11/26/14 08:36	JJR	EPA 525.2	

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St. Paul, MN 55164-0899
651-201-5300

Final Report

PWSID: 1710002

MDH Sample Number: 14K0324-01

Location ID: E06
Sampling Point: TREATMENT PLANT #1
Field Number: LAKE

Collect Date: 11/05/14
Collect Time: 12:30
Matrix: Drinking Water

Field Residual Chlorine Result: None
Field Fluoride Result: None
Field pH Result: None
Field PO_4 Result: None

Results were produced by the Minnesota Department of Health, except where noted.

BNAs, SDWA - Continued

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
Heptachlor epoxide	<	0.10	ug/L	B4K0247	11/14/14 10:27	11/26/14 08:36	JJR	EPA 525.2	
Hexachlorobenzene	<	0.090	ug/L	B4K0247	11/14/14 10:27	11/26/14 08:36	JJR	EPA 525.2	
Metribuzin	<	0.50	ug/L	B4K0247	11/14/14 10:27	11/26/14 08:36	JJR	EPA 525.2	L3
Propachlor	<	0.20	ug/L	B4K0247	11/14/14 10:27	11/26/14 08:36	JJR	EPA 525.2	
Simazine	<	0.20	ug/L	B4K0247	11/14/14 10:27	11/26/14 08:36	JJR	EPA 525.2	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*88*	*70-130*	*%*	*B4K0247*	*11/14/14 10:27*	*11/26/14 08:36*	*JJR*	*EPA 525.2*	
Surrogate: Perylene-d12	*89*	*70-130*	*%*	*B4K0247*	*11/14/14 10:27*	*11/26/14 08:36*	*JJR*	*EPA 525.2*	
Surrogate: Pyrene-d10	*111*	*70-130*	*%*	*B4K0247*	*11/14/14 10:27*	*11/26/14 08:36*	*JJR*	*EPA 525.2*	
Surrogate: Triphenyl Phosphate	*129*	*70-130*	*%*	*B4K0247*	*11/14/14 10:27*	*11/26/14 08:36*	*JJR*	*EPA 525.2*	

Carbamates, SDWA

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
3-Hydroxycarbofuran	<	0.40	ug/L	B4K0286	11/18/14 23:47	11/18/14 23:47	DEN	EPA 531.1	
Aldicarb	<	0.40	ug/L	B4K0286	11/18/14 23:47	11/18/14 23:47	DEN	EPA 531.1	
Aldicarb sulfone	<	0.40	ug/L	B4K0286	11/18/14 23:47	11/18/14 23:47	DEN	EPA 531.1	
Aldicarb sulfoxide	<	0.40	ug/L	B4K0286	11/18/14 23:47	11/18/14 23:47	DEN	EPA 531.1	
Carbaryl	<	0.40	ug/L	B4K0286	11/18/14 23:47	11/18/14 23:47	DEN	EPA 531.1	
Carbofuran	<	0.40	ug/L	B4K0286	11/18/14 23:47	11/18/14 23:47	DEN	EPA 531.1	
Methomyl	<	0.40	ug/L	B4K0286	11/18/14 23:47	11/18/14 23:47	DEN	EPA 531.1	
Oxamyl	<	0.40	ug/L	B4K0286	11/18/14 23:47	11/18/14 23:47	DEN	EPA 531.1	

Glyphosate, SDWA

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
Glyphosate	<	5.0	ug/L	B4K0202	11/13/14 14:19	11/13/14 14:19	DEN	EPA 547	

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651-201-5300

PWSID: 1710002

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Batch B4K0260 - Herbicide Extraction

Blank (B4K0260-BLK1) — **Prepared: 11/14/14 08:37 Analyzed: 11/25/14 02:00**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
2,4,5-TP (Silvex)	<	0.20	ug/L							JJR	
2,4-D	<	0.50	ug/L							JJR	
Dalapon [2C]	<	0.50	ug/L							JJR	
Dinoseb	<	0.50	ug/L							JJR	
Pentachlorophenol (PCP)	<	0.10	ug/L							JJR	
Picloram	<	0.50	ug/L							JJR	
Surrogate: Bromopropionic Acid	*90*	*70-130*	*%*	*6*						JJR	

LCS (B4K0260-BS1) — **Prepared: 11/14/14 08:37 Analyzed: 11/25/14 01:31**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
2,4,5-TP (Silvex)	0.19	0.20	ug/L	0.20		94	70-130			JJR	
2,4-D	0.50	0.50	ug/L	0.5		100	70-130			JJR	
Dalapon [2C]	0.57	0.50	ug/L	0.5		114	70-130			JJR	
Dinoseb	0.50	0.50	ug/L	0.5		100	70-130			JJR	
Pentachlorophenol (PCP)	0.092	0.10	ug/L	0.1		92	70-130			JJR	
Picloram	0.51	0.50	ug/L	0.5		101	70-130			JJR	
Surrogate: Bromopropionic Acid	*95*	*70-130*	*%*	*6*						JJR	

LCS (B4K0260-BS2) — **Prepared: 11/14/14 08:37 Analyzed: 11/25/14 08:13**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
2,4,5-TP (Silvex)	1.0	0.20	ug/L	1.00		101	70-130			JJR	
2,4-D	2.5	0.50	ug/L	2.5		102	70-130			JJR	
Dalapon [2C]	2.3	0.50	ug/L	2.5		94	70-130			JJR	
Dinoseb	2.4	0.50	ug/L	2.5		96	70-130			JJR	
Pentachlorophenol (PCP)	0.48	0.10	ug/L	0.5		95	70-130			JJR	
Picloram	2.7	0.50	ug/L	2.5		107	70-130			JJR	
Surrogate: Bromopropionic Acid	*95*	*70-130*	*%*	*6*						JJR	

LCS Dup (B4K0260-BSD2) — **Prepared: 11/14/14 08:37 Analyzed: 11/25/14 12:31**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
2,4,5-TP (Silvex)	1.0	0.20	ug/L	1.00		100	70-130	2	30	JJR	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

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Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

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Batch B4K0260 - Herbicide Extraction

LCS Dup (B4K0260-BSD2) — **Prepared: 11/14/14 08:37 Analyzed: 11/25/14 12:31**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
2,4-D	2.5	0.50	ug/L	2.5		102	70-130	0.4	30	JJR	
Dalapon [2C]	2.4	0.50	ug/L	2.5		95	70-130	1	30	JJR	
Dinoseb	2.4	0.50	ug/L	2.5		97	70-130	1	30	JJR	
Pentachlorophenol (PCP)	0.47	0.10	ug/L	0.5		94	70-130	2	30	JJR	
Picloram	2.7	0.50	ug/L	2.5		110	70-130	2	30	JJR	
Surrogate: Bromopropionic Acid	*91*	*70-130*	*%*	*6*						JJR	

Matrix Spike (B4K0260-MS1) — Source: 14K0289-01 — **Prepared: 11/14/14 08:37 Analyzed: 11/25/14 02:29**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
2,4,5-TP (Silvex)	1.8	0.20	ug/L	1.60	<	112	70-130			JJR	
2,4-D	4.2	0.50	ug/L	4	<	106	70-130			JJR	
Dalapon [2C]	3.6	0.50	ug/L	4	<	91	70-130			JJR	
Dinoseb	4.4	0.50	ug/L	4	<	109	70-130			JJR	
Pentachlorophenol (PCP)	0.79	0.10	ug/L	0.8	<	99	70-130			JJR	
Picloram	4.2	0.50	ug/L	4	<	105	70-130			JJR	
Surrogate: Bromopropionic Acid	*93*	*70-130*	*%*	*6*						JJR	

Matrix Spike Dup (B4K0260-MSD1) — Source: 14K0289-01 — **Prepared: 11/14/14 08:37 Analyzed: 11/25/14 02:57**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
2,4,5-TP (Silvex)	1.8	0.20	ug/L	1.60	<	111	70-130	1	30	JJR	
2,4-D	4.4	0.50	ug/L	4	<	111	70-130	5	30	JJR	
Dalapon [2C]	3.8	0.50	ug/L	4	<	94	70-130	3	30	JJR	
Dinoseb	4.5	0.50	ug/L	4	<	112	70-130	3	30	JJR	
Pentachlorophenol (PCP)	0.81	0.10	ug/L	0.8	<	102	70-130	3	30	JJR	
Picloram	4.5	0.50	ug/L	4	<	113	70-130	7	30	JJR	
Surrogate: Bromopropionic Acid	*97*	*70-130*	*%*	*6*						JJR	

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Public Health Laboratory, Minnesota Department of Health

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Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

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Batch B4K0247 - BNA SDWA Extraction

Blank (B4K0247-BLK1) **Prepared: 11/14/14 10:27 Analyzed: 12/01/14 23:20**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Alachlor	<	0.15	ug/L							JJR	
Butachlor	<	0.25	ug/L							JJR	
Dieldrin	<	0.20	ug/L							JJR	
Endrin	<	0.10	ug/L							JJR	
Heptachlor	<	0.10	ug/L							JJR	
Hexachlorocyclopentadiene	<	0.30	ug/L							JJR	
Methoxychlor	<	0.10	ug/L							JJR	
Metolachlor	<	0.25	ug/L							JJR	
Technical Chlordane	<	0.10	ug/L							JJR	
Toxaphene	<	0.80	ug/L							JJR	
Surrogate: 4,4'-Dibromobiphenyl	*81*	*70-130*	*%*	*0.50*						JJR	

Blank (B4K0247-BLK2) **Prepared: 11/14/14 10:27 Analyzed: 11/26/14 05:39**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Aldrin	<	0.25	ug/L							JJR	
Atrazine	<	0.10	ug/L							JJR	
Benzo[a]pyrene	<	0.050	ug/L							JJR	
Di(2-ethylhexyl) adipate	<	0.60	ug/L							JJR	
Di(2-ethylhexyl) phthalate	<	1.8	ug/L							JJR	
g-BHC (Lindane)	<	0.10	ug/L							JJR	
Heptachlor epoxide	<	0.10	ug/L							JJR	
Hexachlorobenzene	<	0.090	ug/L							JJR	
Metribuzin	<	0.50	ug/L							JJR	
Propachlor	<	0.20	ug/L							JJR	
Simazine	<	0.20	ug/L							JJR	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*99*	*70-130*	*%*	*4.95*						JJR	
Surrogate: Perylene-d12	*86*	*70-130*	*%*	*5.01*						JJR	
Surrogate: Pyrene-d10	*101*	*70-130*	*%*	*5.03*						JJR	
Surrogate: Triphenyl Phosphate	*116*	*70-130*	*%*	*4.99*						JJR	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

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Batch B4K0247 - BNA SDWA Extraction

LCS (B4K0247-BS1) — **Prepared: 11/14/14 10:27 Analyzed: 12/02/14 03:03**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Alachlor	0.66	0.15	ug/L	0.75		88	70-130			JJR	
Butachlor	1.1	0.25	ug/L	1.25		89	70-130			JJR	
Dieldrin	0.80	0.20	ug/L	1		80	70-130			JJR	
Endrin	0.93	0.10	ug/L	1		93	70-130			JJR	
Heptachlor	0.64	0.10	ug/L	0.75		86	70-130			JJR	
Hexachlorocyclopentadiene	0.56	0.30	ug/L	0.88		63	20-130			JJR	
Methoxychlor	0.87	0.10	ug/L	1		87	70-130			JJR	
Metolachlor	1.1	0.25	ug/L	1.25		88	70-130			JJR	
Surrogate: 4,4'-Dibromobiphenyl	*89*	*70-130*	*%*	*0.50*						JJR	

LCS (B4K0247-BS2) — **Prepared: 11/14/14 10:27 Analyzed: 11/26/14 10:05**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Aldrin	1.1	0.25	ug/L	1.25		85	70-130			JJR	
Atrazine	0.52	0.10	ug/L	0.5		104	70-130			JJR	
Benzo[a]pyrene	0.20	0.050	ug/L	0.25		80	20-130			JJR	
Di(2-ethylhexyl) adipate	5.5	0.60	ug/L	3		183	70-130			JJR	L1
Di(2-ethylhexyl) phthalate	9.9	1.8	ug/L	9		111	70-130			JJR	
g-BHC (Lindane)	0.44	0.10	ug/L	0.5		88	70-130			JJR	
Heptachlor epoxide	0.51	0.10	ug/L	0.5		102	70-130			JJR	
Hexachlorobenzene	0.42	0.090	ug/L	0.45		94	70-130			JJR	
Metribuzin	1.1	0.50	ug/L	1.50		72	20-130			JJR	
Propachlor	1.2	0.20	ug/L	1		121	70-130			JJR	
Simazine	1.1	0.20	ug/L	1		108	70-130			JJR	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*93*	*70-130*	*%*	*4.95*						JJR	
Surrogate: Perylene-d12	*90*	*70-130*	*%*	*5.01*						JJR	
Surrogate: Pyrene-d10	*107*	*70-130*	*%*	*5.03*						JJR	
Surrogate: Triphenyl Phosphate	*122*	*70-130*	*%*	*4.99*						JJR	

LCS (B4K0247-BS3) — **Prepared: 11/14/14 10:27 Analyzed: 12/02/14 03:52**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Toxaphene	3.8	0.80	ug/L	5.01		76	70-130			JJR	
Surrogate: 4,4'-Dibromobiphenyl	*80*	*70-130*	*%*	*0.50*						JJR	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

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Batch B4K0247 - BNA SDWA Extraction

LCS Dup (B4K0247-BSD1) — **Prepared: 11/14/14 10:27 Analyzed: 12/02/14 03:27**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Alachlor	0.62	0.15	ug/L	0.75		83	70-130	6	30	JJR	
Butachlor	1.1	0.25	ug/L	1.25		88	70-130	0.6	30	JJR	
Dieldrin	0.85	0.20	ug/L	1		85	70-130	6	30	JJR	
Endrin	0.91	0.10	ug/L	1		91	70-130	2	30	JJR	
Heptachlor	0.62	0.10	ug/L	0.75		82	70-130	4	30	JJR	
Hexachlorocyclopentadiene	0.57	0.30	ug/L	0.88		65	20-130	3	30	JJR	
Methoxychlor	0.85	0.10	ug/L	1		85	70-130	2	30	JJR	
Metolachlor	1.1	0.25	ug/L	1.25		86	70-130	2	30	JJR	
Surrogate: 4,4'-Dibromobiphenyl	*80*	*70-130*	*%*	*0.50*						JJR	

LCS Dup (B4K0247-BSD2) — **Prepared: 11/14/14 10:27 Analyzed: 11/26/14 10:34**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Aldrin	1.0	0.25	ug/L	1.25		81	70-130	4	30	JJR	
Atrazine	0.51	0.10	ug/L	0.5		102	70-130	2	30	JJR	
Benzo[a]pyrene	0.19	0.050	ug/L	0.25		74	20-130	8	30	JJR	
Di(2-ethylhexyl) adipate	5.4	0.60	ug/L	3		181	70-130	1	30	JJR	L1
Di(2-ethylhexyl) phthalate	10	1.8	ug/L	9		113	70-130	2	30	JJR	
g-BHC (Lindane)	0.44	0.10	ug/L	0.5		87	70-130	1	30	JJR	
Heptachlor epoxide	0.49	0.10	ug/L	0.5		98	70-130	5	30	JJR	
Hexachlorobenzene	0.41	0.090	ug/L	0.45		92	70-130	2	30	JJR	
Metribuzin	0.65	0.50	ug/L	1.50		43	20-130	50	30	JJR	L3
Propachlor	1.1	0.20	ug/L	1		114	70-130	6	30	JJR	
Simazine	0.99	0.20	ug/L	1		99	70-130	8	30	JJR	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*102*	*70-130*	*%*	*4.95*						JJR	
Surrogate: Perylene-d12	*88*	*70-130*	*%*	*5.01*						JJR	
Surrogate: Pyrene-d10	*103*	*70-130*	*%*	*5.03*						JJR	
Surrogate: Triphenyl Phosphate	*121*	*70-130*	*%*	*4.99*						JJR	

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Public Health Laboratory, Minnesota Department of Health

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Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
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651-201-5300

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Batch B4K0286 - Carbamate Preparation

Blank (B4K0286-BLK1) — **Prepared: 11/17/14 15:34 Analyzed: 11/17/14 15:34**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	<	0.40	ug/L							DEN	
Aldicarb	<	0.40	ug/L							DEN	
Aldicarb sulfone	<	0.40	ug/L							DEN	
Aldicarb sulfoxide	<	0.40	ug/L							DEN	
Carbaryl	<	0.40	ug/L							DEN	
Carbofuran	<	0.40	ug/L							DEN	
Methomyl	<	0.40	ug/L							DEN	
Oxamyl	<	0.40	ug/L							DEN	

Blank (B4K0286-BLK2) — **Prepared: 11/18/14 03:45 Analyzed: 11/18/14 03:45**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	<	0.40	ug/L							DEN	
Aldicarb	<	0.40	ug/L							DEN	
Aldicarb sulfone	<	0.40	ug/L							DEN	
Aldicarb sulfoxide	<	0.40	ug/L							DEN	
Carbaryl	<	0.40	ug/L							DEN	
Carbofuran	<	0.40	ug/L							DEN	
Methomyl	<	0.40	ug/L							DEN	
Oxamyl	<	0.40	ug/L							DEN	

Blank (B4K0286-BLK3) — **Prepared: 11/18/14 15:57 Analyzed: 11/18/14 15:57**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	<	0.40	ug/L							DEN	
Aldicarb	<	0.40	ug/L							DEN	
Aldicarb sulfone	<	0.40	ug/L							DEN	
Aldicarb sulfoxide	<	0.40	ug/L							DEN	
Carbaryl	<	0.40	ug/L							DEN	
Carbofuran	<	0.40	ug/L							DEN	
Methomyl	<	0.40	ug/L							DEN	
Oxamyl	<	0.40	ug/L							DEN	

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Public Health Laboratory, Minnesota Department of Health

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Public Health Laboratory
Environmental Laboratory Section
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Batch B4K0286 - Carbamate Preparation

Blank (B4K0286-BLK4) — **Prepared: 11/19/14 04:08 Analyzed: 11/19/14 04:08**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	<	0.40	ug/L							DEN	
Aldicarb	<	0.40	ug/L							DEN	
Aldicarb sulfone	<	0.40	ug/L							DEN	
Aldicarb sulfoxide	<	0.40	ug/L							DEN	
Carbaryl	<	0.40	ug/L							DEN	
Carbofuran	<	0.40	ug/L							DEN	
Methomyl	<	0.40	ug/L							DEN	
Oxamyl	<	0.40	ug/L							DEN	

LCS (B4K0286-BS1) — **Prepared: 11/17/14 13:50 Analyzed: 11/17/14 13:50**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	10	0.40	ug/L	10		103	80-120			DEN	
Aldicarb	11	0.40	ug/L	10		106	80-120			DEN	
Aldicarb sulfone	10	0.40	ug/L	10		104	80-120			DEN	
Aldicarb sulfoxide	10	0.40	ug/L	10		104	80-120			DEN	
Carbaryl	10	0.40	ug/L	10		105	80-120			DEN	
Carbofuran	11	0.40	ug/L	10		109	80-120			DEN	
Methomyl	11	0.40	ug/L	10		105	80-120			DEN	
Oxamyl	10	0.40	ug/L	10		102	80-120			DEN	

LCS (B4K0286-BS2) — **Prepared: 11/18/14 15:04 Analyzed: 11/18/14 15:04**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	11	0.40	ug/L	10		105	80-120			DEN	
Aldicarb	9.9	0.40	ug/L	10		99	80-120			DEN	
Aldicarb sulfone	10	0.40	ug/L	10		104	80-120			DEN	
Aldicarb sulfoxide	10	0.40	ug/L	10		102	80-120			DEN	
Carbaryl	10	0.40	ug/L	10		104	80-120			DEN	
Carbofuran	11	0.40	ug/L	10		106	80-120			DEN	
Methomyl	10	0.40	ug/L	10		105	80-120			DEN	
Oxamyl	10	0.40	ug/L	10		103	80-120			DEN	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
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Batch B4K0286 - Carbamate Preparation

LCS (B4K0286-BS3) — **Prepared: 11/19/14 03:16 Analyzed: 11/19/14 03:16**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	10	0.40	ug/L	10		103	80-120			DEN	
Aldicarb	9.6	0.40	ug/L	10		96	80-120			DEN	
Aldicarb sulfone	10	0.40	ug/L	10		105	80-120			DEN	
Aldicarb sulfoxide	10	0.40	ug/L	10		104	80-120			DEN	
Carbaryl	10	0.40	ug/L	10		105	80-120			DEN	
Carbofuran	11	0.40	ug/L	10		109	80-120			DEN	
Methomyl	10	0.40	ug/L	10		103	80-120			DEN	
Oxamyl	10	0.40	ug/L	10		103	80-120			DEN	

LCS Dup (B4K0286-BSD1) — **Prepared: 11/18/14 02:53 Analyzed: 11/16/14 02:53**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	10	0.40	ug/L	10		105	80-120	1	20	DEN	
Aldicarb	10	0.40	ug/L	10		101	80-120	5	20	DEN	
Aldicarb sulfone	11	0.40	ug/L	10		106	80-120	1	20	DEN	
Aldicarb sulfoxide	11	0.40	ug/L	10		106	80-120	2	20	DEN	
Carbaryl	10	0.40	ug/L	10		100	80-120	4	20	DEN	
Carbofuran	11	0.40	ug/L	10		109	80-120	0.7	20	DEN	
Methomyl	10	0.40	ug/L	10		104	80-120	1	20	DEN	
Oxamyl	10	0.40	ug/L	10		104	80-120	2	20	DEN	

Matrix Spike (B4K0286-MS1) — Source: 14K0035-01 — **Prepared: 11/18/14 01:09 Analyzed: 11/18/14 01:09**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	11	0.40	ug/L	10	<	106	65-135			DEN	
Aldicarb	10	0.40	ug/L	10	<	104	65-135			DEN	
Aldicarb sulfone	10	0.40	ug/L	10	<	103	65-135			DEN	
Aldicarb sulfoxide	11	0.40	ug/L	10	<	106	65-135			DEN	
Carbaryl	10	0.40	ug/L	10	<	102	65-135			DEN	
Carbofuran	11	0.40	ug/L	10	<	110	65-135			DEN	
Methomyl	10	0.40	ug/L	10	<	105	65-135			DEN	
Oxamyl	10	0.40	ug/L	10	<	100	65-135			DEN	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

Final Report

PWSID: 1710002

Results were produced by Minnesota Department of Health, except where noted.

Batch B4K0286 - Carbamate Preparation

Matrix Spike (B4K0286-MS2) Source: 14K0287-04 **Prepared: 11/18/14 13:20 Analyzed: 11/18/14 13:20**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	10	0.40	ug/L	10	<	104	65-135			DEN	
Aldicarb	9.7	0.40	ug/L	10	<	97	65-135			DEN	
Aldicarb sulfone	10	0.40	ug/L	10	<	103	65-135			DEN	
Aldicarb sulfoxide	10	0.40	ug/L	10	<	104	65-135			DEN	
Carbaryl	10	0.40	ug/L	10	<	105	65-135			DEN	
Carbofuran	11	0.40	ug/L	10	<	108	65-135			DEN	
Methomyl	10	0.40	ug/L	10	<	102	65-135			DEN	
Oxamyl	10	0.40	ug/L	10	<	101	65-135			DEN	

Matrix Spike (B4K0286-MS3) Source: 14K0410-01 **Prepared: 11/19/14 01:31 Analyzed: 11/19/14 01:31**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	11	0.40	ug/L	10	<	107	65-135			DEN	
Aldicarb	9.7	0.40	ug/L	10	<	97	65-135			DEN	
Aldicarb sulfone	10	0.40	ug/L	10	<	104	65-135			DEN	
Aldicarb sulfoxide	10	0.40	ug/L	10	<	104	65-135			DEN	
Carbaryl	11	0.40	ug/L	10	<	105	65-135			DEN	
Carbofuran	11	0.40	ug/L	10	<	109	65-135			DEN	
Methomyl	10	0.40	ug/L	10	<	102	65-135			DEN	
Oxamyl	9.9	0.40	ug/L	10	<	99	65-135			DEN	

Matrix Spike Dup (B4K0286-MSD1) Source: 14K0035-01 **Prepared: 11/18/14 02:01 Analyzed: 11/18/14 02:01**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	11	0.40	ug/L	10	<	108	65-135	3	30	DEN	
Aldicarb	10	0.40	ug/L	10	<	104	65-135	0.1	30	DEN	
Aldicarb sulfone	10	0.40	ug/L	10	<	105	65-135	1	30	DEN	
Aldicarb sulfoxide	11	0.40	ug/L	10	<	106	65-135	0.1	30	DEN	
Carbaryl	10	0.40	ug/L	10	<	105	65-135	2	30	DEN	
Carbofuran	10	0.40	ug/L	10	<	104	65-135	5	30	DEN	
Methomyl	11	0.40	ug/L	10	<	105	65-135	0.4	30	DEN	
Oxamyl	10	0.40	ug/L	10	<	102	65-135	2	30	DEN	

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Public Health Laboratory, Minnesota Department of Health

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

Final Report

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Batch B4K0286 - Carbamate Preparation

Matrix Spike Dup (B4K0286-MSD2) Source: 14K0287-04 **Prepared: 11/18/14 14:12 Analyzed: 11/18/14 14:12**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	10	0.40	ug/L	10	<	104	65-135	0.08	30	DEN	
Aldicarb	9.9	0.40	ug/L	10	<	99	65-135	3	30	DEN	
Aldicarb sulfone	10	0.40	ug/L	10	<	105	65-135	1	30	DEN	
Aldicarb sulfoxide	10	0.40	ug/L	10	<	104	65-135	0.4	30	DEN	
Carbaryl	9.7	0.40	ug/L	10	<	97	65-135	8	30	DEN	
Carbofuran	11	0.40	ug/L	10	<	109	65-135	0.8	30	DEN	
Methomyl	10	0.40	ug/L	10	<	104	65-135	2	30	DEN	
Oxamyl	10	0.40	ug/L	10	<	100	65-135	0.6	30	DEN	

Matrix Spike Dup (B4K0286-MSD3) Source: 14K0410-01 **Prepared: 11/19/14 02:23 Analyzed: 11/19/14 02:23**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
3-Hydroxycarbofuran	10	0.40	ug/L	10	<	105	65-135	2	30	DEN	
Aldicarb	9.6	0.40	ug/L	10	<	96	65-135	1	30	DEN	
Aldicarb sulfone	11	0.40	ug/L	10	<	106	65-135	2	30	DEN	
Aldicarb sulfoxide	11	0.40	ug/L	10	<	106	65-135	2	30	DEN	
Carbaryl	10	0.40	ug/L	10	<	102	65-135	3	30	DEN	
Carbofuran	11	0.40	ug/L	10	<	110	65-135	0.4	30	DEN	
Methomyl	10	0.40	ug/L	10	<	102	65-135	0.6	30	DEN	
Oxamyl	10	0.40	ug/L	10	<	103	65-135	4	30	DEN	

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Public Health Laboratory, Minnesota Department of Health

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

Final Report

PWSID: 1710002

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Batch B4K0202 - Glyphosate Preparation

Blank (B4K0202-BLK1) — **Prepared: 11/13/14 11:23 Analyzed: 11/13/14 11:23**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	<	5.0	ug/L							DEN	

Blank (B4K0202-BLK2) — **Prepared: 11/13/14 13:44 Analyzed: 11/13/14 13:44**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	<	5.0	ug/L							DEN	

Blank (B4K0202-BLK3) — **Prepared: 11/13/14 16:04 Analyzed: 11/13/14 16:04**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	<	5.0	ug/L							DEN	

LCS (B4K0202-BS1) — **Prepared: 11/13/14 11:06 Analyzed: 11/13/14 11:06**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	53	5.0	ug/L	50		106	80-120			DEN	

LCS (B4K0202-BS2) — **Prepared: 11/13/14 15:55 Analyzed: 11/13/14 15:55**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	50	5.0	ug/L	50		99	80-120			DEN	

LCS Dup (B4K0202-BSD1) — **Prepared: 11/13/14 13:35 Analyzed: 11/13/14 13:35**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	48	5.0	ug/L	50		96	80-120	10	20	DEN	

Matrix Spike (B4K0202-MS1) Source: 14K0291-02 **Prepared: 11/13/14 13:18 Analyzed: 11/13/14 13:18**

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Public Health Laboratory, Minnesota Department of Health

MINNESOTA MDH DEPARTMENT OF HEALTH

Final Report

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Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1710002

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Batch B4K0202 - Glyphosate Preparation

Matrix Spike (B4K0202-MS1) Source: 14K0291-02 **Prepared: 11/13/14 13:18 Analyzed: 11/13/14 13:18**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	48	5.0	ug/L	50	<	96	80-120			DEN	

Matrix Spike (B4K0202-MS2) Source: 14K0486-01 **Prepared: 11/13/14 15:38 Analyzed: 11/13/14 15:38**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	50	5.0	ug/L	50	<	100	80-120			DEN	

Matrix Spike Dup (B4K0202-MSD1) Source: 14K0291-02 **Prepared: 11/13/14 13:26 Analyzed: 11/13/14 13:26**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	48	5.0	ug/L	50	<	96	80-120	0.7	30	DEN	

Matrix Spike Dup (B4K0202-MSD2) Source: 14K0486-01 **Prepared: 11/13/14 15:47 Analyzed: 11/13/14 15:47**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Glyphosate	50	5.0	ug/L	50	<	100	80-120	0.004	30	DEN	

Data Qualifiers and Definitions

L1 The spike recovery was above laboratory acceptance limits for the associated laboratory control sample and/or laboratory control sample duplicate.

L3 The spike recovery was below laboratory acceptance limits for the associated laboratory control sample and/or laboratory control sample duplicate.

Work Order Comments

Samples were received in proper condition.

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Protecting, maintaining and improving the health of all Minnesotans

To: Community Water Supply Owner/Water Superintendent

From: Community Water Supply Unit, Section of Drinking Water Protection

Subject: Sample Analysis Results and Lab Quality Control (QC) Report for your Public Water Supply (PWS)

Enclosed are the Haloacetic Acids/Trihalomethanes (HAA5/THM) results of analyses performed on water samples collected from your PWS. In addition to the results you normally receive, you are also receiving the laboratory QC report associated with sample analysis. We hope the additional QC report will not cause confusion in understanding your results; instead, it is meant to enhance the quality and integrity of the results you receive from the Minnesota Department of Health (MDH). Data listed under the heading "MDH Sample Number" are monitoring results and are at the beginning of the report. The QC report appears after the results under the heading of "Batch Number –".

These results show that **your system is in compliance** with maximum contaminant levels set by the state and federal Safe Drinking Water Act for the contaminants analyzed. These results must be kept in your files for a minimum of ten (10) years.

If you have any questions concerning these results, please contact David Rindal at 651-201-4660 or your MDH district engineer. Any questions about the QC report - "Batch Number-" information may be directed to the Minnesota Public Health Laboratory at 651-201-5300.

Bemidji
Todd Johnson 218-308-2110

Duluth
Mike Luhrsen 218-302-6178

Fergus Falls
Steve Pederson 218-332-5146

Mankato
Mark Sweers 507-344-2736
Amy Lynch 507-344-2713

Marshall
John Blomme 507-537-7308

Rochester
Paul Halvorson 507-206-2724

St. Cloud
Jon Groethe 320-223-7339
Kim Larsen 320-223-7330
Dave Schultz 320-223-7328

St. Paul
Bassam Banat 651-201-3973
Lucas Martin 651-201-4144
Isaac Bradlich 651-201-3971

LGW Red AN 2

Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1710002
System Name: Big Lake
City: Big Lake

Program Code: HC

Type: B

Date Received: 09/16/14 07:26
Rep. Temp. (°C): 13.4

Collector Name: Charles
Collector ID: None

MDH Sample Number: 14I0634-01

Location ID: 00031
Sampling Point: SA Station

Collect Date: 09/15/14
Collect Time: 13:42
Matrix: Drinking Water

Field Residual Chlorine Result: None
Field Fluoride Result: None
Field pH Result: None
Field PO_4 Result: None

Results were produced by the Minnesota Department of Health, except where noted.

Haloacetic Acids, ICR

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
Dibromoacetic Acid [2C]	**1.2**	1.0	ug/L	B4I0637	09/25/14 08:58	09/29/14 22:35	MDL	EPA 552.2	
Dichloroacetic Acid [2C]	**1.8**	1.0	ug/L	B4I0637	09/25/14 08:58	09/29/14 22:35	MDL	EPA 552.2	
Monobromoacetic Acid [2C] 4.4	<	1.0	ug/L	B4I0637	09/25/14 08:58	09/29/14 22:35	MDL	EPA 552.2	
Monochloroacetic Acid	<	2.0	ug/L	B4I0637	09/25/14 08:58	09/29/14 22:35	MDL	EPA 552.2	Z-01
Trichloroacetic Acid [2C]	**1.4**	1.0	ug/L	B4I0637	09/25/14 08:58	09/29/14 22:35	MDL	EPA 552.2	
Surrogate: Bromopropionic Acid [2C]	*90*	*70-130*	%	*B4I0637*	*09/25/14 08:58*	*09/29/14 22:35*	*MDL*	*EPA 552.2*	

THMs by GCMS

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
Bromodichloromethane	**4.4**	0.2	ug/L	B4I0423	09/17/14 23:25	09/17/14 23:25	KCB	EPA 524.2	
Bromoform	**0.7**	0.5	ug/L	B4I0423	09/17/14 23:25	09/17/14 23:25	KCB	EPA 524.2	
Chlorodibromomethane 12.9	**3.8**	0.5	ug/L	B4I0423	09/17/14 23:25	09/17/14 23:25	KCB	EPA 524.2	
Chloroform	**4.0**	0.1	ug/L	B4I0423	09/17/14 23:25	09/17/14 23:25	KCB	EPA 524.2	
Surrogate: 1,2-Dichlorobenzene-d4	*107*	*70-130*	%	*B4I0423*	*09/17/14 23:25*	*09/17/14 23:25*	*KCB*	*EPA 524.2*	
Surrogate: 1,2-Dichloroethane-d4	*104*	*70-130*	%	*B4I0423*	*09/17/14 23:25*	*09/17/14 23:25*	*KCB*	*EPA 524.2*	
Surrogate: 4-Bromofluorobenzene	*108*	*70-130*	%	*B4I0423*	*09/17/14 23:25*	*09/17/14 23:25*	*KCB*	*EPA 524.2*	
Surrogate: Dibromofluoromethane	*106*	*70-130*	%	*B4I0423*	*09/17/14 23:25*	*09/17/14 23:25*	*KCB*	*EPA 524.2*	
Surrogate: Toluene-d8	*93*	*70-130*	%	*B4I0423*	*09/17/14 23:25*	*09/17/14 23:25*	*KCB*	*EPA 524.2*	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

MINNESOTA MDH DEPARTMENT OF HEALTH

Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1710002

MDH Sample Number: 14I0634-02

Location ID: 00032 ✓
Sampling Point: Marketplace Drive - On the Run

Collect Date: 09/15/14
Collect Time: 13:25
Matrix: Drinking Water

Field Residual Chlorine Result: None
Field Fluoride Result: None
Field pH Result: None
Field PO_4 Result: None

Results were produced by the Minnesota Department of Health, except where noted.

Haloacetic Acids, ICR

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
Dibromoacetic Acid [2C]	1.3	1.0	ug/L	B4I0637	09/25/14 08:58	09/29/14 23:01	MDL	EPA 552.2	
Dichloroacetic Acid [2C]	2.3	1.0	ug/L	B4I0637	09/25/14 08:58	09/29/14 23:01	MDL	EPA 552.2	
Monobromoacetic Acid [2C] 5.3	<	1.0	ug/L	B4I0637	09/25/14 08:58	09/29/14 23:01	MDL	EPA 552.2	
Monochloroacetic Acid	<	2.0	ug/L	B4I0637	09/25/14 08:58	09/29/14 23:01	MDL	EPA 552.2	Z-01
Trichloroacetic Acid [2C]	1.7	1.0	ug/L	B4I0637	09/25/14 08:58	09/29/14 23:01	MDL	EPA 552.2	
Surrogate: Bromopropionic Acid [2C]	*96*	*70-130*	*%*	*B4I0637*	*09/25/14 08:58*	*09/29/14 23:01*	*MDL*	*EPA 552.2*	

THMs by GCMS

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
Bromodichloromethane	5.3	0.2	ug/L	B4I0423	09/17/14 23:48	09/17/14 23:48	KCB	EPA 524.2	
Bromoform 15.4	0.7	0.5	ug/L	B4I0423	09/17/14 23:48	09/17/14 23:48	KCB	EPA 524.2	
Chlorodibromomethane	4.0	0.5	ug/L	B4I0423	09/17/14 23:48	09/17/14 23:48	KCB	EPA 524.2	
Chloroform	5.4	0.1	ug/L	B4I0423	09/17/14 23:48	09/17/14 23:48	KCB	EPA 524.2	
Surrogate: 1,2-Dichlorobenzene-d4	*105*	*70-130*	*%*	*B4I0423*	*09/17/14 23:48*	*09/17/14 23:48*	*KCB*	*EPA 524.2*	
Surrogate: 1,2-Dichloroethane-d4	*105*	*70-130*	*%*	*B4I0423*	*09/17/14 23:48*	*09/17/14 23:48*	*KCB*	*EPA 524.2*	
Surrogate: 4-Bromofluorobenzene	*108*	*70-130*	*%*	*B4I0423*	*09/17/14 23:48*	*09/17/14 23:48*	*KCB*	*EPA 524.2*	
Surrogate: Dibromofluoromethane	*107*	*70-130*	*%*	*B4I0423*	*09/17/14 23:48*	*09/17/14 23:48*	*KCB*	*EPA 524.2*	
Surrogate: Toluene-d8	*90*	*70-130*	*%*	*B4I0423*	*09/17/14 23:48*	*09/17/14 23:48*	*KCB*	*EPA 524.2*	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

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Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1710002

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Batch B4I0637 - HAA Extraction

Blank (B4I0637-BLK1) — **Prepared: 09/25/14 08:58 Analyzed: 09/29/14 21:17**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Dibromoacetic Acid [2C]	<	1.0	ug/L							MDL	
Dichloroacetic Acid [2C]	<	1.0	ug/L							MDL	
Monobromoacetic Acid [2C]	<	1.0	ug/L							MDL	
Monochloroacetic Acid	<	2.0	ug/L							MDL	
Trichloroacetic Acid [2C]	<	1.0	ug/L							MDL	
Surrogate: Bromopropionic Acid [2C]	*91*	*70-130*	*%*	*6*						MDL	

LCS (B4I0637-BS1) — **Prepared: 09/25/14 08:58 Analyzed: 09/29/14 20:50**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Dibromoacetic Acid [2C]	34	1.0	ug/L	35		98	70-130			MDL	
Dichloroacetic Acid [2C]	35	1.0	ug/L	35		101	70-130			MDL	
Monobromoacetic Acid [2C]	36	1.0	ug/L	35		102	70-130			MDL	
Monochloroacetic Acid	61	2.0	ug/L	70		87	70-130			MDL	
Trichloroacetic Acid [2C]	34	1.0	ug/L	35		97	70-130			MDL	
Surrogate: Bromopropionic Acid [2C]	*92*	*70-130*	*%*	*6*						MDL	

LCS Dup (B4I0637-BSD1) — **Prepared: 09/25/14 08:58 Analyzed: 09/30/14 01:37**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Dibromoacetic Acid [2C]	36	1.0	ug/L	35		103	70-130	5	30	MDL	
Dichloroacetic Acid [2C]	36	1.0	ug/L	35		102	70-130	1	30	MDL	
Monobromoacetic Acid [2C]	36	1.0	ug/L	35		103	70-130	0.8	30	MDL	
Monochloroacetic Acid	66	2.0	ug/L	70		94	70-130	7	30	MDL	
Trichloroacetic Acid [2C]	36	1.0	ug/L	35		104	70-130	7	30	MDL	
Surrogate: Bromopropionic Acid [2C]	*98*	*70-130*	*%*	*6*						MDL	

Authorized by:

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1710002

Results were produced by Minnesota Department of Health, except where noted.

Batch B4I0423 - EPA 5030B Preparation

Blank (B4I0423-BLK1) — **Prepared: 09/17/14 19:14 Analyzed: 09/17/14 19:14**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Bromodichloromethane	<	0.2	ug/L							KCB	
Bromoform	<	0.5	ug/L							KCB	
Chlorodibromomethane	<	0.5	ug/L							KCB	
Chloroform	<	0.1	ug/L							KCB	
Surrogate: 1,2-Dichlorobenzene-d4	*98*	*70-130*	*%*	*25*						KCB	
Surrogate: 1,2-Dichloroethane-d4	*103*	*70-130*	*%*	*25*						KCB	
Surrogate: 4-Bromofluorobenzene	*90*	*70-130*	*%*	*25*						KCB	
Surrogate: Dibromofluoromethane	*104*	*70-130*	*%*	*25*						KCB	
Surrogate: Toluene-d8	*89*	*70-130*	*%*	*25*						KCB	

LCS (B4I0423-BS1) — **Prepared: 09/17/14 18:29 Analyzed: 09/17/14 18:29**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Bromodichloromethane	11	0.2	ug/L	10		111	70-130			KCB	
Bromoform	9.4	0.5	ug/L	10		94	70-130			KCB	
Chlorodibromomethane	11	0.5	ug/L	10		105	70-130			KCB	
Chloroform	11	0.1	ug/L	10		110	70-130			KCB	
Surrogate: 1,2-Dichlorobenzene-d4	*101*	*70-130*	*%*	*25*						KCB	
Surrogate: 1,2-Dichloroethane-d4	*105*	*70-130*	*%*	*25*						KCB	
Surrogate: 4-Bromofluorobenzene	*102*	*70-130*	*%*	*25*						KCB	
Surrogate: Dibromofluoromethane	*105*	*70-130*	*%*	*25*						KCB	
Surrogate: Toluene-d8	*89*	*70-130*	*%*	*25*						KCB	

LCS Dup (B4I0423-BSD1) — **Prepared: 09/18/14 01:19 Analyzed: 09/18/14 01:19**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
Bromodichloromethane	11	0.2	ug/L	10		109	70-130	2	30	KCB	
Bromoform	9.3	0.5	ug/L	10		93	70-130	0.6	30	KCB	
Chlorodibromomethane	10	0.5	ug/L	10		102	70-130	3	30	KCB	
Chloroform	11	0.1	ug/L	10		111	70-130	1	30	KCB	
Surrogate: 1,2-Dichlorobenzene-d4	*106*	*70-130*	*%*	*25*						KCB	
Surrogate: 1,2-Dichloroethane-d4	*106*	*70-130*	*%*	*25*						KCB	
Surrogate: 4-Bromofluorobenzene	*104*	*70-130*	*%*	*25*						KCB	
Surrogate: Dibromofluoromethane	*109*	*70-130*	*%*	*25*						KCB	
Surrogate: Toluene-d8	*91*	*70-130*	*%*	*25*						KCB	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

Final Report

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Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1710002

Results were produced by Minnesota Department of Health, except where noted.

Batch B4I0423 - EPA 5030B Preparation

Data Qualifiers and Definitions

Z-01 Sample relative percent difference between the two instrument columns exceeded method limit. Interference on channel 2.

Work Order Comments

Samples were received in proper condition.

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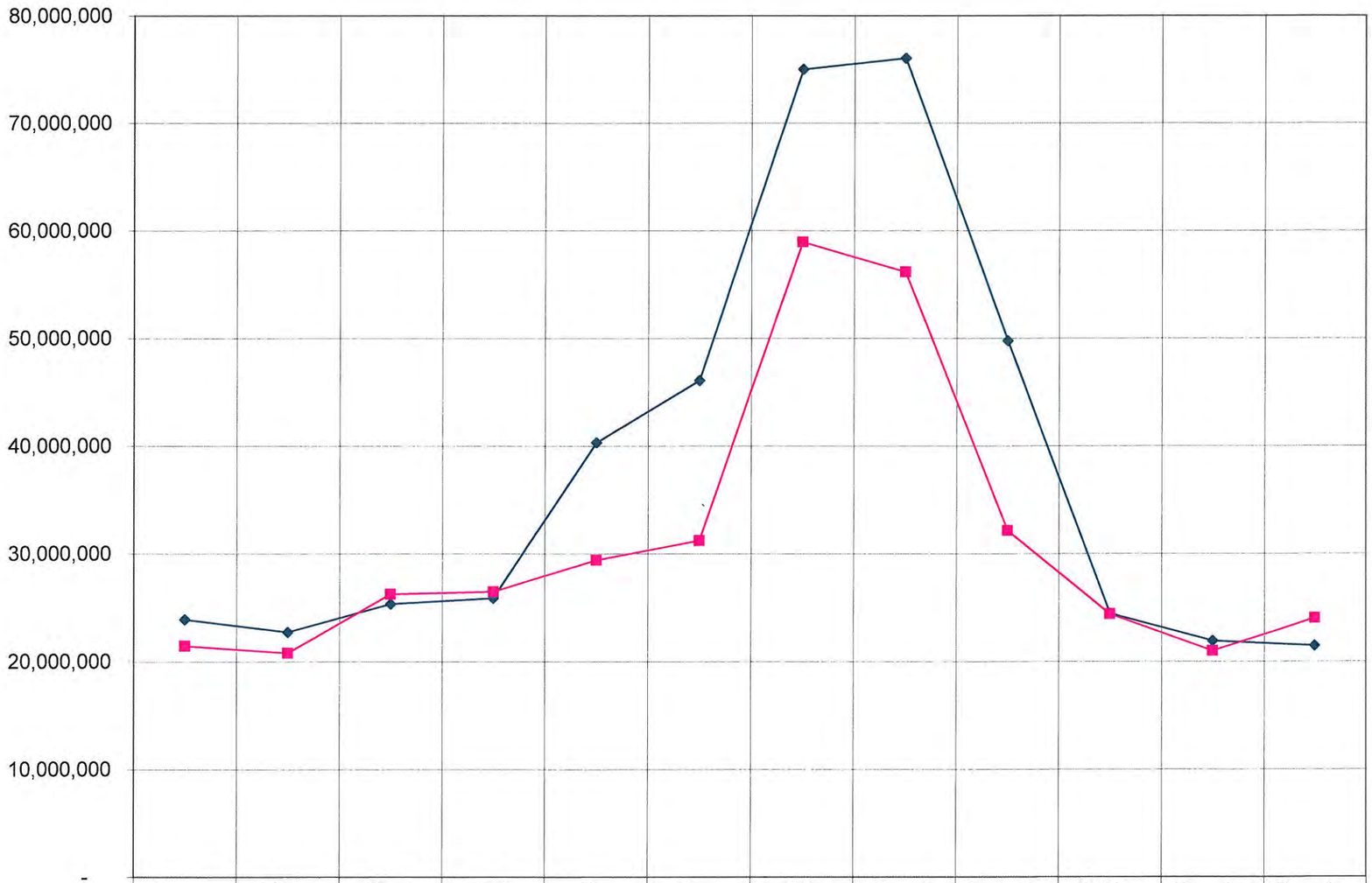
Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health

CHEMICAL TOTAL 2014

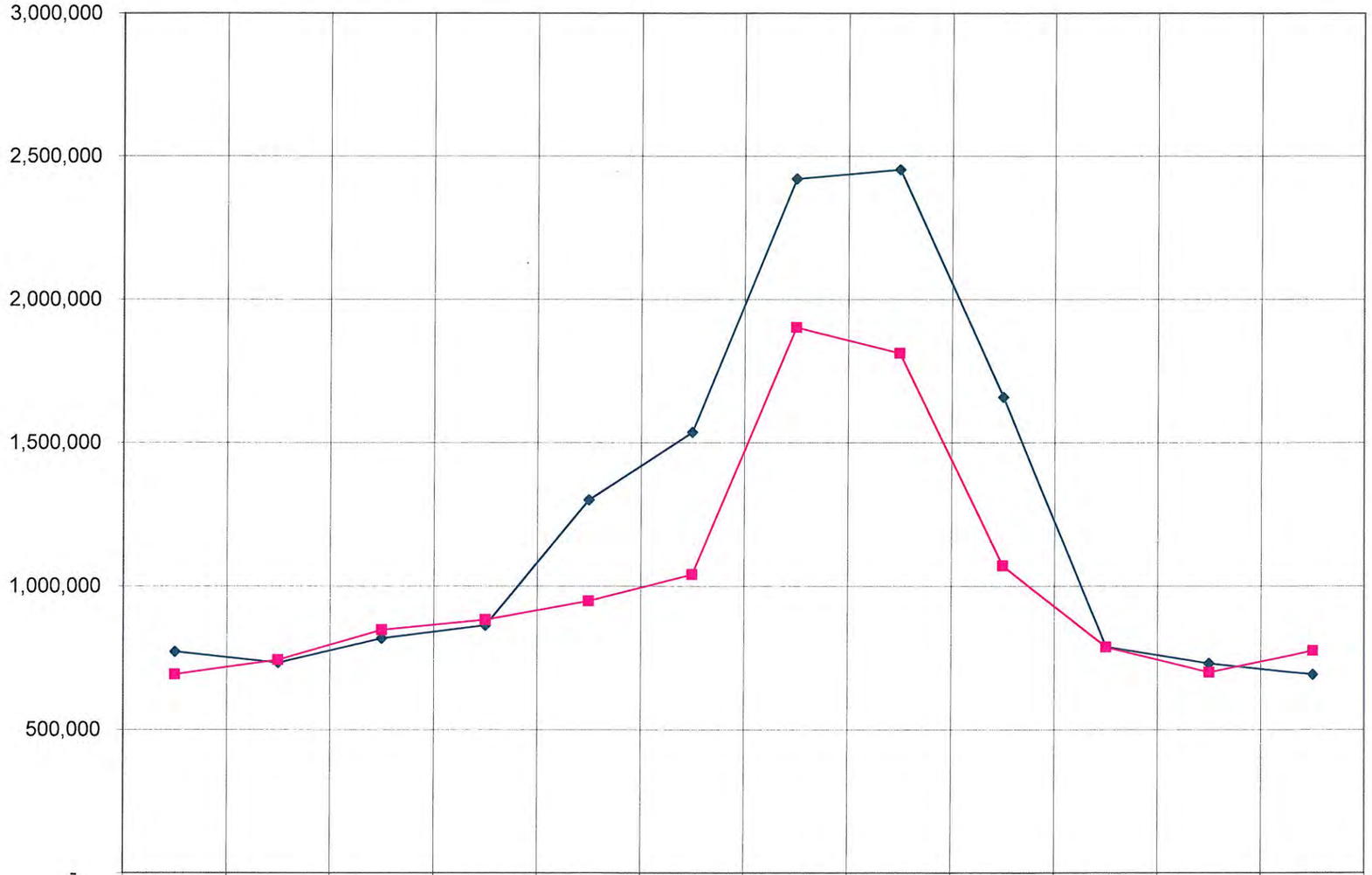
	FL2 USED	SODIUM HYPO USED	POLY PHOS USED	KNMO4 USED	BULK KNMO4 55# CONTAINERS	FL2 COST	SODIUM HYPO COST	POLY PHOS COST	KNMO4 COST
JANUARY	84	175	103	171.99	0.6	$ 281.40	$ 283.50	$ 798.46	$ 96.17
FEBRUARY	82	181	99	161.99	0.5	$ 274.70	$ 293.22	$ 767.45	$ 90.58
MARCH	89	197	112	199.29	0.7	$ 298.15	$ 319.14	$ 868.22	$ 111.44
APRIL	92	218	108	277.79	0.9	$ 308.20	$ 353.16	$ 837.22	$ 155.33
MAY	102	252	123	273.18	0.9	$ 341.70	$ 408.24	$ 953.50	$ 152.75
JUNE	109	267	122	294.84	1.0	$ 365.15	$ 432.54	$ 945.74	$ 164.86
JULY	209	500	230	451.36	1.5	$ 700.15	$ 810.00	$ 1,782.96	$ 252.39
AUGUST	202	462	216	348.53	1.2	$ 676.70	$ 748.44	$ 1,674.43	$ 194.89
SEPTEMBER	127	313	118	202.02	0.7	$ 425.45	$ 507.06	$ 914.74	$ 112.96
OCTOBER	97	201	75	165.62	0.6	$ 324.95	$ 325.62	$ 581.40	$ 92.61
NOVEMBER	84	187	63	107.38	0.4	$ 281.40	$ 302.94	$ 488.38	$ 60.04
DECEMBER	92	220	82	92.82	0.3	$ 308.20	$ 356.40	$ 635.66	$ 51.90
	TOTAL GAL	TOTAL GAL	TOTAL GAL	TOTAL GAL	TOTAL CONTAINERS	TOTAL COST	TOTAL COST	TOTAL COST	TOTAL COST
	1,369	3,173	1,451	2,747	9.16	$ 4,586.15	$ 5,140.26	$ 11,248.15	$ 1,535.92

2014 Total Well Production



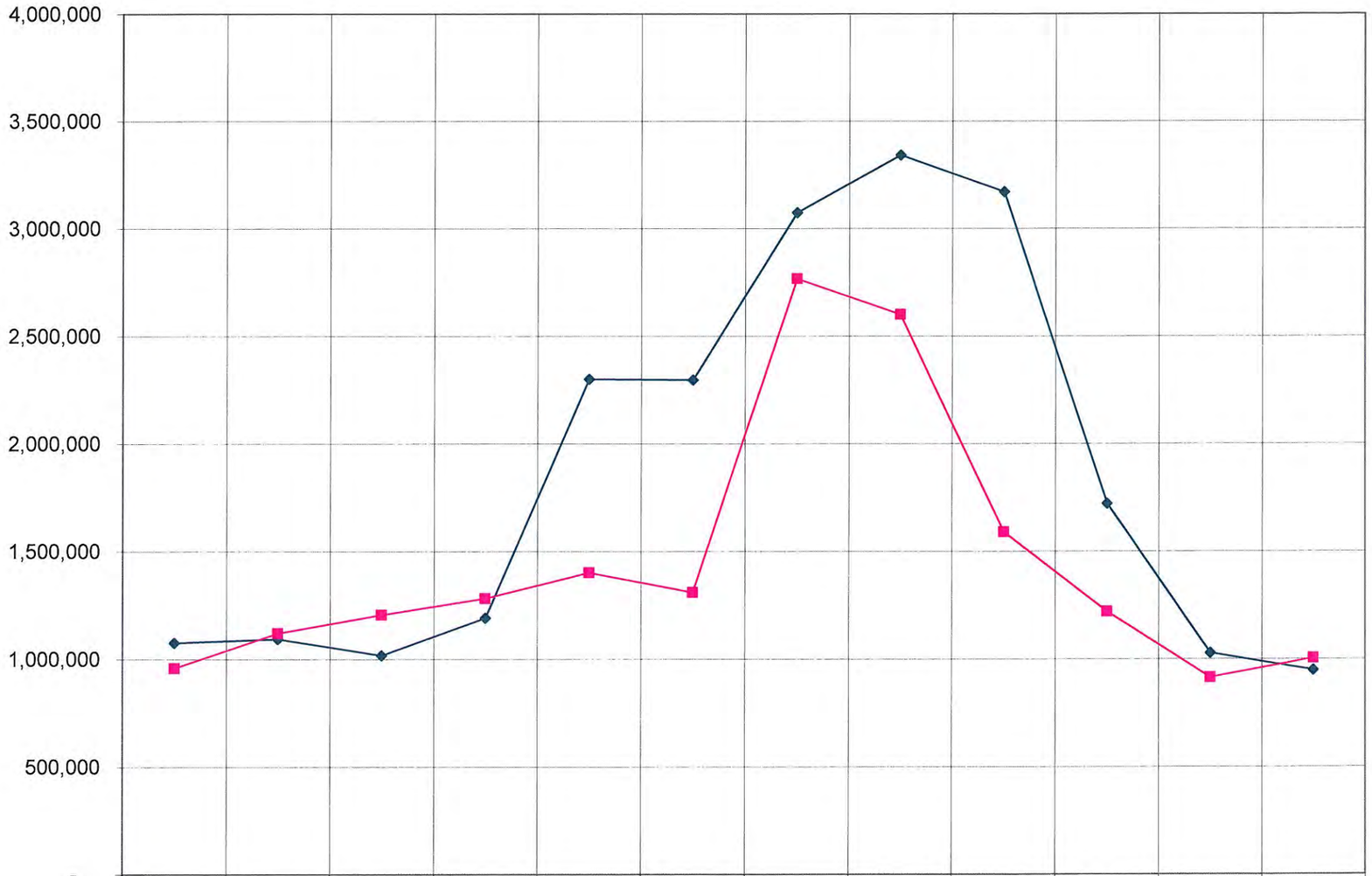
	January	February	March	April	May	June	July	August	September	October	November	December
2013	23,916,000	22,729,000	25,359,000	25,891,405	40,308,000	46,081,800	75,028,000	76,042,000	49,773,000	24,450,000	21,919,000	21,465,000
2014	21,445,000	20,779,000	26,244,000	26,469,000	29,376,000	31,190,000	58,927,000	56,156,000	32,112,000	24,387,000	20,972,000	24,001,000

2014 Average Well Production

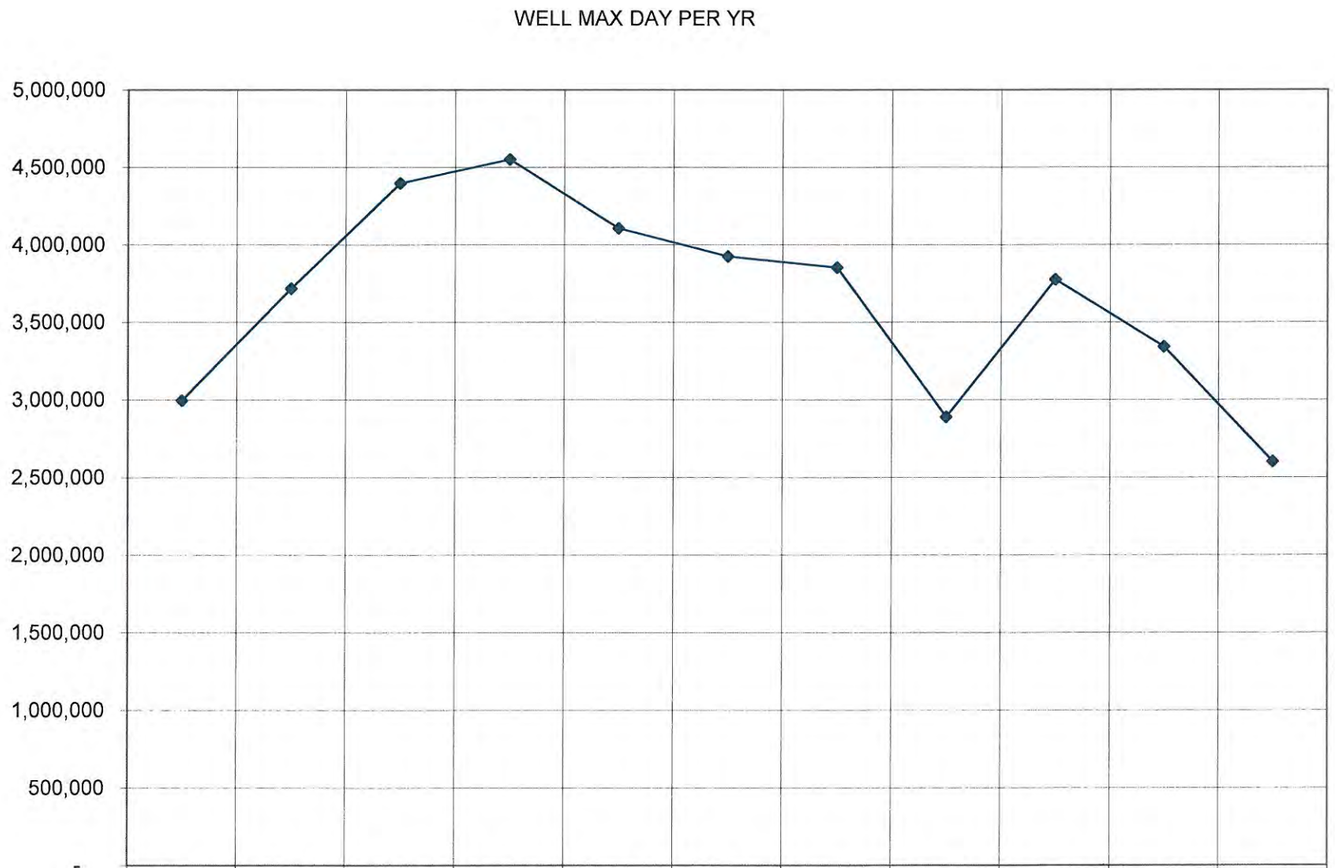


	January	February	March	April	May	June	July	August	September	October	November	December
2013	771,484	733,194	818,032	863,047	1,300,258	1,536,060	2,420,258	2,452,968	1,659,100	788,710	730,633	692,419
2014	691,774	742,107	846,581	882,300	947,613	1,039,667	1,900,871	1,811,484	1,070,400	786,677	699,067	774,226

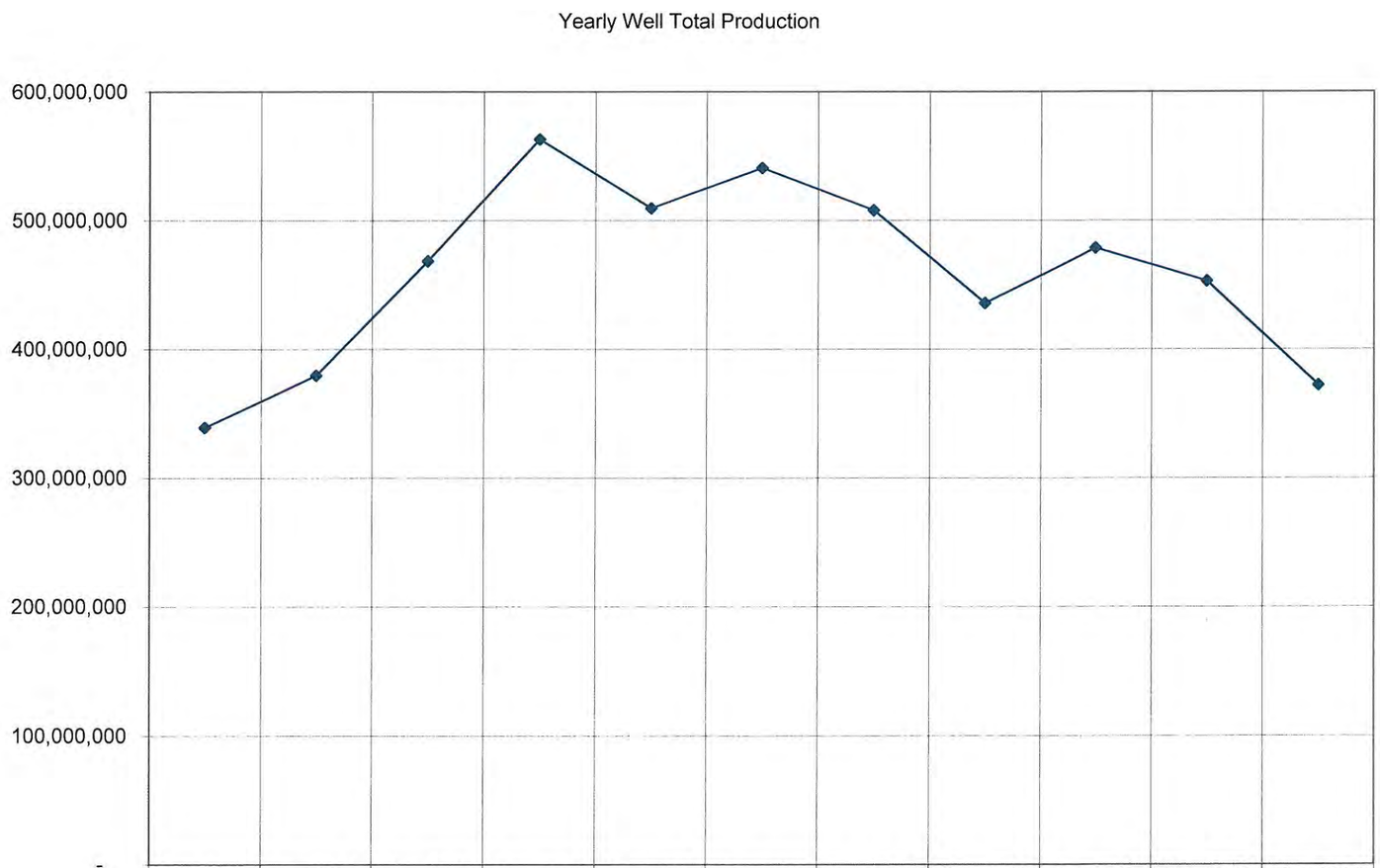
2014 Maximum Daily Well Production



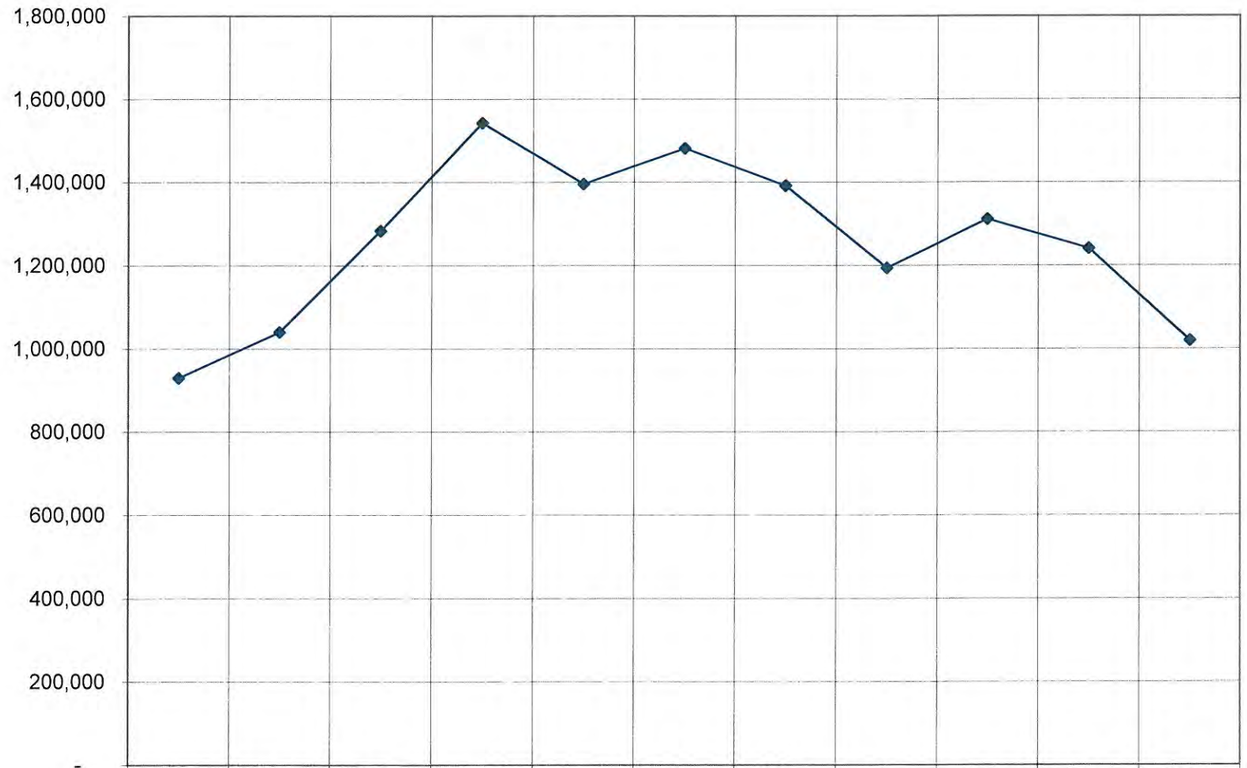
	January	February	March	April	May	June	July	August	September	October	November	December
2013	1,076,000	1,094,000	1,017,000	1,191,000	2,300,000	2,296,000	3,074,000	3,342,000	3,171,000	1,721,000	1,028,000	949,000
2014	958,000	1,119,000	1,205,000	1,281,000	1,400,000	1,309,000	2,766,000	2,600,000	1,588,000	1,219,000	914,000	1,003,000



	Jul-04	Aug-05	Jul-06	Jul-07	Jun-08	Jun-09	May-10	Jun-11	Jul-12	Jul-13	Aug-14
MAX DAY PER YR	2,995,000	3,718,000	4,397,000	4,551,000	4,107,000	3,925,000	3,854,000	2,889,000	3,775,000	3,342,000	2,600,000

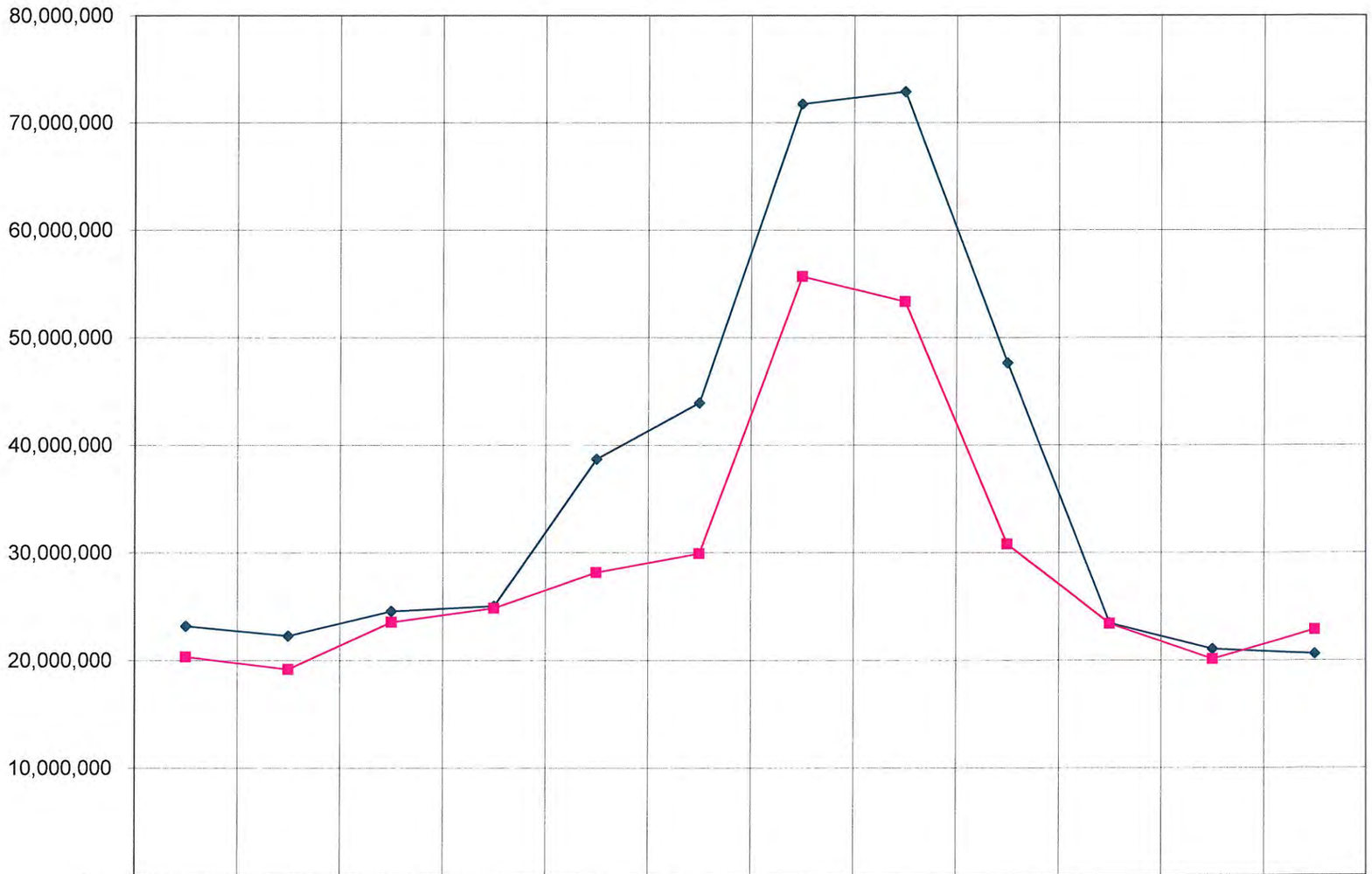


	Year 2004	Year 2005	Year 2006	Year 2007	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012	Year 2013	Year 2014
year totals well	339,239,00	379,623,51	468,332,00	563,098,80	509,491,00	540,803,00	507,951,50	435,673,00	478,606,36	452,962,20	372,058,00



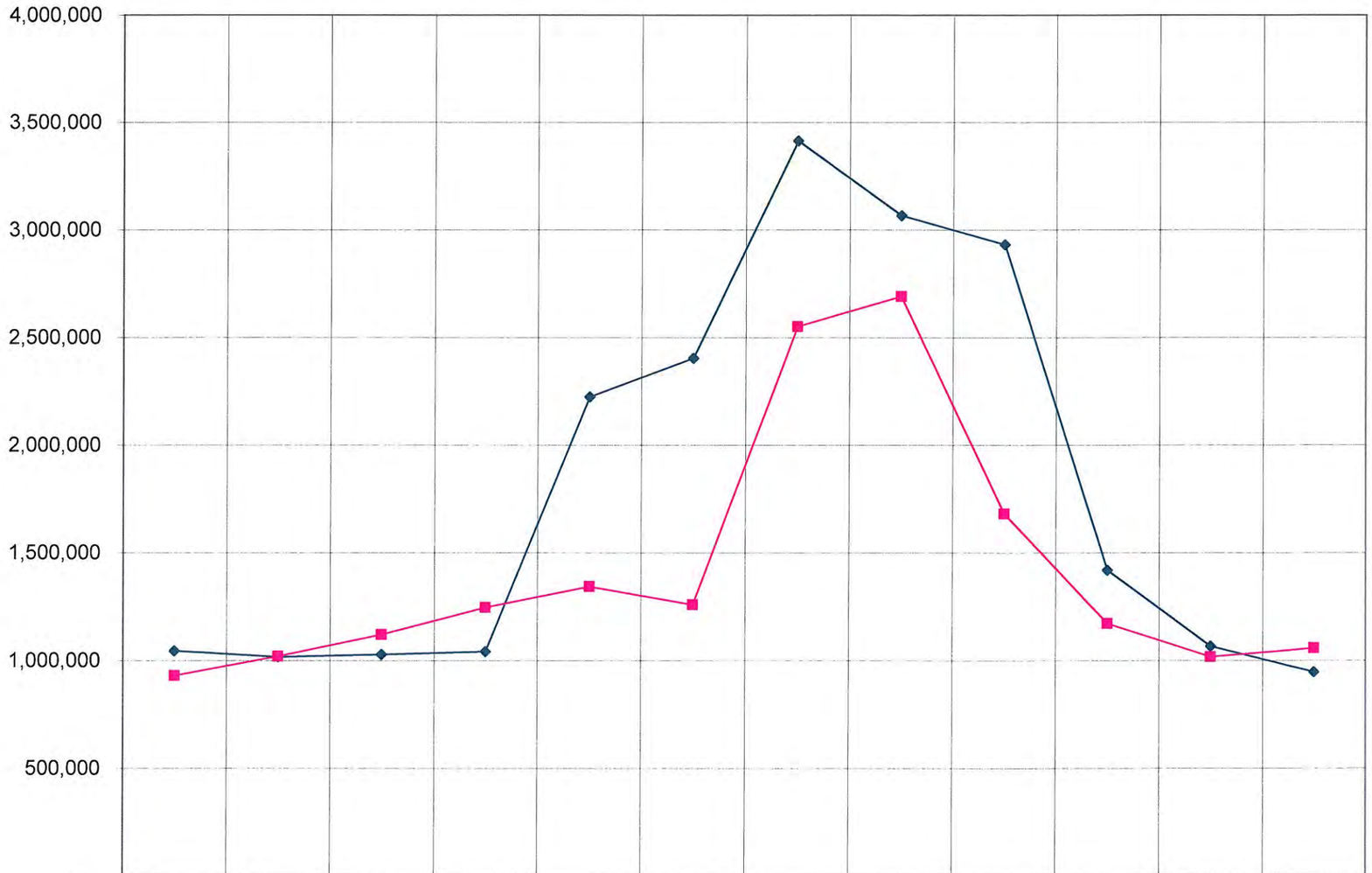
	Year 2004	Year 2005	Year 2006	Year 2007	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012	Year 2013	Year 2014
YRLY AVE DAY WELL	929,570	1,040,064	1,283,101	1,542,763	1,395,866	1,481,652	1,391,648	1,193,625	1,311,250	1,240,992	1,019,337

2014 WTP Finish Total



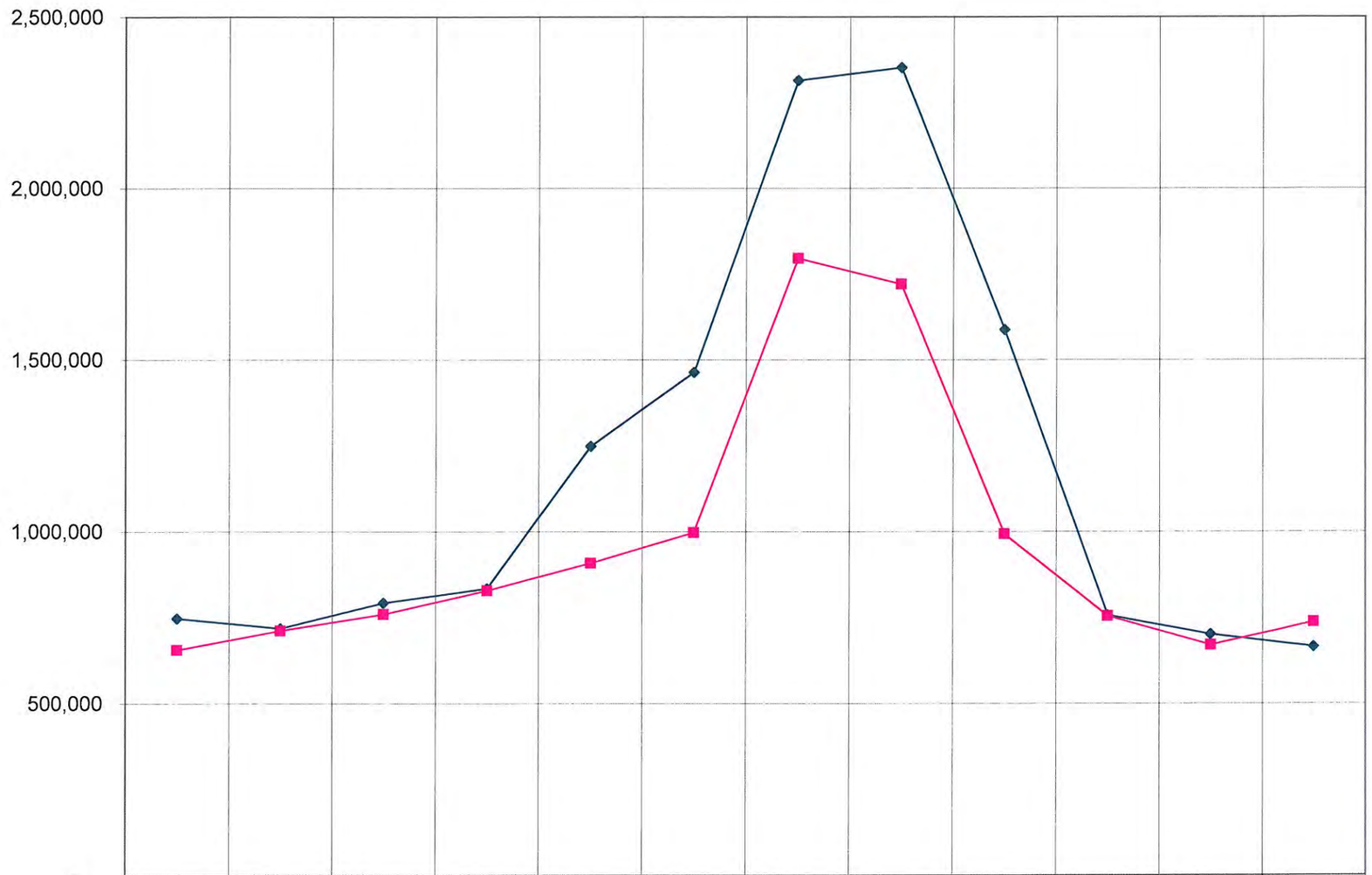
	January	February	March	April	May	June	July	August	September	October	November	December
2013	23,184,000	22,280,000	24,569,000	25,031,000	38,710,000	43,927,000	71,758,179	72,910,000	47,654,000	23,458,000	21,055,000	20,627,000
2014	20,324,000	19,180,000	23,547,000	24,842,000	28,149,000	29,897,000	55,660,000	53,328,000	30,785,000	23,386,000	20,108,000	22,841,000

2014 WTP Finish Daily Maximum



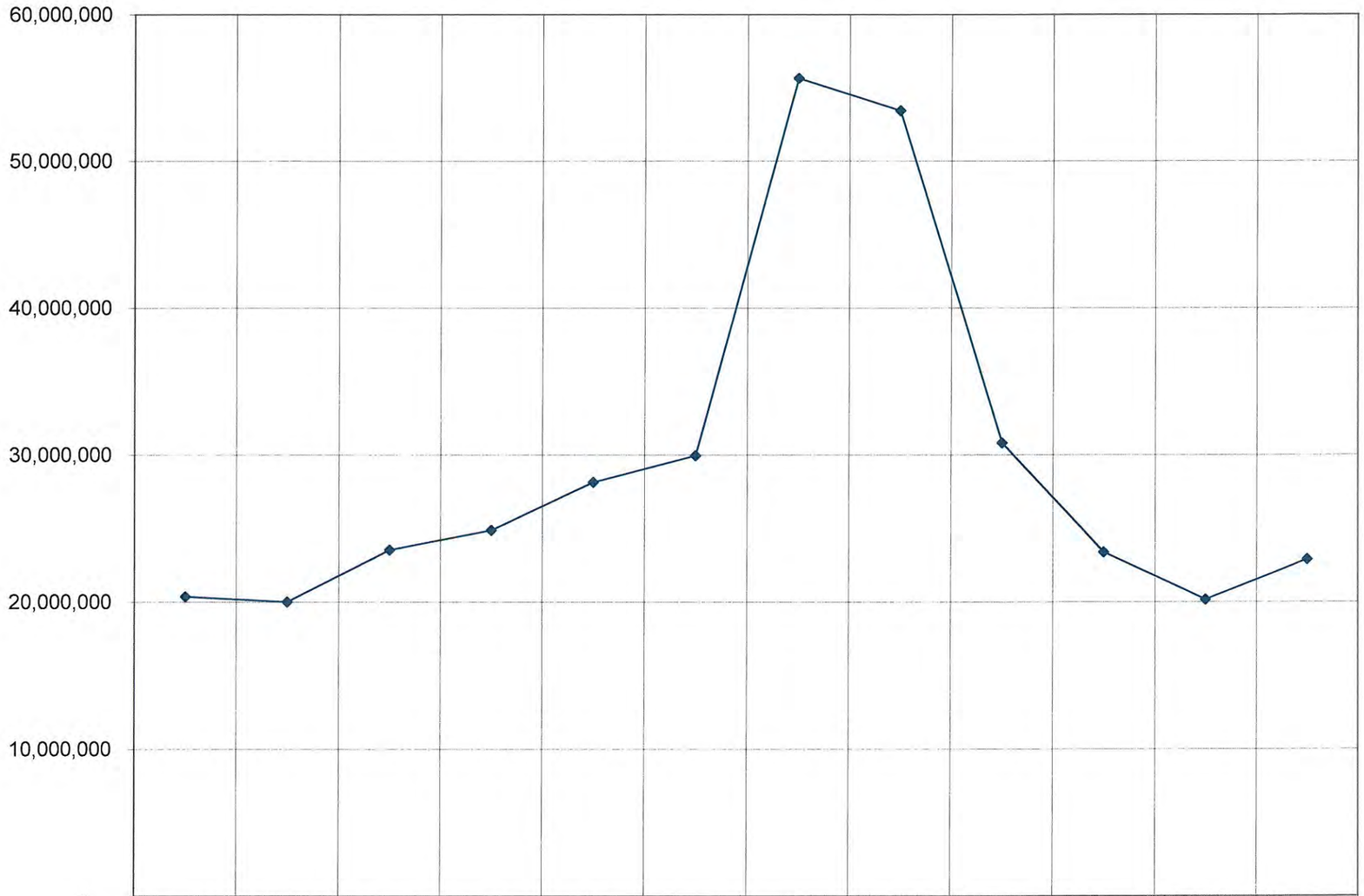
	January	February	March	April	May	June	July	August	September	October	November	December
2013	1,045,000	1,017,000	1,029,000	1,042,000	2,224,000	2,404,000	3,414,179	3,067,000	2,932,000	1,420,000	1,067,000	948,000
2014	930,000	1,020,000	1,120,000	1,246,000	1,343,000	1,259,000	2,550,000	2,690,000	1,680,000	1,172,000	1,017,000	1,058,000

2014 WTP Finish Daily Average



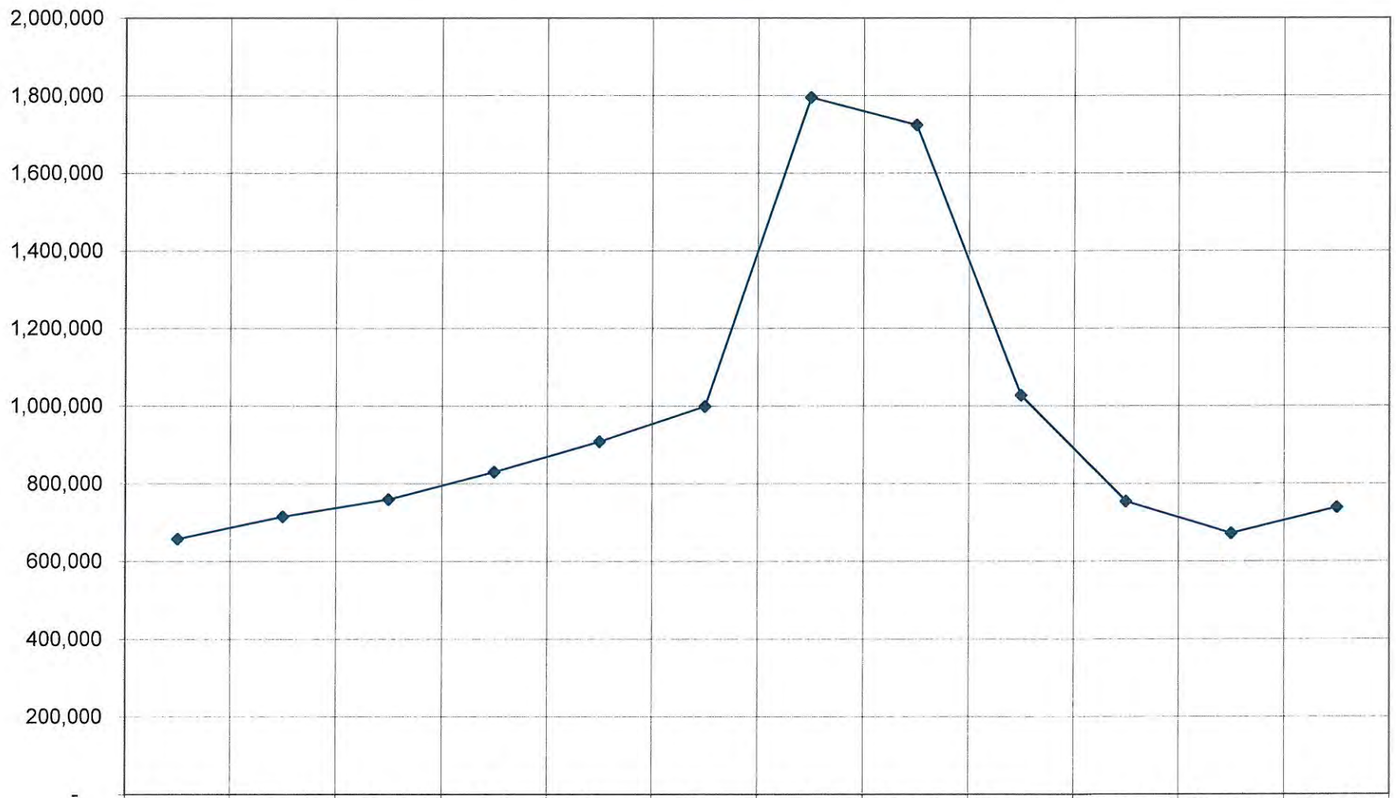
	January	February	March	April	May	June	July	August	September	October	November	December
2013	747,871	718,710	792,548	834,367	1,248,710	1,464,233	2,314,780	2,351,935	1,588,467	756,710	701,833	665,387
2014	655,613	712,107	759,581	828,067	908,032	996,567	1,795,484	1,720,258	993,065	754,387	670,267	736,806

2014 WTP Finish plus Well # 3 Daily Average



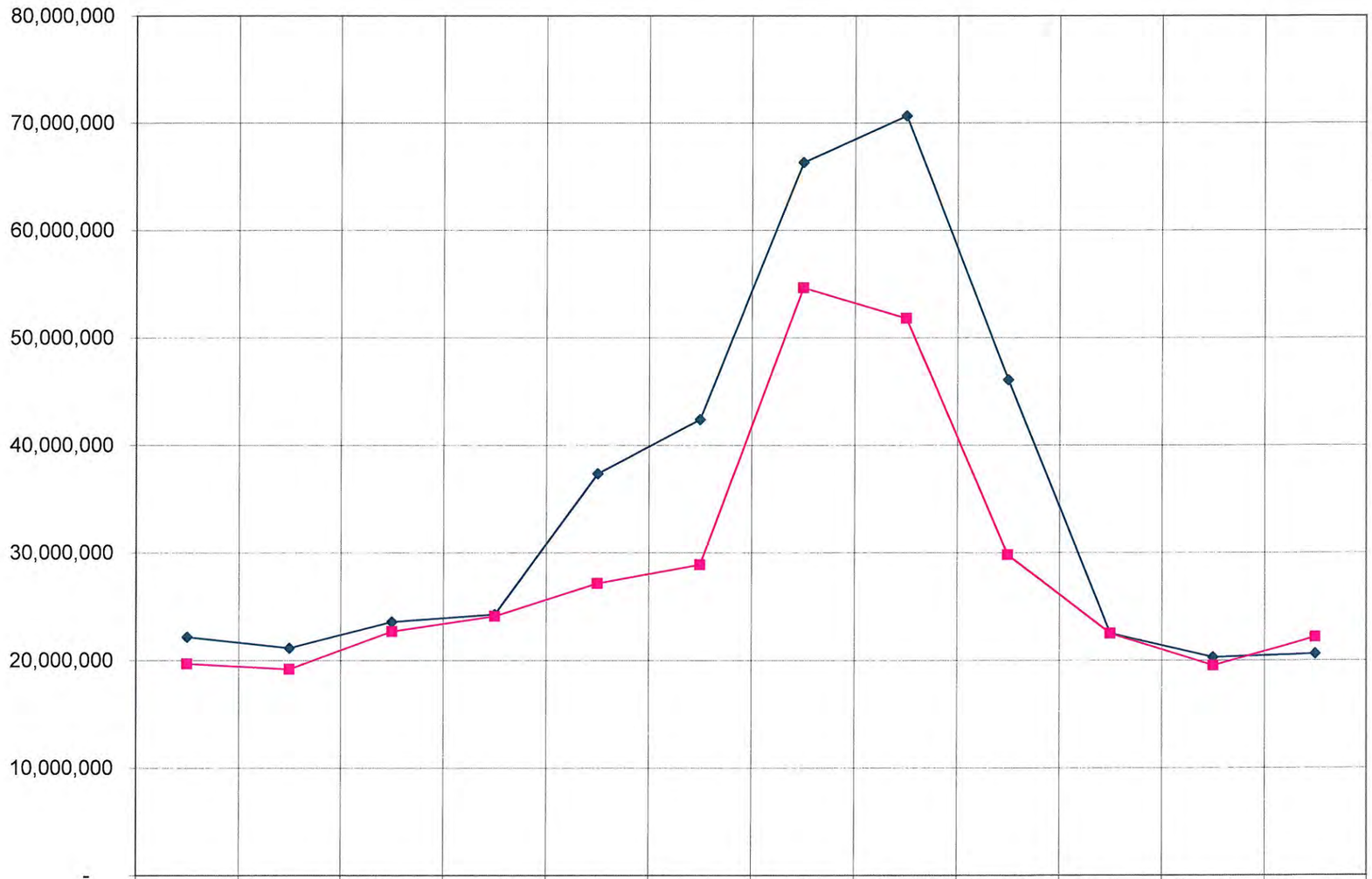
	January	February	March	April	May	June	July	August	September	October	November	December
2014	20,376,000	20,013,000	23,547,000	24,887,000	28,149,000	29,955,000	55,660,000	53,443,000	30,823,000	23,386,000	20,164,000	22,887,000

2014 WTP Finish plus Well # 3 Daily Maximum



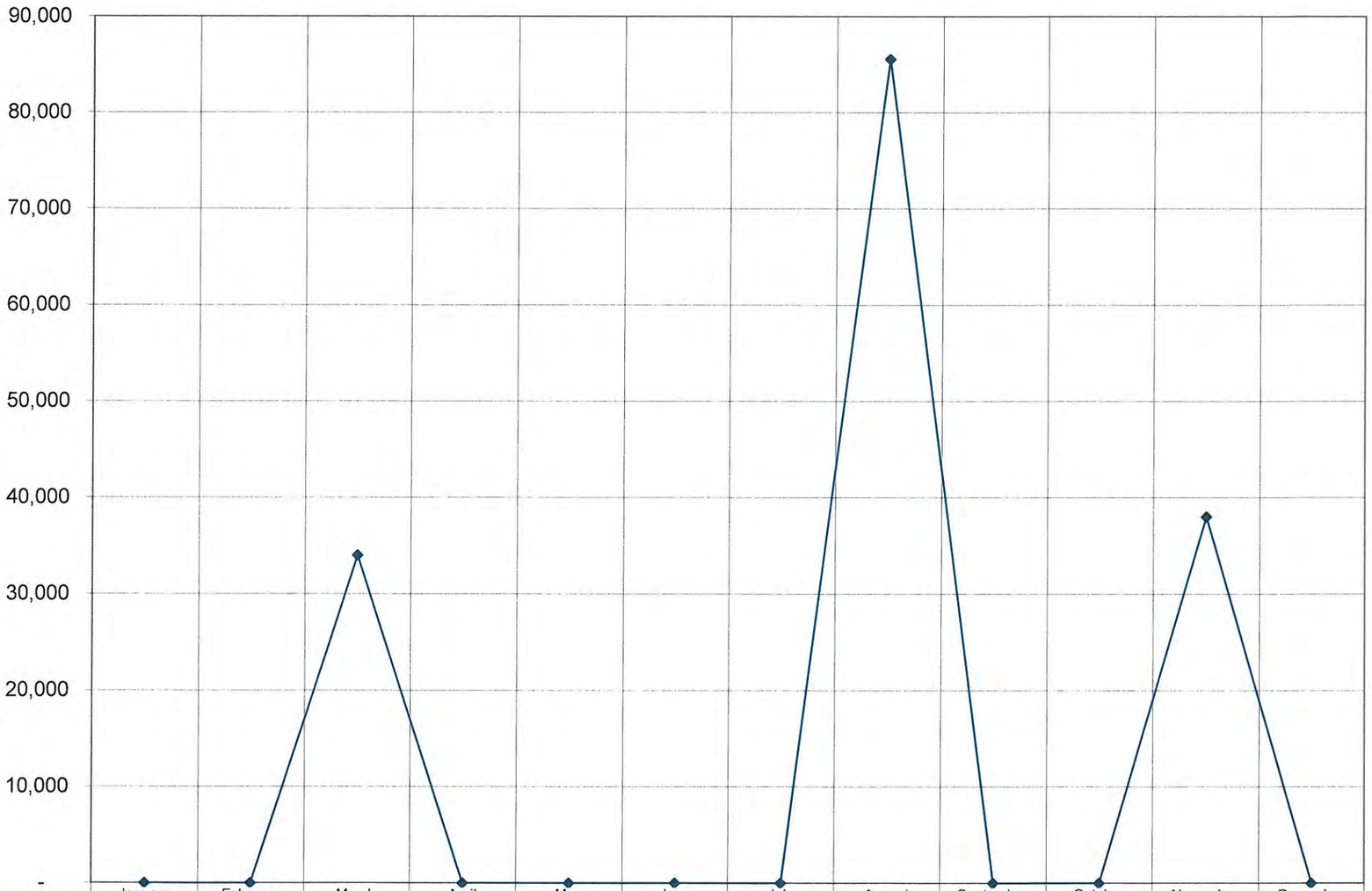
	January	February	March	April	May	June	July	August	September	October	November	December
2014	657,290	714,750	759,581	829,567	908,032	998,500	1,795,484	1,723,968	1,027,433	754,387	672,133	738,290

2014 WTP Raw Total



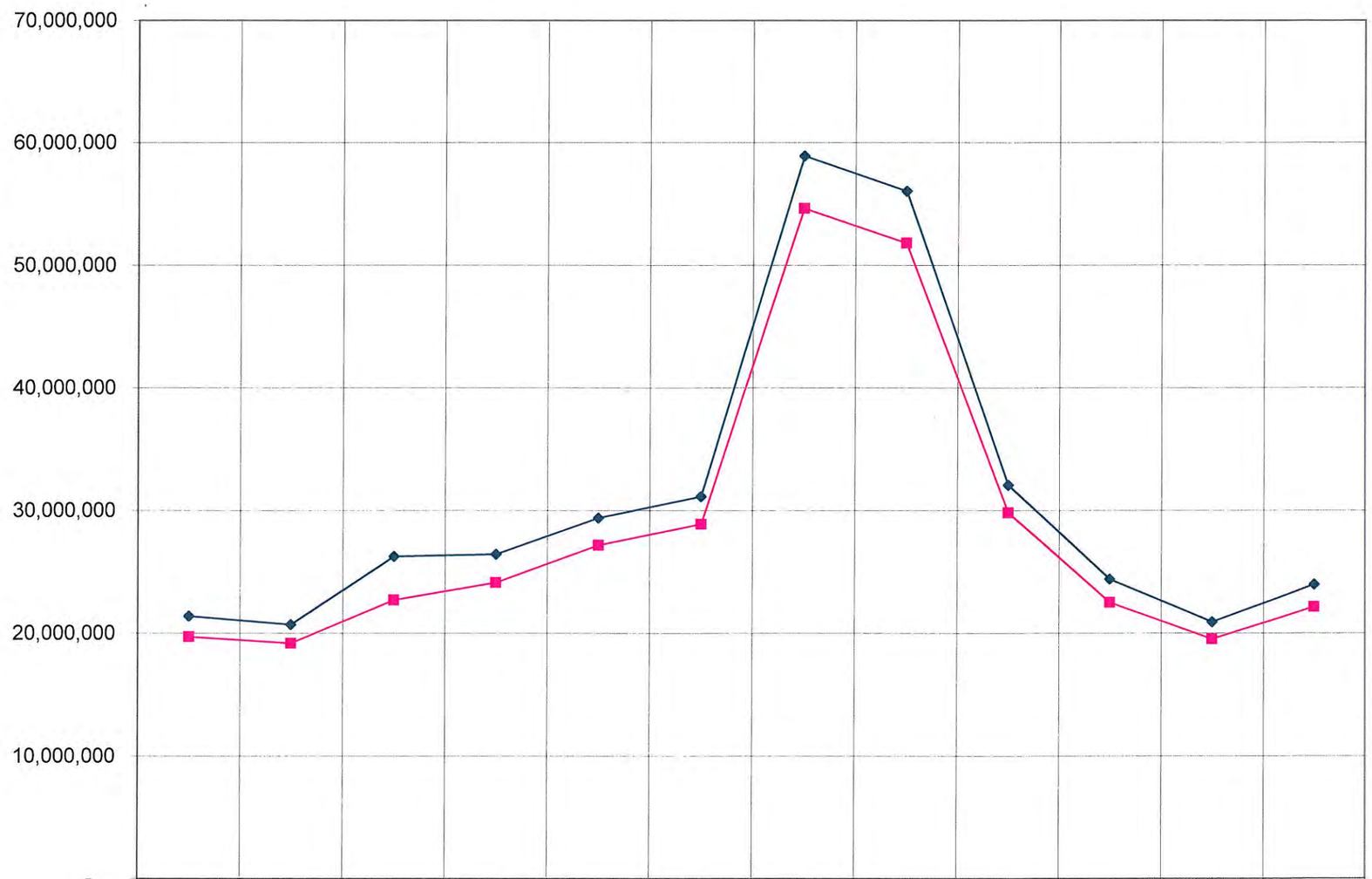
	January	February	March	April	May	June	July	August	September	October	November	December
2013	22,180,000	21,160,000	23,590,000	24,270,000	37,340,000	42,380,000	66,310,000	70,660,000	46,090,000	22,510,000	20,280,000	20,627,000
2014	19,690,000	19,180,000	22,680,000	24,100,000	27,150,000	28,860,000	54,630,000	51,790,000	29,790,000	22,480,000	19,510,000	22,130,000

2014 WTP BACKWASH PUMPED TO SEWER



	January	February	March	April	May	June	July	August	September	October	November	December
Series1	-	-	34,000	-	-	-	-	85,536	-	-	38,000	-

2014 WTP Raw Meter VS. Well Meter

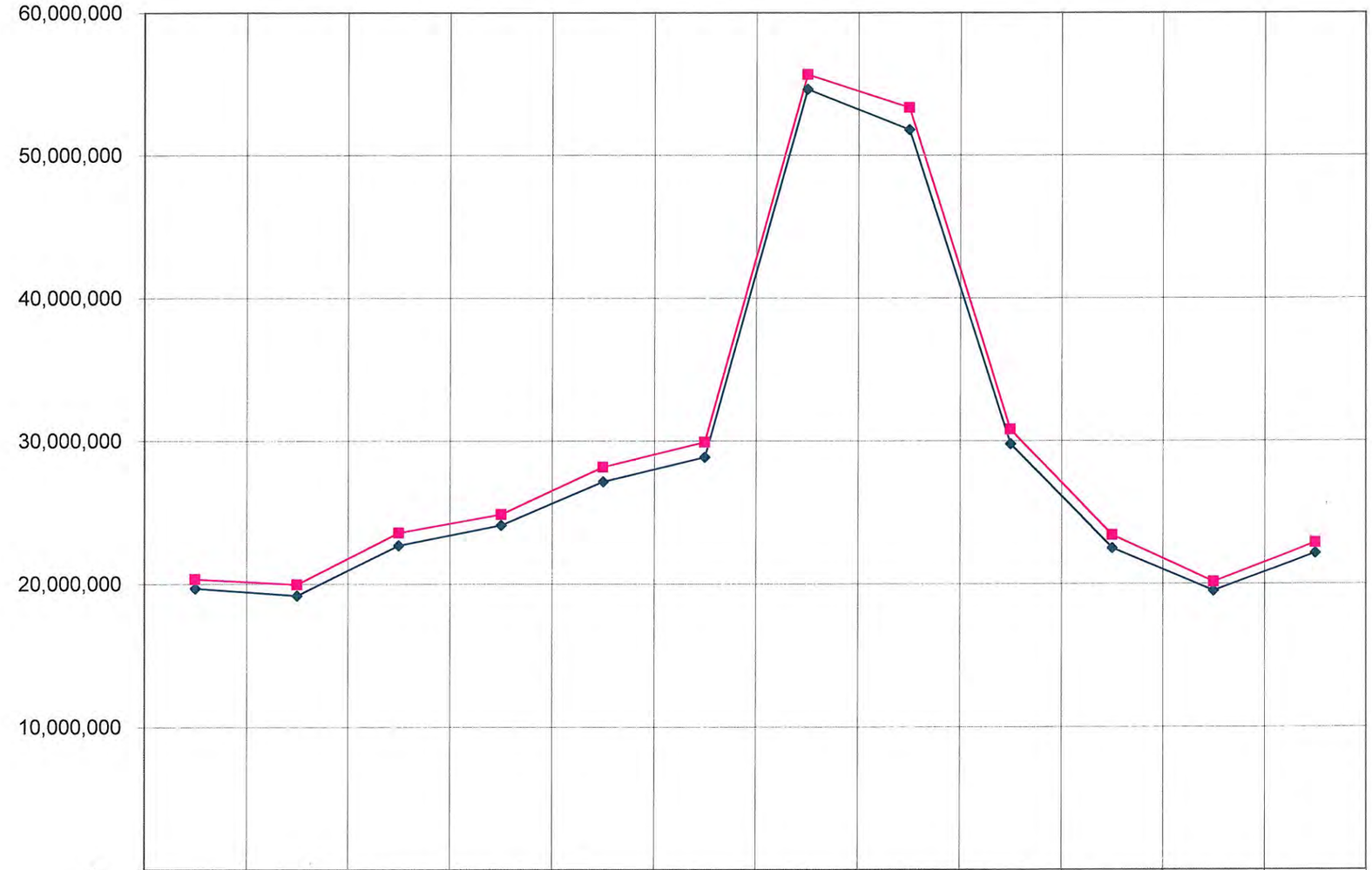


	January	February	March	April	May	June	July	August	September	October	November	December
Wells	21,393,000	20,705,000	26,244,000	26,424,000	29,376,000	31,132,000	58,927,000	56,041,000	32,074,000	24,387,000	20,916,000	23,955,000
Raw Meter	19,690,000	19,180,000	22,680,000	24,100,000	27,150,000	28,860,000	54,630,000	51,790,000	29,790,000	22,480,000	19,510,000	22,130,000

2014 WTP Finish Meter VS. Well Totals

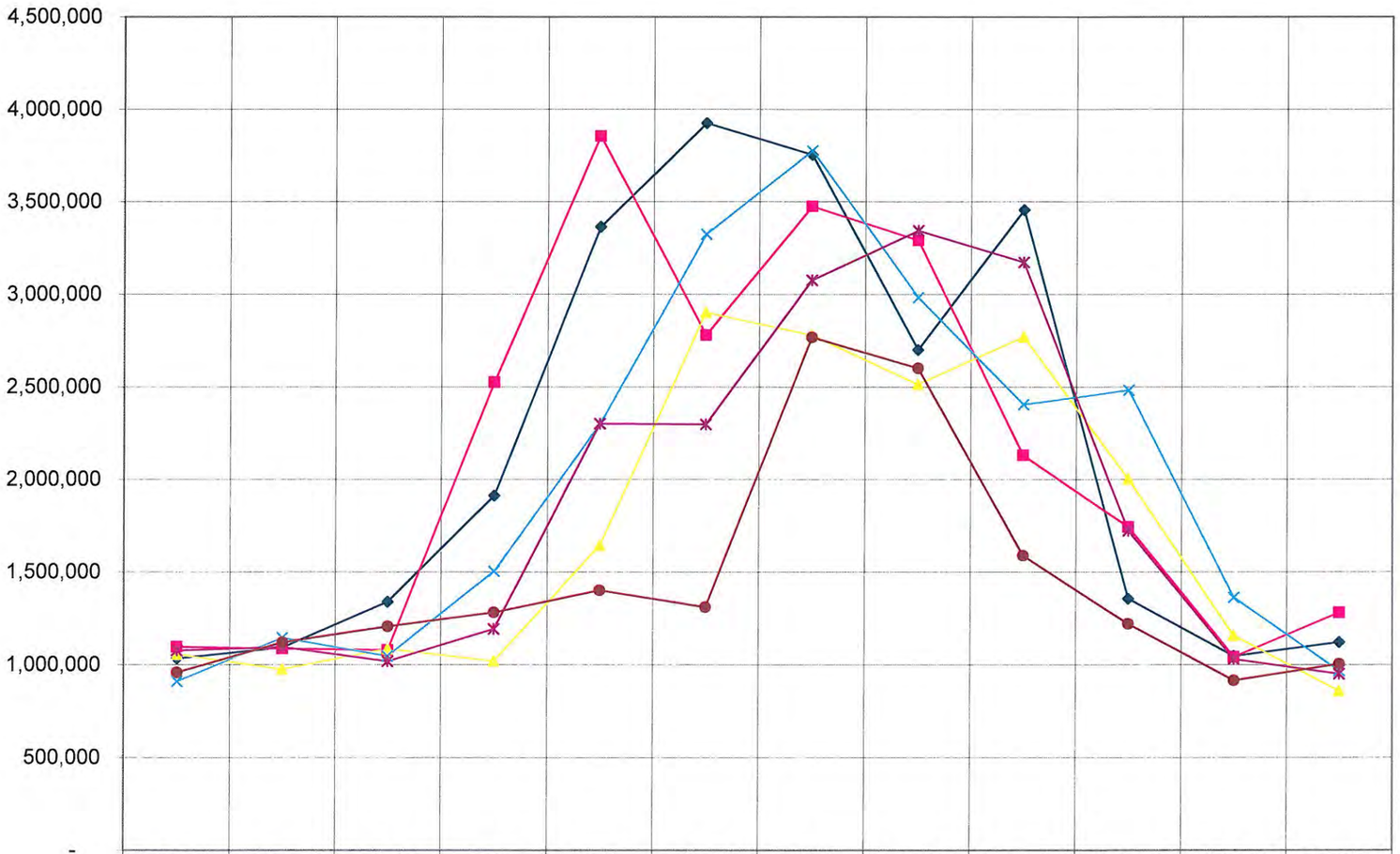
	January	February	March	April	May	June	July	August	September	October	November	December
Wells	21,445,000	20,779,000	26,244,000	26,469,000	29,376,000	31,190,000	58,927,000	56,156,000	32,112,000	24,387,000	20,972,000	24,001,000
WTP Finish	20,376,000	20,013,000	23,547,000	24,887,000	28,149,000	29,955,000	55,660,000	53,443,000	30,823,000	23,386,000	20,164,000	22,887,000

2014 Raw Meter VS. Finish Meter



	January	February	March	April	May	June	July	August	September	October	November	December
Raw Meter	19,690,000	19,180,000	22,680,000	24,100,000	27,150,000	28,860,000	54,630,000	51,790,000	29,790,000	22,480,000	19,510,000	22,130,000
WTP Finish	20,324,000	19,939,000	23,547,000	24,842,000	28,149,000	29,897,000	55,660,000	53,328,000	30,785,000	23,386,000	20,108,000	22,841,000

MAXIMUM WELL PRODUCTION



	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
2009	1,033,000	1,092,000	1,339,000	1,912,000	3,364,000	3,925,000	3,753,000	2,700,000	3,455,000	1,355,000	1,046,000	1,121,000
2010	1,095,000	1,085,000	1,077,000	2,522,000	3,854,000	2,778,000	3,473,000	3,289,000	2,129,000	1,741,000	1,040,000	1,279,000
2011	1,055,000	973,000	1,084,000	1,018,000	1,642,000	2,899,000	2,776,000	2,511,000	2,767,000	2,000,000	1,155,000	857,000
2012	910,000	1,145,000	1,047,000	1,504,000	2,301,000	3,324,000	3,775,000	2,982,000	2,404,000	2,481,000	1,362,000	967,000
2013	1,076,000	1,094,000	1,017,000	1,191,000	2,300,000	2,296,000	3,074,000	3,342,000	3,171,000	1,721,000	1,028,000	949,000
2014	958,000	1,119,000	1,205,000	1,281,000	1,400,000	1,309,000	2,766,000	2,600,000	1,588,000	1,219,000	914,000	1,003,000

WASTEWATER DEPARTMENT

Total gallons treated = 237,089,000
Daily Average = 650,000 gallons
Yearly Daily High = 798,000 gallons

See Graphs

4,508,000 gallons of 1.84% Biosolids processed through Biosolids Plant equaling 164 tons of 98% dry solids (September 1, 2013 – August 31, 2014)

2,753 hours Wastewater Plant Operation
1,651 hours lift station/collection system maintenance (same)
547 hours cleaning and inspecting sewer lines and manholes
678 hours operating Biosolids dryer
5 manholes repaired
596 manholes inspected

Fleet Inventory: (Water/Wastewater Department)
2005 ¾ ton truck with service body
2002 ¾ ton truck with service body
2002 150 kw Portable Generator
1999 Truck 150
1981 Jet Machine
1998 Truck Mounted Jet/Vac Machine
1982 Agator
1981 60 kw Portable Generator
1981 60 kw Portable Generator
1996 Biosolids Applicator Dump Truck
2011 John Deere Mower/Blower

Septic Tank, Gallons = 2,209,215 - $116,582.12
Portable toilets, Greenfield, Veit Leachate

Peak – Shaving Electrical Program at Wastewater Plant
2014 savings = $3,400.00

WASTEWATER DEPARTMENT

Facilities:
15 Lift Stations
1 Pump Station
1 Wastewater Treatment Plant
Biosolids Treatment Plant (still not completed)
26.63 Acre Field for Biosolids Application
Old pump station used as job office by Bolton & Menk - $350.00 per month rental fee

60 miles sanitary sewer line

9 miles sanitary sewer force main

Discharge Permits Limits	Wastewater Plant Results Yearly Average
CBOD = 25mg/l	1.9 mg/l
TSS = 30 mg/l	4.3 mg/l
D.O. = none, testing only	met
PH = min 6.0 max 9.0	7.1
Fecal Coliform = 200 GeoMN	5.1 GeoMN
Phosphorus = none, testing only	1.5 mg/l

Biosolids discharge limits all met.
Effluent limit all met.

Property Rented
- 20 acres = $4,000.00/yr
- 5.5 acres = $275.00 / yr
- 26.63 acres = $1,335.50 / yr

BIO-BUILDING RUN LOG

NOVEMBER 2013

DATE	WCP Dryer Feed (%)	hours of operation @ $65.00/HR	operator wage	poly cost @ 65.53 LBS/IN*$2.12/ LBS	total sludge flow	total dry pounds	total water use	total kwh	total gas	water cost $3.20 / 1000	kwh cost @ $35.00 / KW	gas cost @ $ 1.0127 / THERM	maintenance cost per hour	daily cost	cost per lbs dry solids	AVE PRICE PER DRY POUND OF RUN
1	0	0	0	0.00	0	8647	0	0	0	0	0.00	0.00	0	0.00	$ -	
2	0	0	0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
3	0	0	0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
4	45	12	780	694.62	122000	10435	144980	3287	44500	464	420.00	202.09	0	2560.64	$ 0.25	
5	45	14	910	434.14	124000	14044	180140	3527	65900	576	490.00	299.27	0	2709.85	$ 0.19	
6	50	10	650	243.12	74000	8994	129590	2738	42100	415	350.00	191.19	0	1848.99	$ 0.21	
7	50	10	650	260.48	86000	9670	129640	2812	45100	415	350.00	204.81	0	1880.14	$ 0.19	
8	50	10	650	0.00	0	6336	114460	1991	45300	366	350.00	205.72	0	1571.99	$ 0.19	
9	0	0	0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
10	0	0	0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
11	0	0	0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
12	50	11	715	260.48	74000	8785	124020	2973	46600	397	385.00	211.62	0	1968.97	$ 0.22	
13	50	11	715	364.67	100000	10707	140950	3203	55800	451	385.00	253.40	0	2169.12	$ 0.20	
14	60	11	715	347.31	100000	11765	129680	2989	52500	415	385.00	238.42	0	2100.70	$ 0.18	
15	60	11	715	347.31	85000	11263	134940	2856	55400	432	385.00	251.59	0	2130.70	$ 0.19	
16	0	0	0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
17	0	0	0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
18	55	13	845	312.58	81000	13480	152790	3113	63600	489	455.00	288.82	0	2390.33	$ 0.18	
19	45	13	845	416.77	102000	12908	180370	3390	66900	577	455.00	303.81	0	2597.76	$ 0.20	
20	45	13	845	416.77	102000	12567	162830	3380	59100	521	455.00	268.39	0	2506.22	$ 0.20	
21	45	17	1105	694.62	160000	20319	200000	4206	75000	640	595.00	340.59	0	3375.21	$ 0.17	
22	45	15	975	243.12	60000	15869	190420	3265	78700	609	525.00	357.40	0	2709.86	$ 0.17	
23	0	0	0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
24	0	0	0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
25	50	8	520	0.00	0	5121	103670	1668	32200	332	280.00	146.23	0	1277.97	$ 0.25	
26	0	0	0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
27	0	0	0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
28	0	0	0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
29	0	0	0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
30	0	0	0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
31	0	0	0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	AVE TOTAL
		TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL		MONTH/LB
		179	$ 11,635	$ 5,036	1,268,000	182,910	2,218,480	45,398	828,700	$ 7,099.14	$ 6,265.00	$ 3,763.34		$ 33,798		$ 0.18

BIO-BUILDING RUN LOG

NOVEMBER 2013

DATE	Cent #1 Feed (GPM)	Cent #1 Polymer (Panel)	Cent #1 Polymer Multiplier	Cent #1 Load (SP)	Cent #2 Feed (GPM)	Cent #2 Polymer (Panel)	Cent #2 Polymer Multiplier	Cent #2 Load (SP)	Cent Sludge (avg. %)	Cent Cake (avg. %)	Sludge Flow P-ST-3 (x1000)	Sludge Flow P-ST-4 (x1000)	Batch Tank Level (ft.)	Dryer Feed Time (hours)	Dryer Feed Pump (1 or 2)	WCP Dryer Feed (%)	WCP Dryer Feed GPM	Dryer Solids (avg. %)	Dry-Out (hours)	Cool Down (hours)	poly use in	Total KWH	Total Gas	Total Water	Trans port count
1										18				6			16								
2																									
3																									
4	100	12	19	30	100	13	23	28	1.71	18.39	61	61	11.1	7	2	45	16.2	99.8	2.6	0.92	5		445	144980	35
5	100	10	14.5	30	100	11	18.3	29	1.85	19.25	62	62	11.5	9	1	45	16.2	98.8	2.7	1.16	3.125		659	180140	44
6	100	10	14.5	30	100	11	16	29.5	2	18.7	37	37	11	5.34	1	50	18	99.3	3.25	1	1.75		421	129590	30
7	100	10	14.5	30	100	10	17.5	29	2.01	18.51	43	43	11.1	5.8	2	50	18	99.7	3	1	1.875		451	129640	30
8	0	0	0	0	0	0	0	0	0	18.51	0	0	11.3	5	2	50	18	98.2	3	1	0		453	114460	
9																									
10																									
11																									
12	100	10	14.5	31	100	11	16	31	1.99	18.88	37	37	11.2	5.166	2	50	18	99.1	3	1.18	1.875		466	124020	28
13	100	11	16.5	34	100	11	18.5	34	1.94	19.02	50	50	11.1	8.25	2	50	18	97.25	3.1	1	2.625		558	140950	36
14	100	11	16.5	33	100	11	18.5	33	1.89	19.79	50	50	11	5.5	2	60	21.6	99.1	3.16	0.833	2.5		525	129680	36
15	100	13	17	32	100	12	18.5	32	1.79	19.77	42	42	11.2	5.75	2	55	19.8	99.6	3.36	0.75	2.5		554	134940	39
16																									
17																									
18	100	12	18	31	100	12	20	3.1	2	18.14	41	40	11.2	7.5	2	55	19.8	97.15	2.5	1	2.25		636	152790	41
19	100	12	18	33	100	13	22	34	1.96	19.3	51	51	10.2	8.25	2	45	16.2	99.38	3.3	1.1	3		669	180370	46
20	100	13	19	32	100	13	22.4	32	1.87	20.67	50	50	11.2	7.5	2	45	16.2	99.65	3.15	1.1	3		591	162830	44
21	110	14	19.7	32	110	14	21.7	32	1.87	20.63	82	82	5	12.15	2	45	16.2	99.62	3.3	1.25	5		750	200000	71
22	110	13	17.5	32	110	12	18	32	1.91	18.95	30	30	0	10.33	1&2	45	16.2	99.73	3.25	1.1	1.75		787	190420	59
23																									
24																									
25										18.95			0	3	1	50	18	99.59	3.5	1.1	0		322	103670	19
26																									
27																									
28																									
29																									
30																									
31																									
									1.907					110											

BIO-BUILDING RUN LOG

APRIL 2014

WCP Dryer Feed (%)	hours of operation @ $65.00/HR	operator wage	poly cost @ 65.53 LBS/IN*$2.12/ LBS	total sludge flow	total dry pounds	total water use	total kwh	total gas	water cost $3.20 / 1000	kwh cost @ $35.00 / KW	gas cost @ $ 1.0127 / THERM	maintenance cost per hour	daily cost	cost per lbs dry solids	AVE PRICE PER DRY POUND OF RUN
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
48	13.5	877.5	138.92	28000	4048	147000	0	30700	470	472.50	139.42	0	2098.74	$ 0.52	
48	12.5	812.5	260.48	54000	7938	141590	0	47600	453	437.50	216.16	0	2179.73	$ 0.27	
48	12	780	303.96	62000	9510	151130	0	52300	484	420.00	237.51	0	2225.09	$ 0.23	
55	12	780	347.31	62000	10938	161200	0	59500	516	420.00	270.20	0	2333.35	$ 0.21	
55	12	780	312.58	88000	11115	156690	0	59900	501	420.00	272.02	0	2286.01	$ 0.21	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
55	12	780	364.67	74000	10792	154970	0	56300	496	420.00	255.67	0	2316.25	$ 0.21	
58	12	780	347.31	70000	11441	153260	0	64200	490	420.00	291.55	0	2329.29	$ 0.20	
55	12	780	347.31	64000	9122	145110	0	56100	464	420.00	254.76	0	2266.43	$ 0.25	
55	12	780	295.21	60000	10197	152760	0	59800	489	420.00	271.57	0	2255.61	$ 0.22	
55	12	780	304.24	54000	10559	151140	0	57700	484	420.00	262.03	0	2249.92	$ 0.21	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
55	12	780	295.91	64000	10583	153000	0	57400	490	420.00	260.67	0	2246.18	$ 0.21	
55	12	760	243.12	64000	9660	144770	0	52000	463	420.00	236.15	0	2142.53	$ 0.22	
55	12	780	347.31	78000	10931	157260	0	61000	503	420.00	277.02	0	2327.56	$ 0.21	
55	12	780	291.74	60000	11555	158380	0	63200	507	420.00	287.01	0	2265.56	$ 0.20	
55	12	780	277.85	62000	12008	157970	0	62600	506	420.00	284.28	0	2267.63	$ 0.19	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
55	12	780	330.64	70000	10770	150500	0	62500	482	420.00	283.83	0	2296.07	$ 0.21	
55	12	780	409.82	82000	10962	142110	0	61700	455	420.00	280.20	0	2344.77	$ 0.21	
55	12	780	0.00	0	7019	110180	0	40600	353	420.00	184.37	0	1736.95	$ 0.25	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	AVE TOTAL
	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL		MONTH/LB
	218	$ 14,170	$ 5,218	1,076,000	179,149	2,689,020	-	1,005,100	$ 8,604.86	$ 7,630.00	$ 4,564.42		$ 40,188		$ 0.22

BIO-BUILDING RUN LOG

APRIL 2014

DATE	Cent #1 Feed (GPM)	Cent #1 Polymer (Panel)	Cent #1 Polymer Multiplier	Cent #1 Load (SP)	Cent #2 Feed (GPM)	Cent #2 Polymer (Panel)	Cent #2 Polymer Multiplier	Cent #2 Load (SP)	Cent Sludge (avg. %)	Cent Cake (avg. %)	Sludge Flow P-ST-3 (x1000)	Sludge Flow P-ST-4 (x1000)	Batch Tank Level (ft.)	Dryer Feed Time (hours)	Dryer Feed Pump (1 or 2)	WCP Dryer Feed (%)	WCP Dryer Feed GPM	Dryer Solids (avg. %)	Dry-Out (hours)	Cool Down (hours)	poly use in	Total KWH	Total Gas	Total Water	DATE
1																									1
2																									2
3																									3
4																									4
5																									5
6																									6
7	80	12	23	31	80	12	25	31	2.16	17.87	14	14	11.4	2.62	1	48	17.3	99.56	4.75	1.25	1		307	147000	7
8	80	12	22.5	33	90	14	24	33	2.15	17	28	26	10.5	5.40	1	48	17.3	99.19	3.6	1	1.88		476	141590	8
9	90	13	23.5	34	90	13	24	34	2.13	18.33	31	31	10.8	6.00	1	48	17.3	99.7	3.8	1.25	2.19		523	151130	9
10	100	15	24	34	100	15	24.5	34	2.08	18.4	31	31	10.9	6.00	1	55	19.8	99.57	3.7	1.1	2.5		595	161200	10
11	100	14	21.5	34	100	14	22.5	34	1.99	18.3	34	34	10.4	6.13	1	55	19.8	97.47	3.83	1	2.25		599	156690	11
12																									12
13																									13
14	100	14	22	32	100	14	23	32	2.07	18.78	37	37	11.5	5.80	2	55	19.8	98.31	3.8	1	2.63		563	154970	14
15	95	13	22.5	31	95	13	23.5	30	2.145	18.57	35	35	11	6.00	2	58	20.5	99.67	4	1.1	2.5		642	153260	15
16	100	16	25	31	100	15	25.5	32	2.29	18.79	34	30	11	4.90	2	55	19.8	98.61	4	1	2.5		561	145110	16
17	80	12	23.5	30	80	12	23.5	30	2.18	18.77	30	30	11	5.90	2	55	18.4	99.25	4	1	2.13		598	152760	17
18	90	14	24	33	90	14	26	34	2.06	19.03	27	27	10.3	5.60	2	55	19.8	99.54	3.8	1	2.19		577	151140	18
19																									19
20																									20
21	90	11	17.5	30	90	10	18.5	30	1.96	18.74	32	32	10.5	5.70	2	55	19.8	99.22	3.5	1.1	2.13		574	153000	21
22	90	11	18	30	90	11	20	28	1.8	19.5	32	32	10.8	5.00	1	55	19.8	99.5	3.75	1.1	1.75		520	144770	22
23	90	12	20	31	90	12	21	30	1.95	18.7	39	39	10.7	5.90	1	55	19.8	99.4	3.8	1.1	2.5		610	157260	23
24	80	11	21.5	30	80	11	22.5	29	2.2	19.6	30	30	10.9	5.95	1	55	19.8	99.8	3.7	1.1	2.1		632	158380	24
25	80	11	21	30	80	11	22	31	2.23	20.2	31	31	10.9	6.00	1	55	19.8	99.87	3.75	1.1	2		626	157970	25
26																									26
27																									27
28	80	11	22	30	80	11	22.5	30	2.19	19.07	35	35	6.9	5.70	2	55	19.8	99.5	3.65	1.1	2.38		625	150500	28
29	80	12	22.5	31	80	12	23.7	31	2.25	19.41	41	41	4	5.70	2	55	19.8	99.8	3.75	1.1	2.95		617	142110	29
30	0	0	0	0	0	0	0	0	0	19.41	0	0	11.5	3.65	2	55	19.8	99.46	3.99	1.083	0		406	110180	30
31																									31

BIO-BUILDING RUN LOG

MAY 2014

WCP Dryer Feed (%)	hours of operation @ $65.00/HR	operator wage	poly cost @ 65.53 LBS/IN*$2.12/ LBS	total sludge flow	total dry pounds	total water use	total kwh	total gas	water cost $3.20 / 1000	kwh cost @ $35.00 / KW	gas cost @ $ 1.0127 / THERM	maintenance cost per hour	daily cost	cost per lbs dry solids	AVE PRICE PER DRY POUND OF RUN
55	12	780	361.20	70000	11458	140360	0	61100	449	420.00	277.47	0	2287.82	$ 0.20	
55	12	780	333.42	67000	10408	142410	0	53700	458	420.00	243.87	0	2232.99	$ 0.21	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
55	12	780	333.42	70000	10485	138100	0	55700	442	420.00	252.95	0	2228.28	$ 0.21	
55	15	975	416.77	86000	12508	140700	0	61500	450	525.00	279.29	0	2646.30	$ 0.21	
55	15	975	347.31	70000	12212	138320	0	61700	443	525.00	280.20	0	2570.13	$ 0.21	
55	15	975	194.49	40000	11563	142070	0	59600	455	525.00	270.66	0	2419.78	$ 0.21	
35	9	585	0.00	0	657	59390	0	8100	190	315.00	36.78	0	1126.83	$ 1.72	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	AVE TOTAL
	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL		MONTH/LB
	90	$ 5,850	$ 1,987	403,000	69,290	901,350	-	361,400	$ 2,884.32	$ 3,150.00	$ 1,641.21		$ 15,512		$ 0.22

BIO-BUILDING RUN LOG

MAY 2014

DATE	Cent #1 Feed (GPM)	Cent #1 Polymer (Panel)	Cent #1 Polymer Multiplier	Cent #1 Load (SP)	Cent #2 Feed (GPM)	Cent #2 Polymer (Panel)	Cent #2 Polymer Multiplier	Cent #2 Load (SP)	Cent Sludge (avg. %)	Cent Cake (avg. %)	Sludge Flow P-ST-3 (x1000)	Sludge Flow P-ST-4 (x1000)	Batch Tank Level (ft.)	Dryer Feed Time (hours)	Dryer Feed Pump (1 or 2)	WCP Dryer Feed (%)	WCP Dryer Feed GPM	Dryer Solids (avg. %)	Dry-Out (hours)	Cool Down (hours)	poly use in	Total KWH	Total Gas	Total Water	DATE
1	80	13	23.5	32	80	13	23.5	32	2.47	19.6	35	35	11.5	5.90	1	55	19.8	99.91	3.9	1.1	2.6		611	140360	1
2	80	12	23.5	31	100	13	22	31	2.24	19.1	51	16	10.8	5.50	1&2	55	19.8	99.1	3.7	1.1	2.4		537	142410	2
3																									3
4																									4
5	80	11	21	31	80	11	22.5	31	2.01	19.24	35	35	11	5.50	2	55	19.8	99.42	3.5	1.1	2.4		557	138100	5
6	90	12	21	32.5	90	12	21.5	31	1.94	21.04	43	43	11.2	6.00	2	55	19.8	99.89	3.7	1.1	3		615	140700	6
7	95	14	22.5	32	95	13	23.5	31	1.72	20.89	35	35	11	5.90	2	55	19.8	99.44	3.8	1.1	2.5		617	138320	7
8	90	11	19	30	90	11	20	30	1.89	20.84	20	20	11	5.60	2	55	19.8	99.87	4.1	1.1	1.4		596	142070	8
9										20.84			11	0.50	2	35	12.6		2.9	1.1			81	59390	9
10																									10
11																									11
12																									12
13																									13
14																									14
15																									15
16																									16
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25																									25
26																									26
27																									27
28																									28
29																									29
30																									30
31																									31
									0.94					34.9											

BIO-BUILDING RUN LOG

MONTH
JULY 2014

Trans port count	DATE	WCP Dryer Feed (%)	hours of operation @ $65.00/HR	operator wage	poly cost @ 65.53 LBS/IN*$2.12/ LBS	total sludge flow	total dry pounds	total water use	total kwh	total gas	water cost $3.20 / 1000	kwh cost @ $35.00 / KW	gas cost @ $ 1.0127 / THERM	maintenance cost per hour	daily cost	cost per lbs dry solids	AVE PRICE PER DRY POUND OF RUN
	1	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	2	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	3	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	4	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	5	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	6	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	7	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	8	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	9	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	10	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	11	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	12	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	13	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	14	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	15	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	16	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	17	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	18	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	19	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	20	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	21	0	8	520	382.04	62000	0	0	0	0	0	280.00	0.00	0	1182.04	#DIV/0!	
	22	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	23	60	8	520	208.39	38000	4522	93500	0	25500	299	280.00	115.80	0	1423.39	$ 0.31	
	24	60	8	520	191.71	32000	4522	93500	0	25500	299	280.00	115.80	0	1406.72	$ 0.31	
	25	60	8	520	277.85	48000	3102	86410	0	23000	277	280.00	104.45	0	1458.81	$ 0.47	
	26	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	27	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
	28	60	8	520	277.85	54000	4079	86500	0	25500	277	280.00	115.80	0	1470.45	$ 0.36	
	29	60	8	520	347.31	72000	5253	92230	0	25500	295	280.00	115.80	0	1558.25	$ 0.30	
	30	60	8	520	325.08	70000	5080	91260	0	25500	292	280.00	115.80	0	1532.92	$ 0.30	
	31	60	8	520	366.76	70000	0	90980	0	25500	291	280.00	115.80	0	1573.70	#DIV/0!	AVE TOTAL
			TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL		MONTH/LB
			64	$ 4,160	2,376.98	446,000	26,559	634,380	-	176,000	$ 2,030.02	$ 2,240.00	$ 799.26		$ 11,606		$ 0.44

BIO-BUILDING RUN LOG

MONTH
JULY 2014

DATE	Cent #1 Feed (GPM)	Cent #1 Polymer (Panel)	Cent #1 Polymer Multiplier	Cent #1 Load (SP)	Cent #2 Feed (GPM)	Cent #2 Polymer (Panel)	Cent #2 Polymer Multiplier	Cent #2 Load (SP)	Cent Sludge (avg. %)	Cent Cake (avg. %)	Sludge Flow P-ST-3 (x1000)	Sludge Flow P-ST-4 (x1000)	Batch Tank Level (ft.)	Dryer Feed Time (hours)	Dryer Feed Pump (1 or 2)	WCP Dryer Feed (%)	WCP Dryer Feed GPM	Dryer Solids (avg. %)	Dry-Out (hours)	Cool Down (hours)	poly use in	Total KWH	Total Gas	Total Water
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
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15																								
16																								
17																								
18																								
19																								
20																								
21	80	14	25	25	80	14	27	25	1.3	20.92	31	31	11								2.75			
22																								
23	80	14	25	25	80	14	27	25	1.3	20.92	19	19	11	2.00	2	60	21.6		4	1.1	1.5		255	93500
24	80	14	25	25	80	14	27	25	1.3	20.92	16	16	11	2.00	2	60	21.6		3.1	1.1	1.38		255	93500
25	105	16	25	25	105	17	27	25	1.3	20.5	24	24	11	1.40	1	60	21.6		4.25	1.3	2		230	86410
26																								
27																								
28	80	13	24	29	80	14	27	29	1.3	22.2	27	27	11	1.70	1	60	21.6		3	1	2		255	86500
29	100	11	21	32	100	13	22	32	1.46	24.3	36	36	11	2.00	1	60	21.6		3.6	1	2.5		255	92230
30	100	11	21	25	100	13	22	25	1.5	23.5	35	35	11	2.00	1	60	21.6		3.25	1.1	2.34		255	91260
31	100	16	25	25	100	16	26	25	1.54		35	35	11	2.10	1	60	21.6		3	1	2.64		255	90980
									0.85					13.2										

BIO-BUILDING RUN LOG

MONTH
AUG 2014

DATE	WCP Dryer Feed (%)	hours of operation @ $65.00/HR	operator wage	poly cost @ 65.53 LBS/IN*$2.12/ LBS	total sludge flow	total dry pounds	total water use	total kwh	total gas	water cost $3.20 / 1000	kwh cost @ $35.00 / KW	gas cost @ $ 1.0127 / THERM	maintenance cost per hour	daily cost	cost per lbs dry solids	AVE PRICE PER DRY POUND OF RUN
1	0		0	382.04	60000	0	0	0	0	0	0.00	0.00	0	382.04	#DIV/0!	
2	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
3	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
4	42	10	650	416.77	64000	8807	128230	0	60700	410	350.00	275.65	0	2102.76	$ 0.24	
5	42	10	650	416.77	64000	9045	118670	0	36500	380	350.00	165.76	0	1962.27	$ 0.22	
6	45	10	650	694.62	100000	9335	118750	0	37600	380	350.00	170.75	0	2245.37	$ 0.24	
7	45	10	650	694.62	100000	9274	117880	0	40900	377	350.00	185.74	0	2257.57	$ 0.24	
8	60	3	195	486.23	68000	4756	93360	0	25500	299	105.00	115.80	0	1200.79	$ 0.25	
9	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
10	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
11	45	10	650	694.62	64000	9302	124420	0	40900	398	350.00	185.74	0	2278.50	$ 0.24	
12	45	10	650	500.12	51000	192	102780	0	1700	329	350.00	7.72	0	1836.74	$ 9.57	
13	45	12	780	777.97	98000	9322	160280	0	42700	513	420.00	193.91	0	2684.78	$ 0.29	
14	45	8	520	466.23	58000	5618	125950	0	26800	403	280.00	121.71	0	1810.98	$ 0.32	
15	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
16	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
17	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
18	45	10	650	382.04	50000	6029	113010	0	30900	362	350.00	140.32	0	1884.00	$ 0.31	
19	45	10	650	382.04	50000	3332	104150	0	22100	333	350.00	100.36	0	1815.68	$ 0.54	
20	45	10	650	382.04	50000	3447	92620	0	20900	296	350.00	94.91	0	1773.34	$ 0.51	
21	45	10	650	277.85	40000	1833	85250	0	15000	273	350.00	68.12	0	1618.77	$ 0.88	
22	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
23	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
24	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
25	45	12	780	1285.04	86000	10671	142620	0	49600	456	420.00	225.25	0	3166.67	$ 0.30	
26	45	12	780	1371.87	98000	10934	134680	0	46400	431	420.00	210.71	0	3213.56	$ 0.29	
27	45	12	780	1354.51	112000	10088	137630	0	44000	440	420.00	199.82	0	3194.74	$ 0.32	
28	45	12	780	764.08	102000	10555	145040	0	53000	464	420.00	240.69	0	2668.89	$ 0.25	
29	45	14	910	0.00	0	11712	159720	0	59600	511	490.00	270.66	0	2181.78	$ 0.19	
30	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	
31	0		0	0.00	0	0	0	0	0	0	0.00	0.00	0	0.00	#DIV/0!	AVE TOTAL
		TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL		MONTH/LB
		185	$ 12,025	$ 11,749	1,315,000	134,251	2,205,040	-	654,800	$ 7,056.13	$ 6,475.00	$ 2,973.61		$ 40,279		$ 0.30

BIO-BUILDING RUN LOG

MONTH
AUG 2014

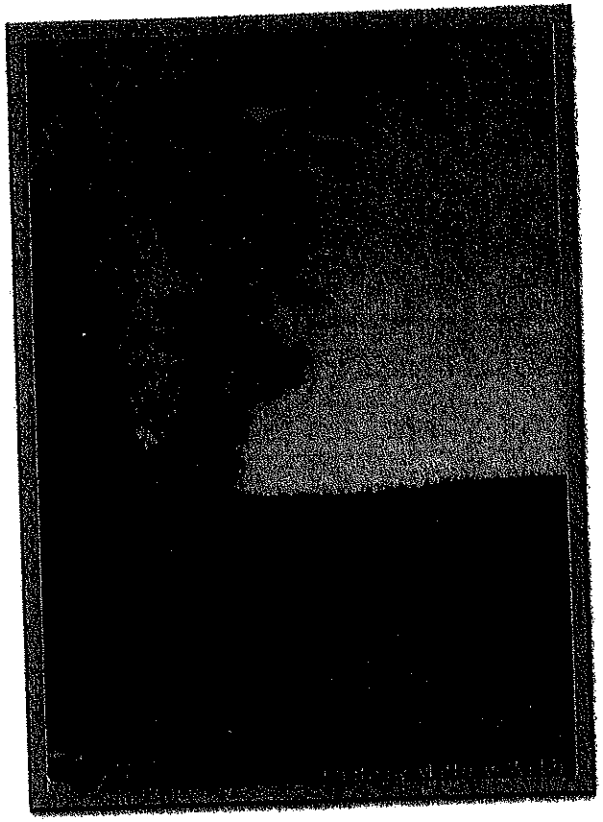
DATE	Cent #1 Feed (GPM)	Cent #1 Polymer (Panel)	Cent #1 Polymer Multiplier	Cent #1 Load (SP)	Cent #2 Feed (GPM)	Cent #2 Polymer (Panel)	Cent #2 Polymer Multiplier	Cent #2 Load (SP)	Cent Sludge (avg. %)	Cent Cake (avg. %)	Sludge Flow P-ST-3 (x1000)	Sludge Flow P-ST-4 (x1000)	Batch Tank Level (ft.)	Dryer Feed Time (hours)	Dryer Feed Pump (1 or 2)	WCP Dryer Feed (%)	WCP Dryer Feed GPM	Dryer Solids (avg. %)	Dry-Out (hours)	Cool Down (hours)	poly use in	Total KWH	Total Gas	Total Water	Trans port count
1	100	17	27	25	100	17	29	25	1.5	23	30	30									2.75				
2																									
3																									
4	90	16	29.8	24.9	90	16	31.2	25.3	1.64	23.28	32	32	11	5	1	42	15.12	99.77	2.45	1	3		607	128230	22
5	90	16	29	25	90	16	30	25	1.59	23.91	32	32	7	5	1	42	15.12	99.62	2.4	1	3		365	118670	29
6	100	19	31	25	100	19	33	25	1.54	23.03	50	50	7	5.00	2	45	16.2	99.9	2.4	1	5		376	118750	31
7	100	21	34	25	100	21	38	25	1.54	22.88	50	50	7	5.00	2	45	16.2	99.8	2.4	1	5		409	117880	33
8	80	17	34	15	80	17	18	15	1.56	22	34	34	7	2.00	3.3	60	21.6	99.5	3.3	1	3.5		255	93360	17
9																									
10																									
11	75	30	70	19	75	32	73	19	1.65	22.95	32	32	7	5.00	2	45	16.2	99.75	2.5	1.5	5		409	124420	23
12	80	17		22	80	19		22	1.76	23.68	26	25		0.10		45	16.2	99.5			3.6		17	102780	0
13	80	17		22	80	19		22	1.84	23	49	49	7	5.00	2	45	16.2	99.89	2.5	1	5.6		427	160280	33
14	80	17		24	80	19		24	2.06	23.1	29	29	6.4	3.00	2	45	16.2	99.91	4.1	1.2	3.5		268	125950	11
15																									
16																									
17																									
18	80	18	36	22	80	18	40	22	2.1	21.25	25	25	10.5	3.50	2	45	16.2	99.71	3.1	1.25	2.75		309	113010	23
19	80	18	37	22	80	19	44	22	2.03	20.55	25	25	10.5	2.00	1	45	16.2	99.83	3.5	1.33	2.75		221	104150	16
20	80	18	37	22	80	19	43	22	1.99	21.26	25	25	10.5	2.00	1	45	16.2	99.53	3.5	1.5	2.75		209	92620	11
21	70	12	27	15	70	13	32	15	2.01	17.39	20	20	10.5	1.30	1	45	16.2	99.68	3.2	1.7	2		150	85250	7
22																									
23																									
24																									
25	80	30	local	25	80	27	local	25	1.98	21.94	43	43	10.5	6.00	1	45	16.2	99.76	3.5	1.083	9.25		496	142620	43
26	80	29	local	25	80	27	local	25	2.055	22.48	49	49	10.4	6.00	1	45	16.2	99.07	3.33	1.03	9.88		464	134680	29
27	85	28	local	25	85	25	local	25	2.05	20.74	56	56	9.3	6.00	2	45	16.2	99.64	3.25	1.03	9.75		440	137630	42
28	100	22	local	15	100	22	local	15	2	21	51	51	1	6.20	2	45	16.2	99.5	3	1.05	5.5		530	145040	41
29										21			1	6.88	1	45	16.2	99.67	4	1.33			596	159720	48
30																									
31																									
									32.895																
									1.8275																

BIG LAKE BIO SOLIDS

SEPTEMBER 2013 - AUG 2014

2013	MONTHLY GALLONS WASTED	MONTHLY GALLONS PROCESSED	AVE PERCENT SOLIDS	POUNDS SOLIDS	ELEC	GAS	WATER	CHEM	WAGE
SEPTEMBER	249,000	-	0	-	$ -				
OCTOBER	327,000	-	0	-	$ -				
NOVEMBER	306,000	1,268,000	1.91	201,985	$ 10,144.00	$ 3,763.34	$ 7,099.14	$ 5,036.00	$ 11,635.00
DECEMBER	301,000	-	0	-	$ -				
2014				-	$ -				
JANUARY	175,000	-	0	-	$ -				
FEBRUARY	256,000	-	0	-	$ -				
MARCH	290,000	-	0	-	$ -				
APRIL	541,000	1,076,000	2.1	188,451	$ 8,608.00	$ 4,564.42	$ 8,604.86	$ 5,218.00	$ 14,170.00
MAY	342,000	403,000	2.06	69,237	$ 3,224.00	$ 1,641.21	$ 2,884.32	$ 1,987.00	$ 5,850.00
JUNE	377,000	-	0	-	$ -				
JULY	300,000	446,000	1.3	48,355	$ 3,568.00	$ 799.26	$ 2,030.02	$ 2,376.98	$ 910.00
AUGUST	331,000	1,315,000	1.82	199,601	$ 10,520.00	$ 2,973.61	$ 7,056.13	$ 11,749.00	$ 12,025.00
	TOTAL GALLONS	TOTAL GALLONS	AVE SOLIDS	TOTAL POUNDS	TOTAL ELEC	TOTAL GAS	TOTAL WATER	TOTAL CHEM	TOTAL WAGE
	3,795,000	4,508,000	1.84	707,629	$ 36,064.00	$ 13,741.84	$ 27,674.47	$ 26,366.98	$ 44,590.00

WASTING MONTHLY AVE	PROCESS MONTHLY AVE	TOTAL UTILITY COST	UTILITY COST PER POUND	UTILITY COST PER 1000 GAL	TOTAL COST PER GAL PROCESSED
316,250	375,667	$ 103,847.29	$ 0.15	$ 23.04	$ 0.02
WASTING WKLY AVE	PROCESS WKLY AVE	TOTAL COST WITH WAGE			WITH WAGE TOTAL COST PER GAL PROCESSED
72,981	86,692	$ 148,437.29	WITH WAGE COST PER POUND	WITH WAGE COST PER 1000 GAL	$ 0.0329
WASTING DAILY AVE	PROCESS DAILY AVE				
10,397	12,351		$ 0.21	$ 32.93	



CERTIFICATE OF COMMENDATION

Awarded to the

City of Big Lake
and its wastewater treatment facility staff

Winner of 17 Certificates of Commendation since 1982

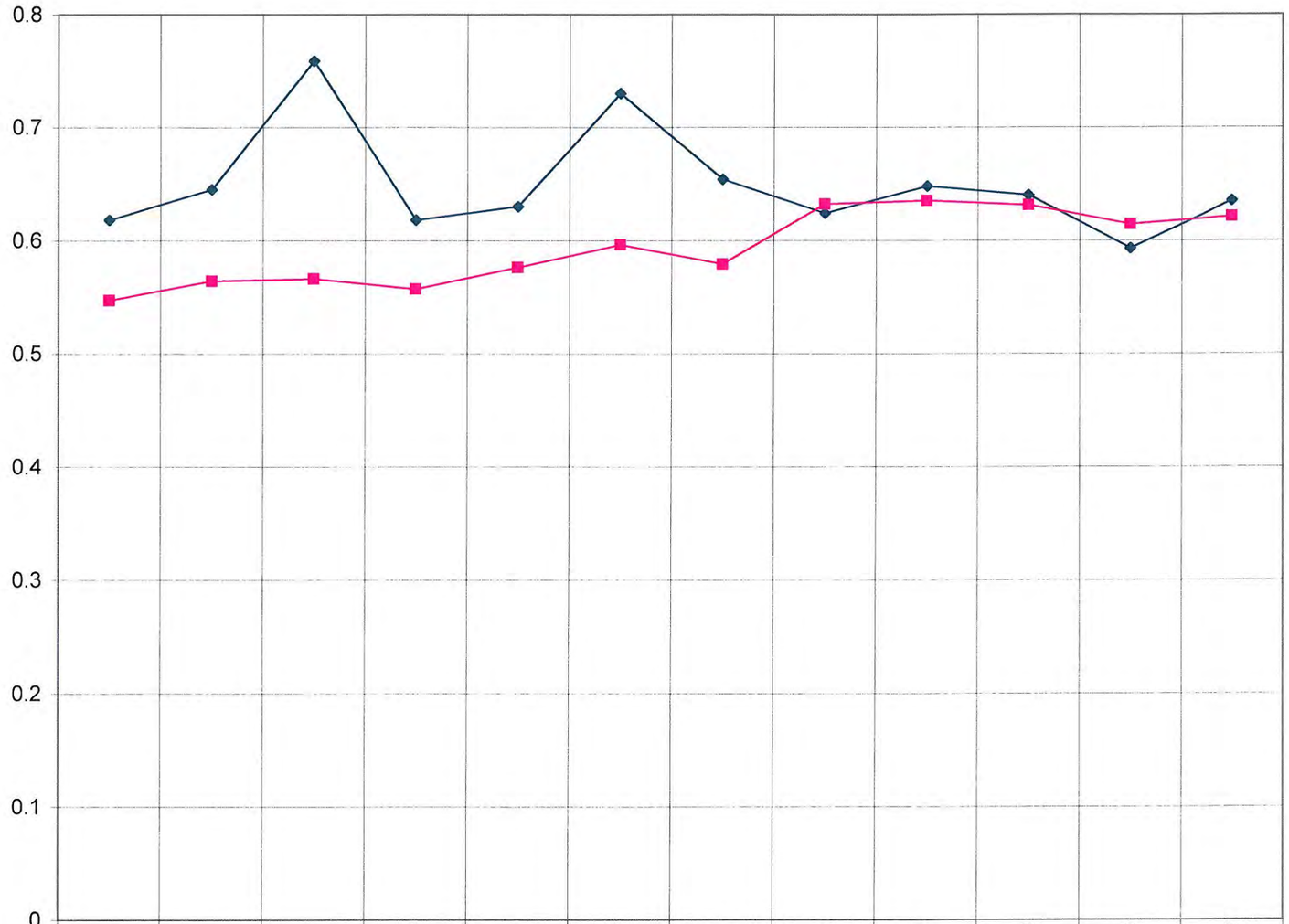
Recognizing exemplary effort expended in the year 2013 to comply with the Minnesota Pollution Control Agency's Permit Program. Your efforts help protect and preserve the waters of Minnesota.

March 26, 2014

John Linc Stine, Commissioner

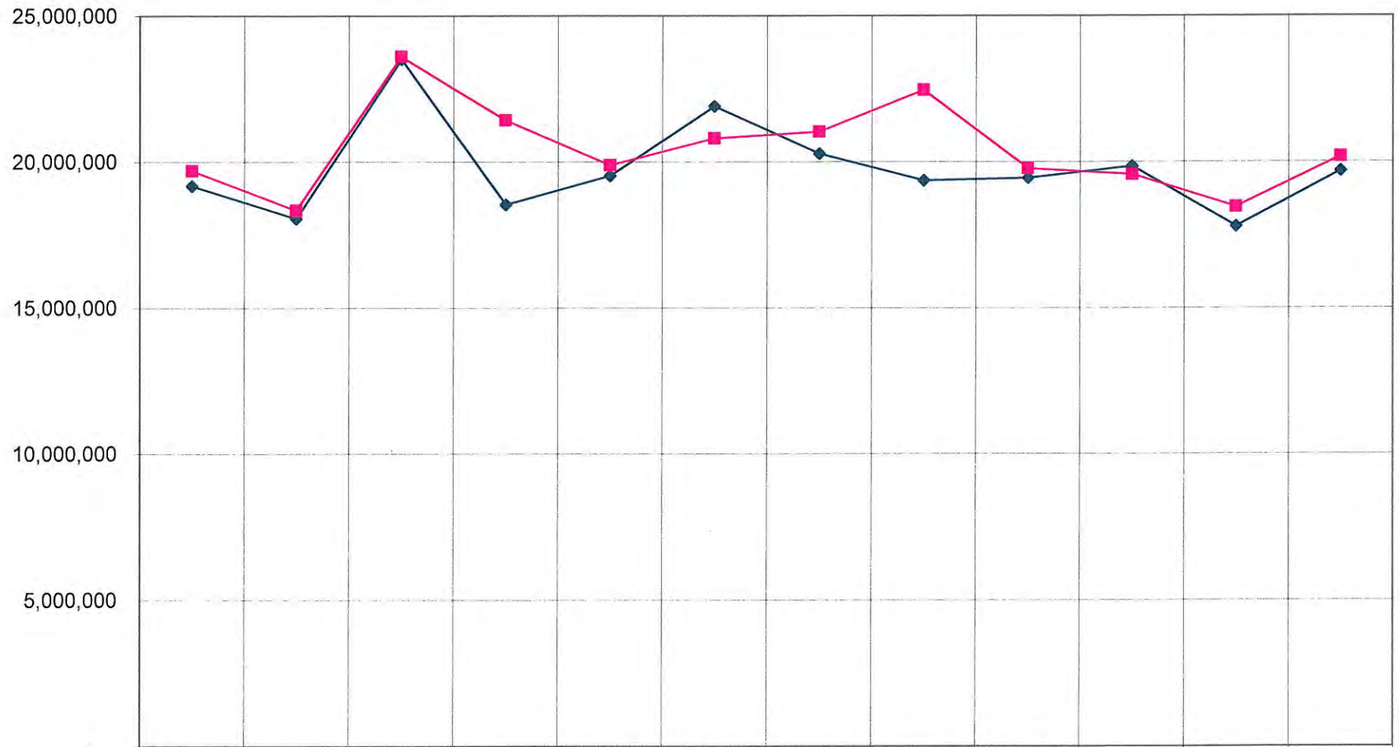
Minnesota Pollution Control Agency

2014-2013 Average Waste Water Influent Flow



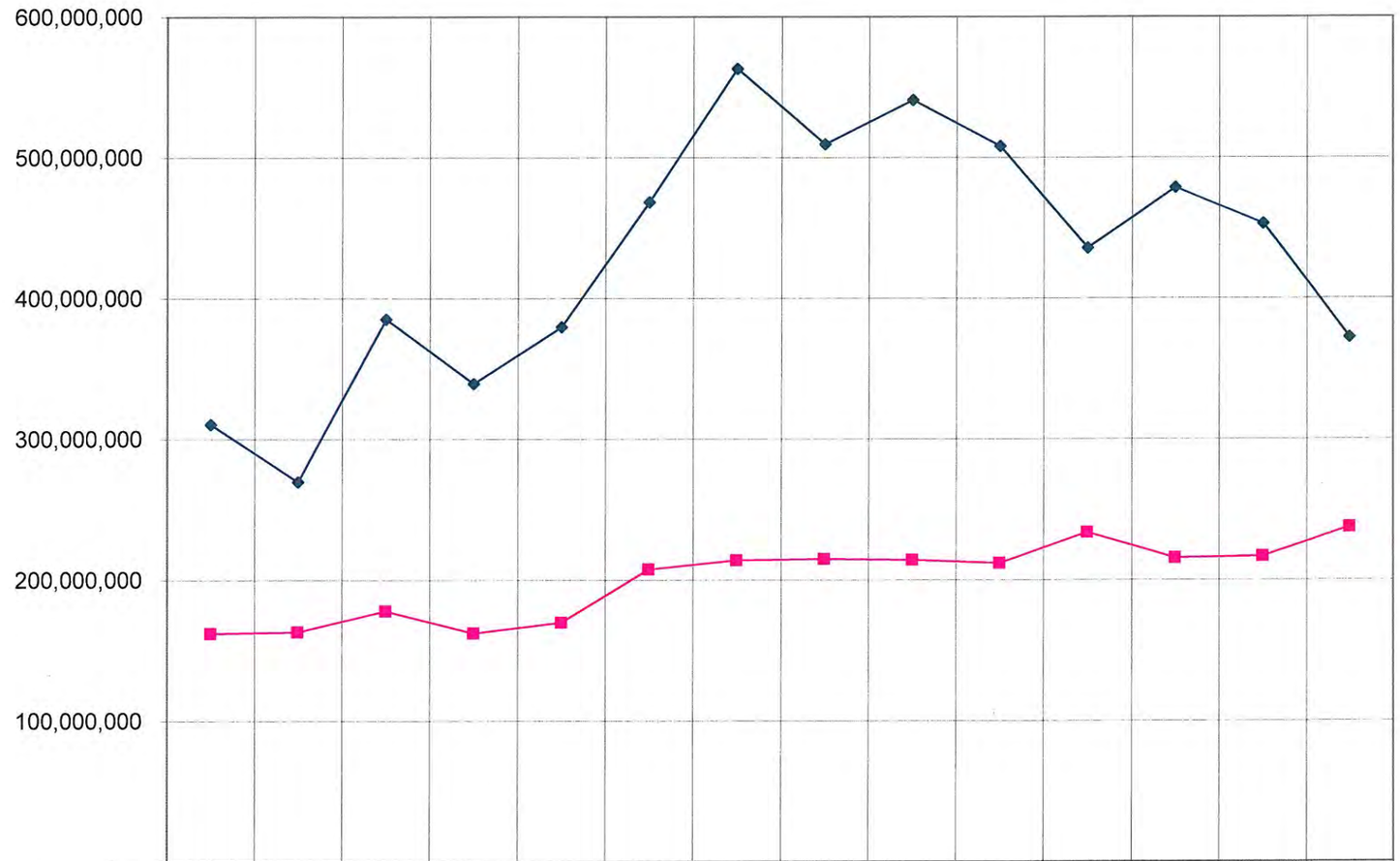
	1	2	3	4	5	6	7	8	9	10	11	12
2014 INF AVE FLOW	0.618	0.645	0.759	0.618	0.63	0.73	0.654	0.624	0.648	0.64	0.593	0.635
2013 INF AVE FLOW	0.547	0.564	0.566	0.557	0.576	0.596	0.579	0.632	0.635	0.631	0.614	0.621

2014 WASTEWATER MONTHY INFLUENT AND EFFLUENT FLOW

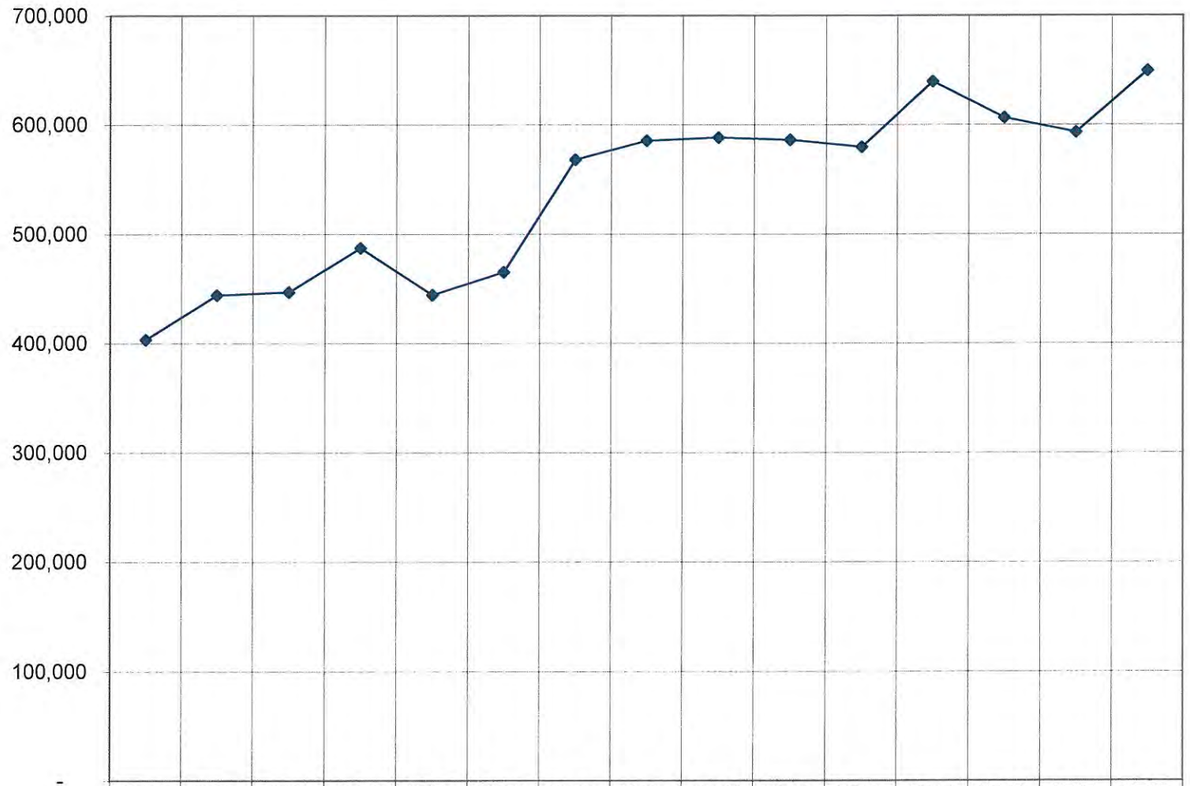


	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
WW INF	19,172,000	18,059,000	23,514,000	18,530,000	19,524,000	21,900,000	20,279,000	19,355,000	19,445,000	19,843,000	17,785,000	19,683,000
WW EFF.	19,689,000	18,337,000	23,601,000	21,423,000	19,874,000	20,792,000	21,019,000	22,451,000	19,768,000	19,552,000	18,449,000	20,170,000

Well V.S. Wastewater Yearly Totals

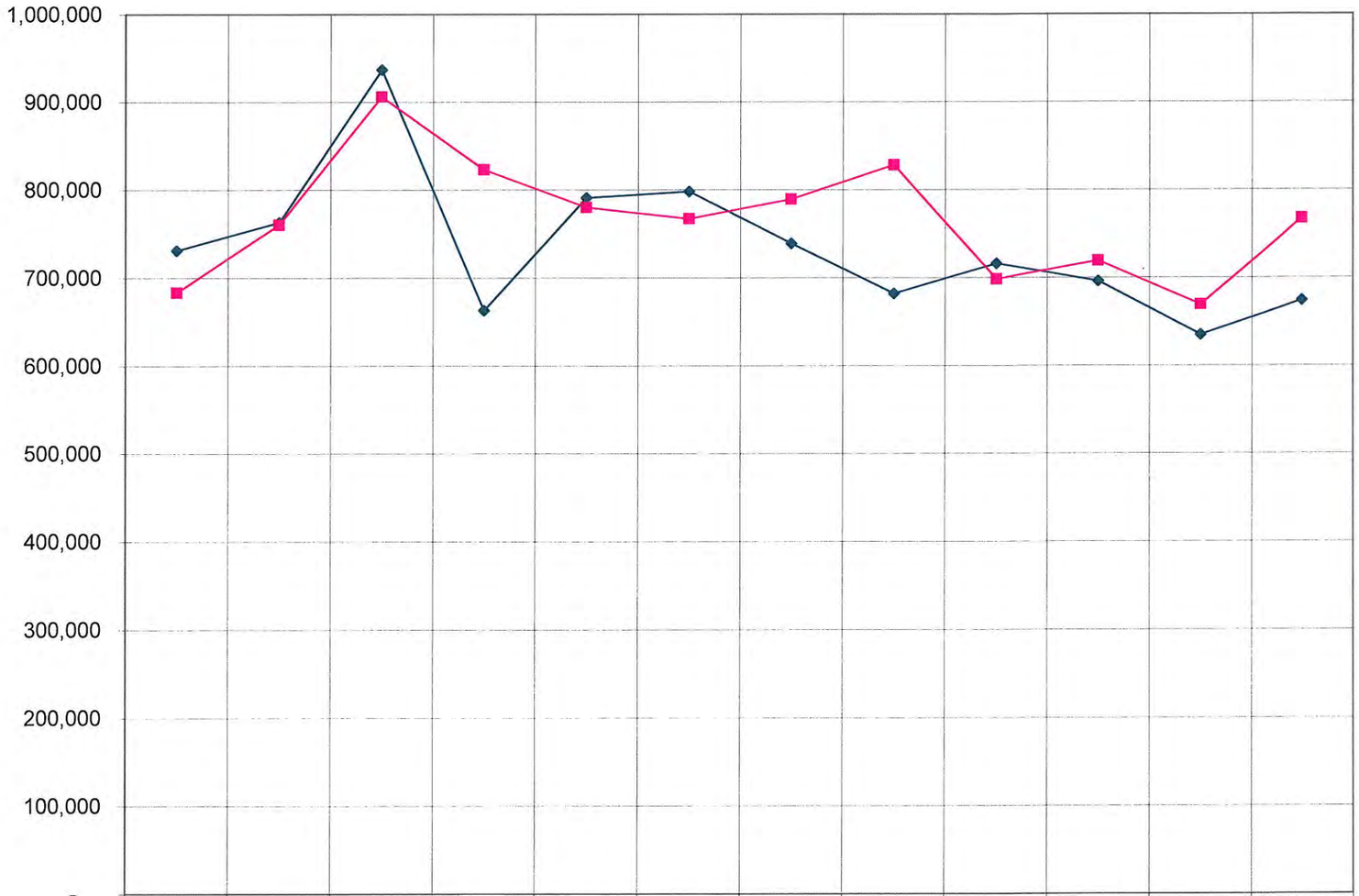


	YEAR 2001	YEAR 2002	YEAR 2003	YEAR 2004	YEAR 2005	YEAR 2006	YEAR 2007	YEAR 2008	YEAR 2009	YEAR 2010	YEAR 2011	YEAR 2012	YEAR 2013	YEAR 2014
TOTAL WELL YEARLY	310,423,400	269,630,000	385,159,000	339,293,000	379,623,515	468,332,000	563,098,800	509,491,000	540,803,008	507,951,500	435,673,000	478,606,363	452,962,205	372,058,000
TOTAL WASTEWATER INF YEARLY	162,059,000	163,125,000	177,796,000	162,215,000	169,759,000	207,350,000	213,692,000	214,716,000	213,931,000	211,586,000	233,416,000	215,357,000	216,503,000	237,088,000



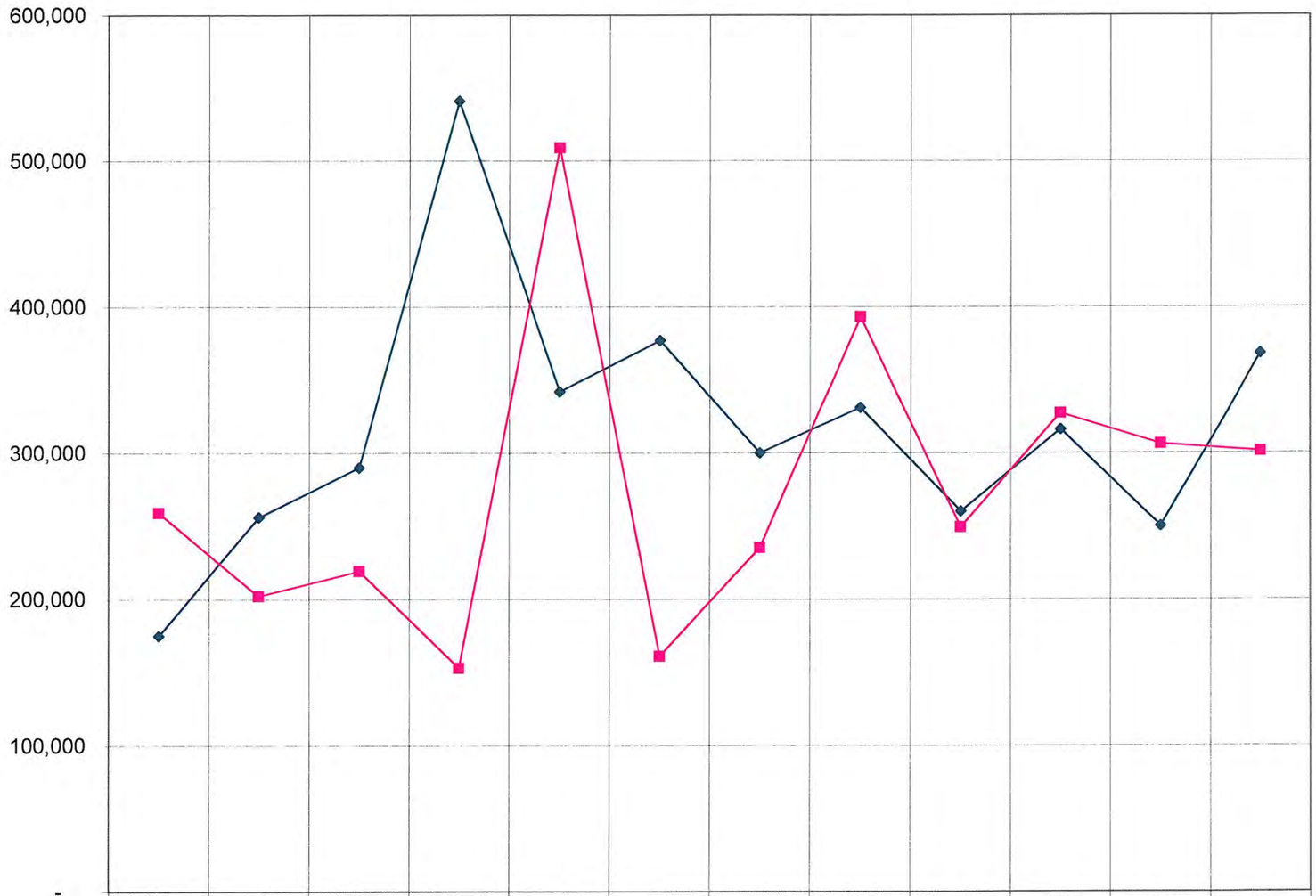
	YEAR 2000	YEAR 2001	YEAR 2002	YEAR 2003	YEAR 2004	YEAR 2005	YEAR 2006	YEAR 2007	YEAR 2008	YEAR 2009	YEAR 2010	YEAR 2011	YEAR 2012	YEAR 2013	YEAR 2014
WASTE WATER YRLY AVE DAY	403,274	443,997	446,918	487,112	444,425	465,093	568,082	585,458	588,263	586,112	579,688	639,496	606,249	593,159	649,556

2014 WASTEWATER INF .VS EFF FLOW MAXIMUM MONTHLY



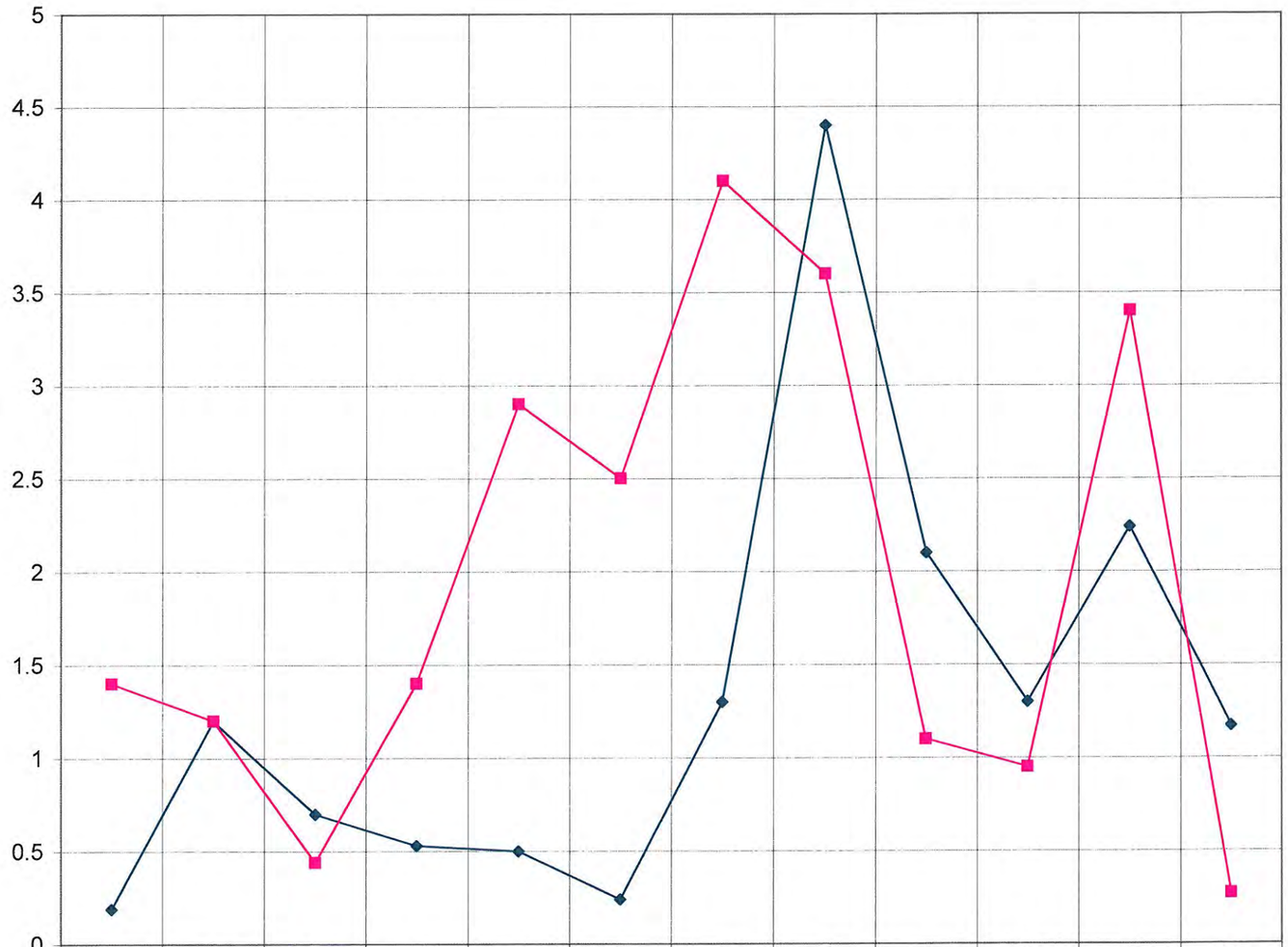
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
2014 MAX INF FLOW	731,000	763,000	937,000	663,000	791,000	798,000	739,000	682,000	716,000	696,000	635,000	674,000
2014 MAX EFF FLOW	683,000	760,000	906,000	823,000	780,000	767,000	789,000	828,000	698,000	719,000	669,000	767,000

2014-2013 Waste Water Monthly Total Waste Gallons



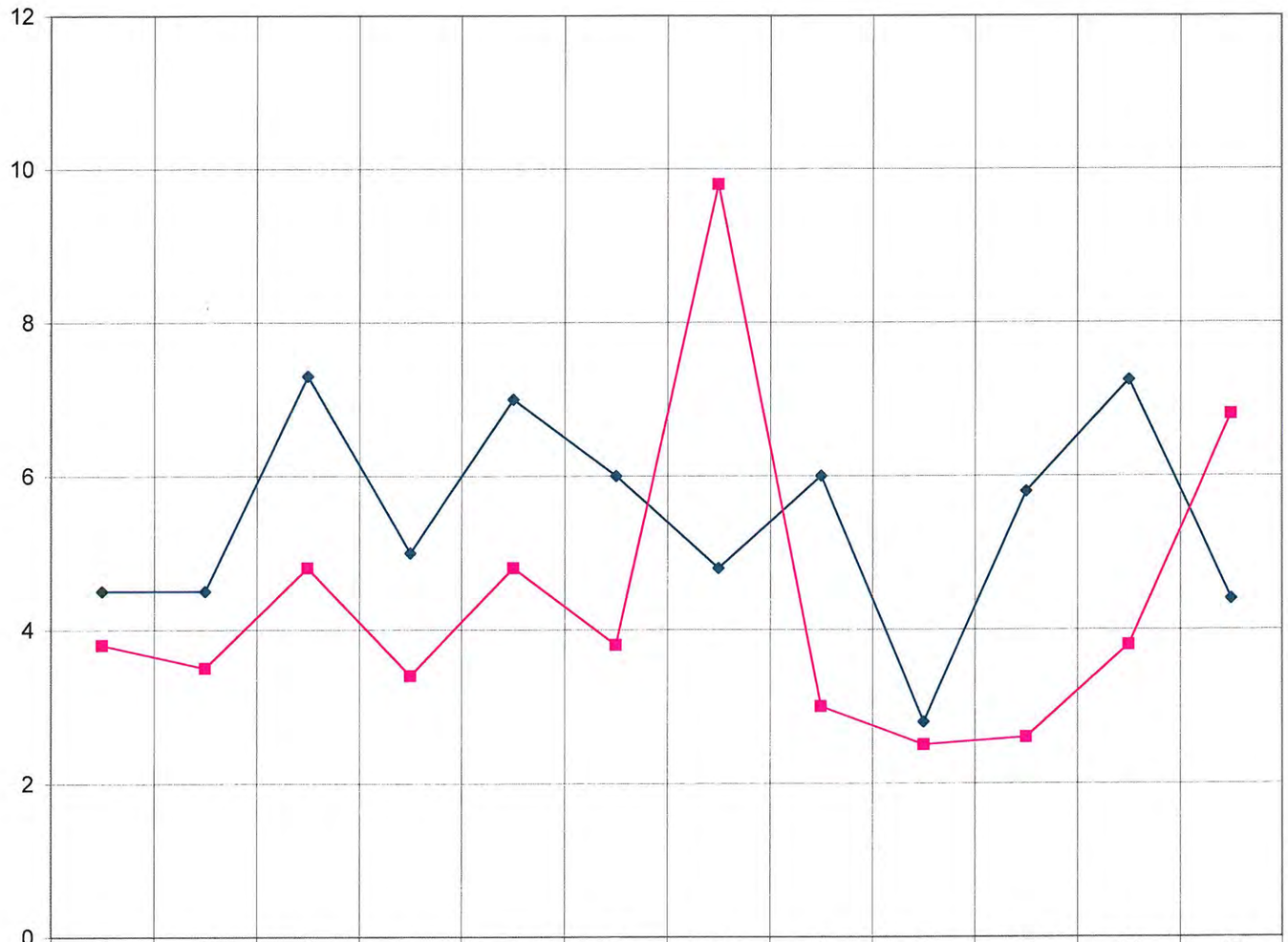
	1	2	3	4	5	6	7	8	9	10	11	12
2014 WAS FLOW	175,000	256,000	290,000	541,000	342,000	377,000	300,000	331,000	260,000	316,000	250,000	368,000
2013 WAS FLOW	259,000	202,000	219,000	153,000	509,000	161,000	235,000	393,000	249,000	327,000	306,000	301,000

2014-2013 Waste Water Average Effluent Phosphuros



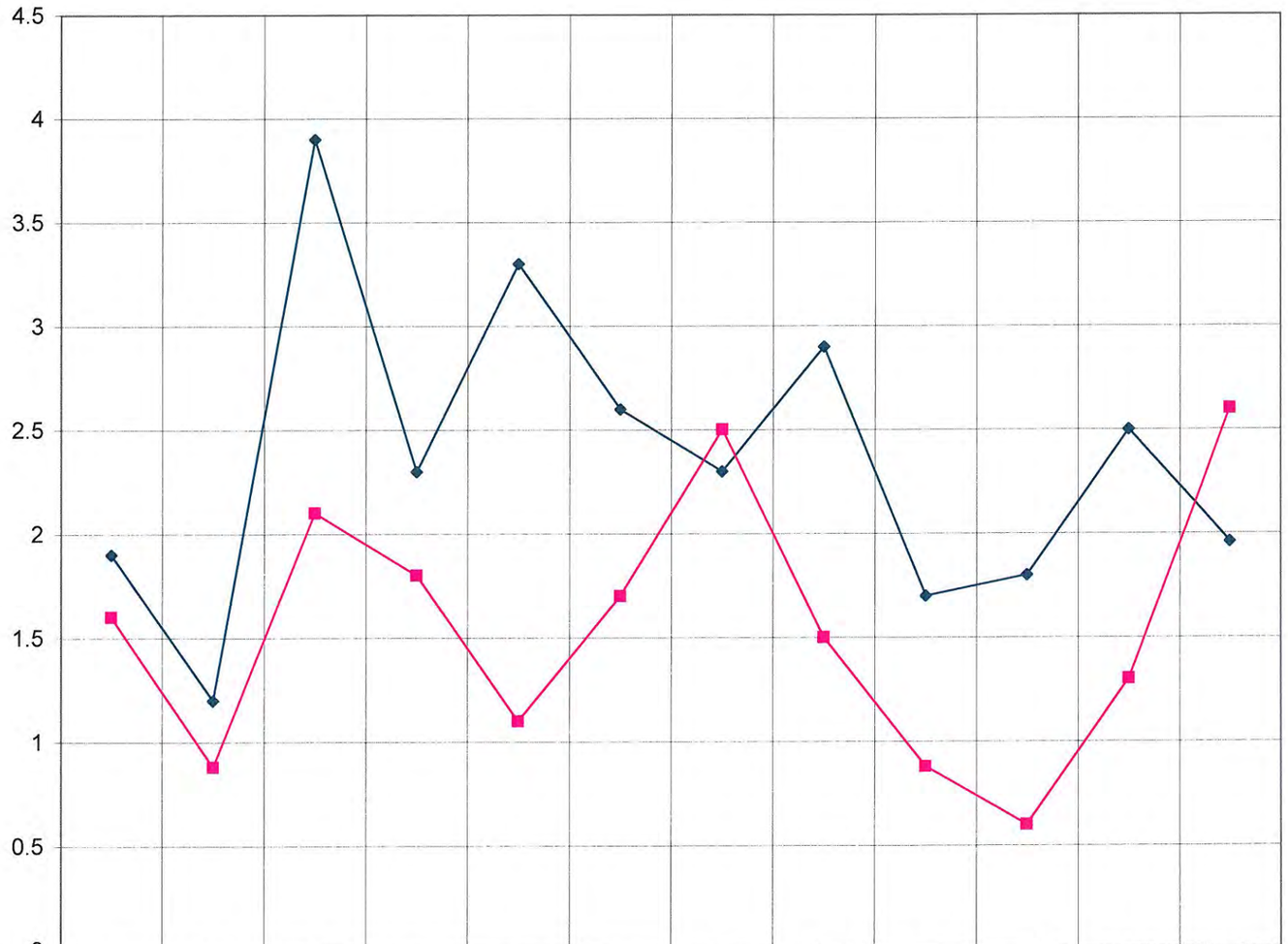
	1	2	3	4	5	6	7	8	9	10	11	12
2014 PHOS AVE EFF	0.19	1.2	0.7	0.53	0.5	0.24	1.3	4.4	2.1	1.3	2.24	1.17
2013 PHOS AVE EFF	1.4	1.2	0.44	1.4	2.9	2.5	4.1	3.6	1.1	0.95	3.4	0.27

2014-2013 Waste Water Average Effluent TSS



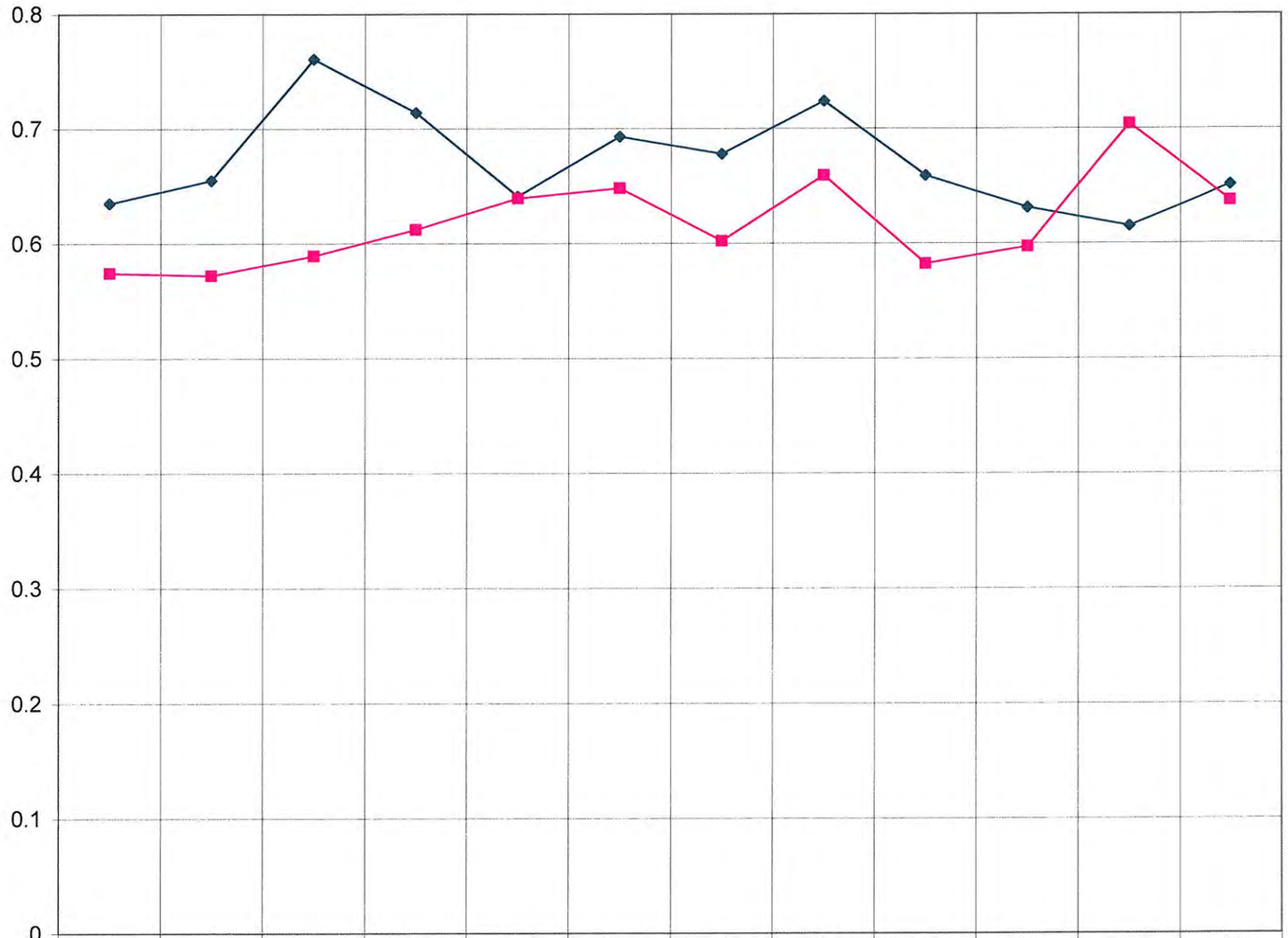
	1	2	3	4	5	6	7	8	9	10	11	12
2014 TSS EFF AVE	4.5	4.5	7.3	5	7	6	4.8	6	2.8	5.8	7.25	4.4
2013 TSS EFF AVE	3.8	3.5	4.8	3.4	4.8	3.8	9.8	3	2.5	2.6	3.8	6.8

2014-2013 Waste Water Average Effluent CBOD



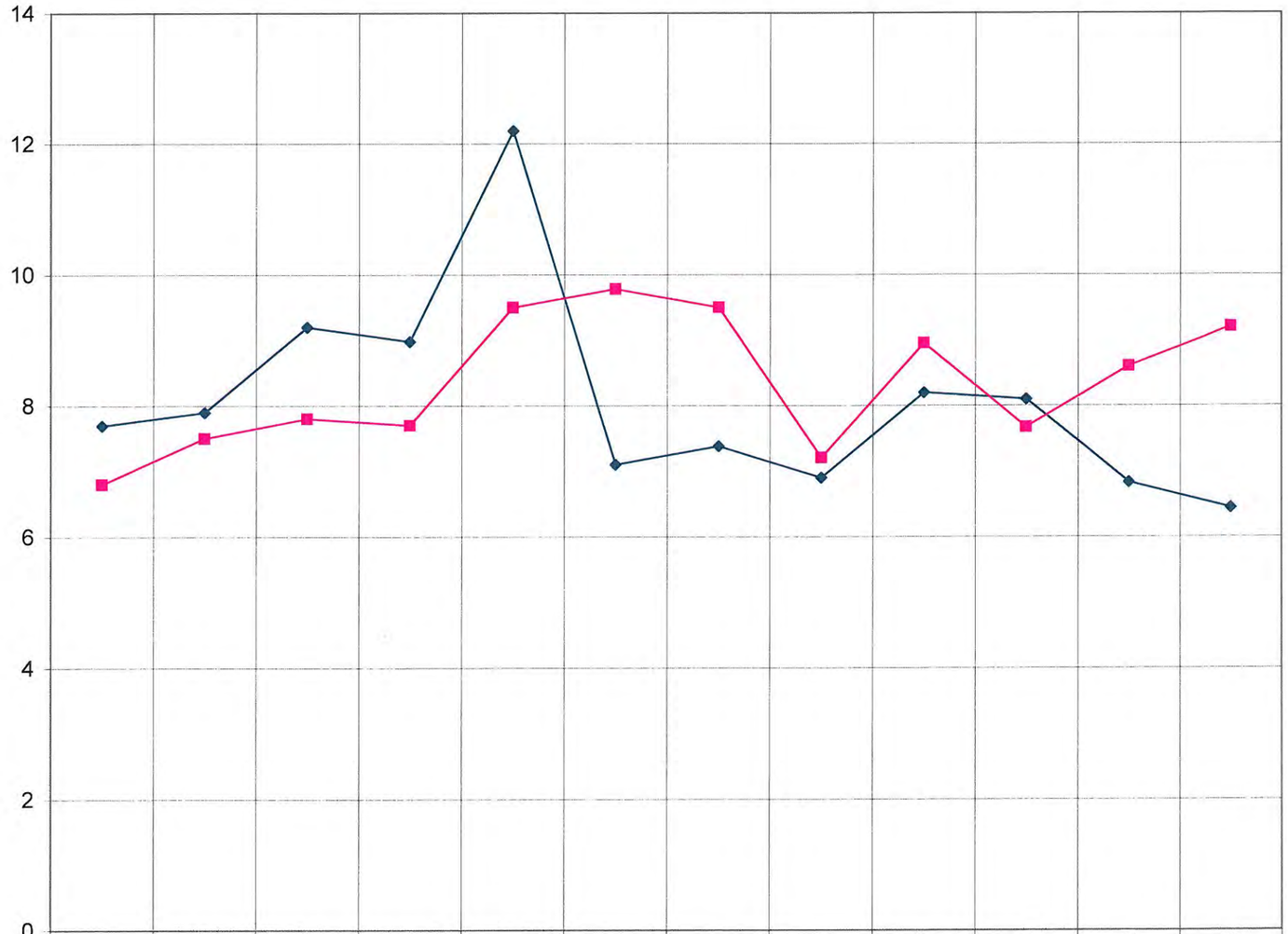
	1	2	3	4	5	6	7	8	9	10	11	12
2014 CBOD EFF AVE	1.9	1.2	3.9	2.3	3.3	2.6	2.3	2.9	1.7	1.8	2.5	1.96
2013 CBOD EFF AVE	1.6	0.88	2.1	1.8	1.1	1.7	2.5	1.5	0.88	0.6	1.3	2.6

2014-2013 Waste Water Average Effluent Flow



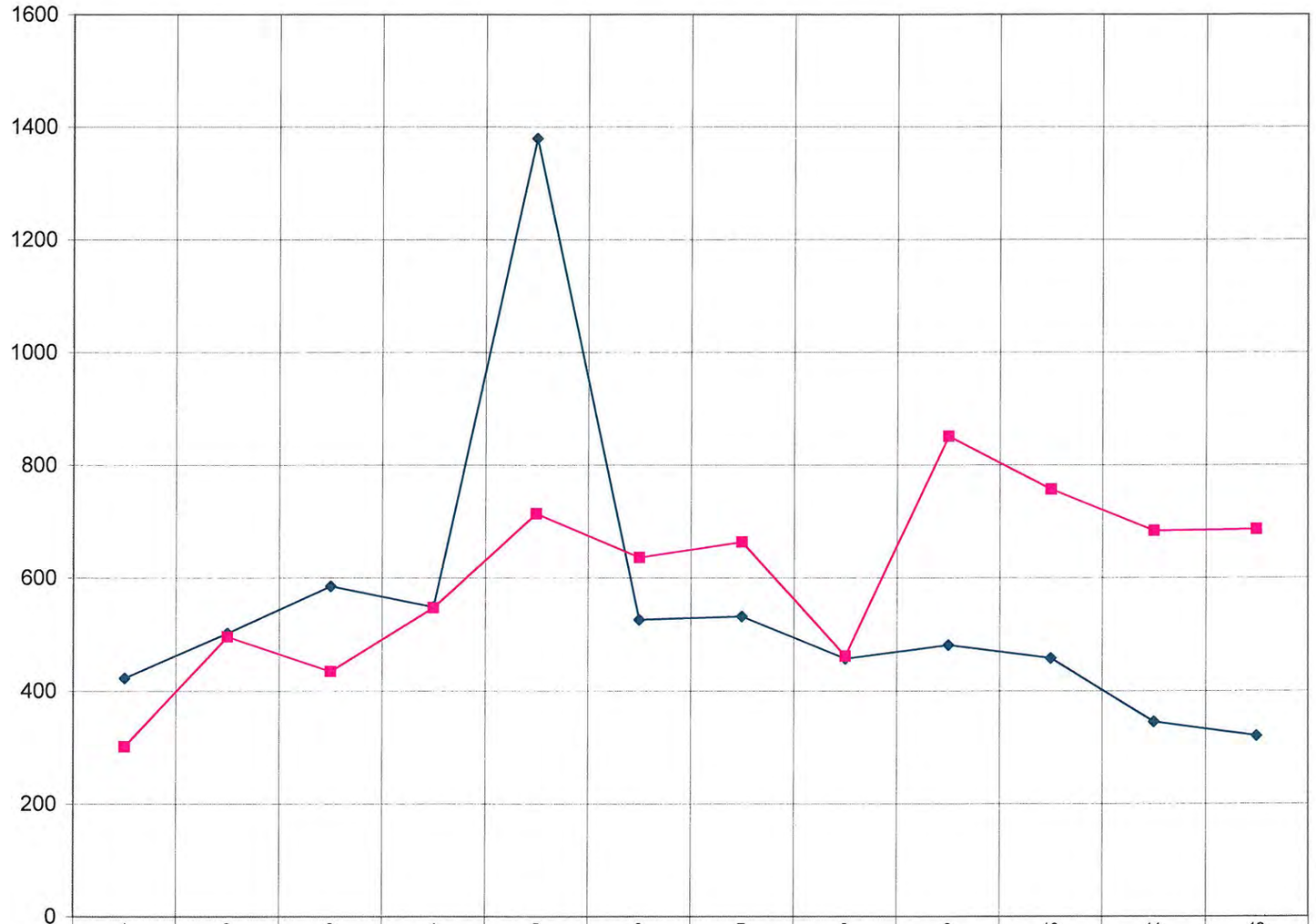
	1	2	3	4	5	6	7	8	9	10	11	12
2014 EFF AVE FLOW	0.635	0.655	0.761	0.714	0.641	0.693	0.678	0.724	0.659	0.631	0.615	0.651
2013 EFF AVE FLOW	0.574	0.572	0.589	0.612	0.639	0.648	0.602	0.659	0.582	0.597	0.704	0.637

2014-2013 Waste Water Average Influent Phosphorus



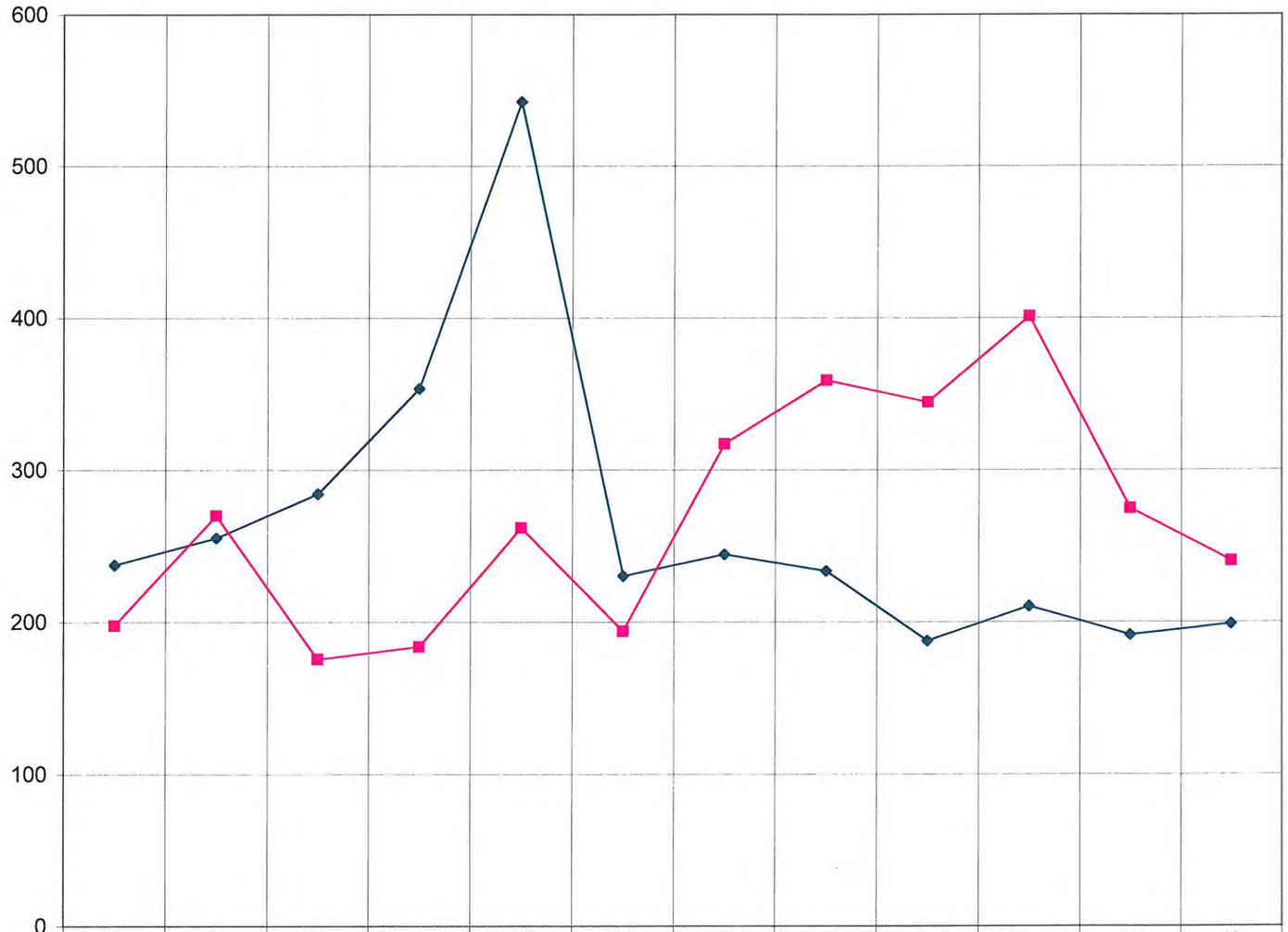
	1	2	3	4	5	6	7	8	9	10	11	12
2014 PHOS AVE INF	7.7	7.9	9.2	8.98	12.2	7.1	7.38	6.9	8.2	8.1	6.83	6.44
2013 PHOS AVE INF	6.8	7.5	7.8	7.7	9.5	9.78	9.5	7.2	8.95	7.67	8.6	9.2

2014-2013 Average Waste Water Influent TSS



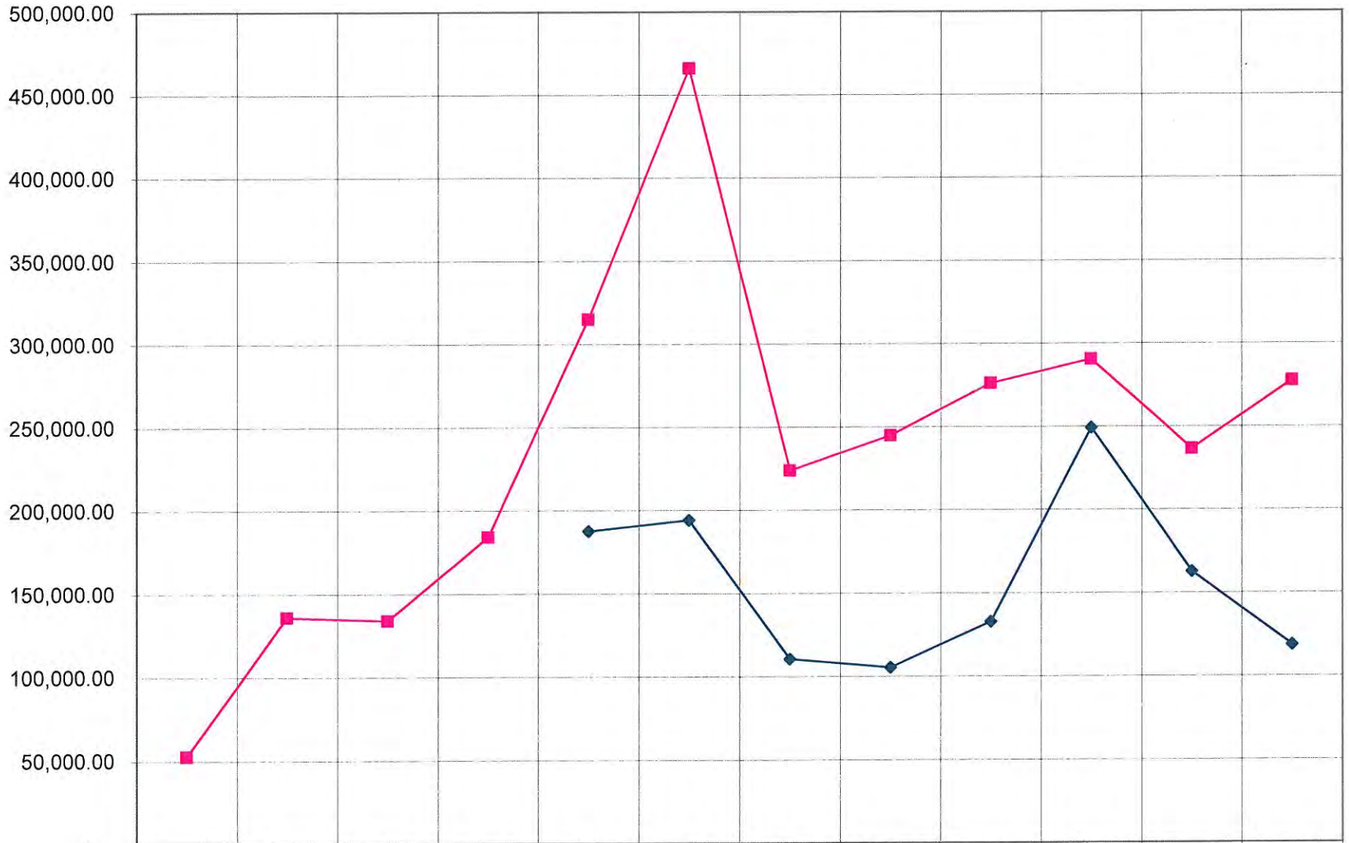
	1	2	3	4	5	6	7	8	9	10	11	12
2014 TSS INF AVE	422.8	502	585.5	548.4	1379.5	526.3	532	457	481	457.8	345.5	320.4
2013 TSS INF AVE	301.4	495.5	434.3	547	713.5	635.8	663	461	850.5	756.2	683.25	685.6

2014-2013 Average Waste Water Influent CBOD



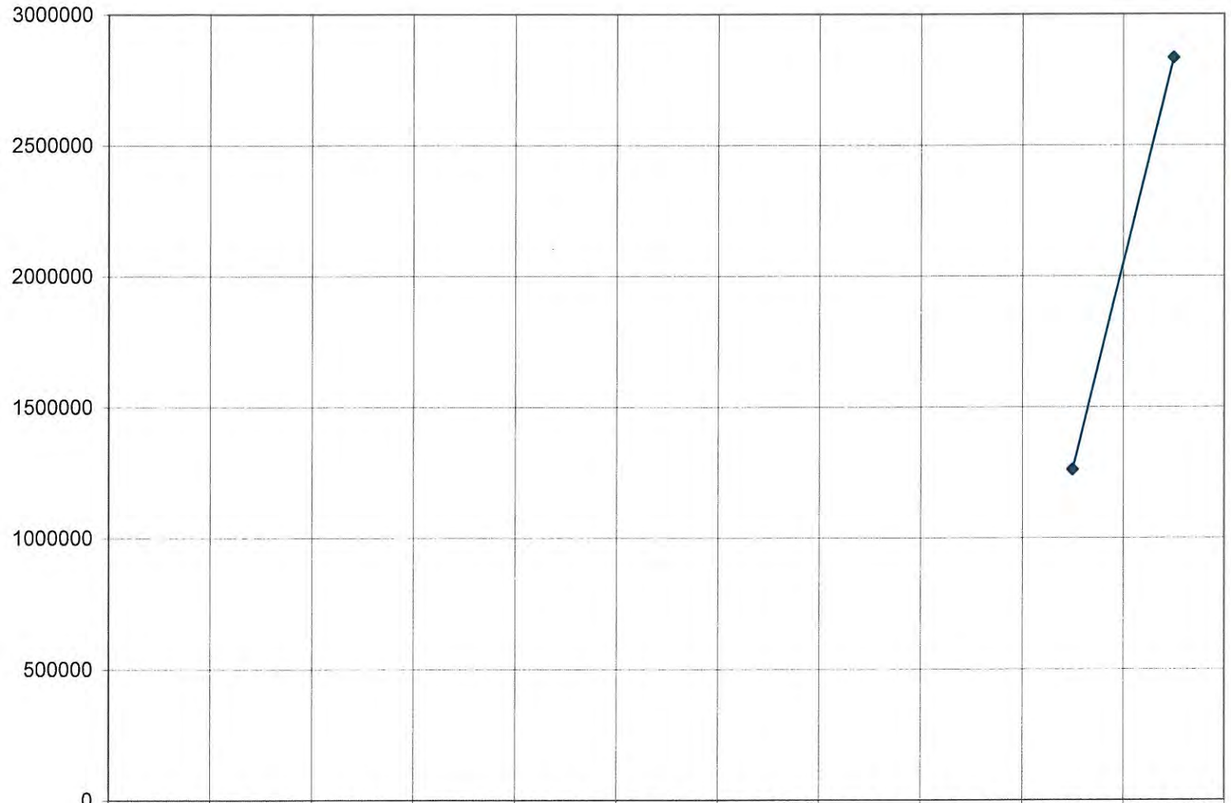
	1	2	3	4	5	6	7	8	9	10	11	12
2014 CBOD INF AVE	237.5	255.3	284.3	353.6	542.5	230.3	244.4	233.5	187.6	210.3	191.5	198.8
2013 CBOD INF AVE	197.6	269.8	175.5	183.6	261.8	193.8	317	358.8	344.5	401	274.5	240

MONTHLY SEPTAGE



	January	February	March	April	May	June	July	August	September	October	November	December
2013 SEPTAGE					187,500.00	194,050.00	110,500.00	105,300.00	132,800.00	249,100.00	162,600.00	118,585.00
2014 SEPTAGE	52,450.00	135,750.00	133,800.00	183,850.00	314,700.00	465,830.00	223,650.00	244,580.00	275,950.00	290,225.00	236,200.00	277,250.00

YEARLY SEPTAGE TOTAL



	YEAR 2004	YEAR 2005	YEAR 2006	YEAR 2007	YEAR 2008	YEAR 2009	YEAR 2010	YEAR 2011	YEAR 2012	YEAR 2013	YEAR 2014
YEARLY SEPTAGE TOTAL										1,260,435	2,834,235