GRAND V
REGIONAL BIOSOLID

Wyoming Michigan | CITY OF GRAND RAPIDS

March 28, 2013

Mr. Dave Schipper
Environmental Quality Analyst
MDEQ – Grand Rapids District Office
350 Ottawa NW, Unit 10
Grand Rapids, MI 49503

RE: Grand Valley Regional Biosolids Authority Residuals Management Plan Submittal

Dear Mr. Schipper:

Please find following the Residuals Management Plan (RMP) for the Grand Valley Regional Biosolids Authority (GVRBA). The GVRBA was formed to cooperatively manage biosolids produced at both the City of Grand Rapids and City of Wyoming wastewater treatment facilities, and operates under Certificate of Coverage Number MIG960073. The GVRBA and DEQ previously agreed to submit a single RMP in lieu of three separate RMPs, and the attached document fulfills this agreement.

Please contact me with any related questions, and look forward to our continued relationship and commitment to operate a socially, environmentally and economically beneficial biosolids program.

On behalf of the GVRBA Board of Directors,

Aaron Vis
Operations Team Project Manager
GVRBA

GRAND VALLEY
REGIONAL BIOSOLIDS AUTHORITY

Wyoming Michigan — CITY OF GRAND RAPIDS

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NPDES Permit Number, State Groundwater Discharge Permit Number, or COC Number
MIG960073

State of Michigan
Biosolids Land Application Program

Facility Name
Grand Valley Regional Biosolids Authority (GVRBA)

Residuals Management Program Development Document

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RESOURCE MANAGEMENT DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

PURPOSE

The Michigan Biosolids Program establishes standards for the land application and beneficial recycling of biosolids in the state. Any treatment works treating domestic sewage proposing to land apply biosolids in the state shall prepare the enclosed Residuals Management Program (RMP) Guidance Document to obtain authorization. Authorization is required under the auspices of an individual NPDES Permit, a General Permit "Certificate of Coverage" (COC), or a State Groundwater Discharge Permit dependent upon the type of permit held by the generating facility proposing to land apply.

For assistance on completing any section in this document you may contact the appropriate DEQ Resource Management Division (RMD) Office listed in Appendix A.

Industrial or commercial facilities with process wastewater entering the waste stream do not qualify for issuance of a biosolids land application permit. Contact the DEQ Resource Management Division in the appropriate district office for information on handling commercial or industrial wastes.

AUTHORITY

The Part 24 Rules, Land Application of Biosolids, of Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, (NREPA) provide authority to issue Biosolids Land Application Permits. Completion and subsequent approval of this document meets the RMP requirements contained in Rule 2403, Land Application Permit of the Part 24 Rules. Failure to prepare and submit an RMP prior to land applying biosolids is a violation of Part 24 Rules and may result in penalties for such violation.

Rule 2403.

(1) A generator or distributor shall have a valid permit before commencing any biosolids land application or distribution activity in the state of Michigan.

(2) A generator or distributor shall submit a permit application on a form provided by the DEQ not less than 180 days before expiration of an existing permit, commencement of biosolids land application, or distribution of a biosolids derivative, except at retail.

(3) All of the following provisions apply to a residuals management program:

(a) A generator shall submit a residuals management program for approval by the DEQ as required by its permit.

(b) A residuals management program submitted to the DEQ shall include all of the following information:

(i) Size and type of generating facility.
(ii) One year of records representing the volume and concentrations of pollutants in the biosolids.
(iii) Treatment process origin, for example, primary or secondary treatment and the volume of biosolids generated from each process.
(iv) A description of the treatment processes.
(v) Storage volume.
(vi) Transportation methods and spill prevention plan.
(vii) Land application method.
(viii) Land application site list.
(ix) Land application plan.
(x) Pathogen reduction method.
(xi) Vector attraction reduction method.
(xii) Monitoring program.

(c) Upon approval by the DEQ, the generating facility shall implement the approved residuals management program.

(d) A generating facility may modify the approved residuals management program by submitting a proposed modification to the DEQ for approval. The modification shall become effective upon approval by the DEQ.

(4) A person shall land apply biosolids or prepare biosolids for land application in accordance with the requirements established in these rules.

Michigan Department of Environmental Quality - Resource Management Division

RESIDUALS MANAGEMENT PROGRAM

SECTION I – GENERAL INFORMATION

PLEASE TYPE OR PRINT

1. NPDES, State Groundwater Permit, or COC NUMBER
MIG960073

2. GENERATOR NAME AND MAILING ADDRESS
Name Grand Valley Regional Biosolids Authority
Superintendent, CEO, Principal Executive Officer Name
Eric DeLong, GVRBA Chairperson
Street Address or P.O. Box
1300 Market Ave. SW

City or Village	State	ZIP Code
Grand Rapids	MI	49503

Telephone (include area code)
(616) 261-3550 or (616) 456-3625

3. FACILITY NAME AND LOCATION (if different)
Name Wyoming Clean Water Plant / Grand Rapids Wastewater Treatment Plant
Street Address
2350 Ivanrest Avenue, SW
1300 Market Ave., SW
Additional Street Address

City or Village	State	ZIP Code
Wyoming	MI	49418
Grand Rapids	MI	49503

Latitude (nearest 15 seconds)	Longitude
(Wyoming) 42.924941	-85.741011
(Grand Rapids) 42.945586	-85.70102

Telephone (include area code)
616-261-3550 (Wyoming)
616-456-3625 (Grand Rapids)

Fax Number (include area code)
616-261-3590
616-456-3711

Email Address (if any)

4. FACILITY MAILING ADDRESS Street Address or P.O. Box
(or check box to use address corresponding to item number ☒2 ☐3)
Additional Street Address or P.O. Box Information

City or Village	State	ZIP Code

5. BIOSOLIDS CONTACT PERSON Name (if different than Item 2)
Dave Oostindie
Title
Environmental Services Supervisor

ADDRESS Street Address or P.O. Box
(or check box to use address corresponding to item number ☐2 ☐3 ☐4)
2350 Ivanrest Avenue, SW

City or Village	State	ZIP Code
Wyoming, MI	MI	49418

Telephone (include area code)
(616) 261-3550

Fax Number (with area code)
(616) 261-3590

6. Type of Treatment Facility
Publicly owned treatment works ☒ Privately owned treatment works ☐
Federally owned treatment works ☐ Blending or treatment operation ☒
State owned treatment works ☐ Tribal owned treatment works ☐

Other ☐ explain:

7. LAND APPLICATION REPORT FORMS
Check the box that corresponds to the address (above) to which forms should be mailed.

☐ 2 – Applicant Name & Mailing Address ☐ 3 - Facility Name & Location ☐ 4 - Facility Mailing Address ☒ 5 - Contact Person

SEND FORMS TO THE ATTENTION OF:

8. Provide the names, addresses and telephone numbers of the Land Application Contractors used by the facility, if applicable.

Name of Contractor:	Synagro Central, LLC
Address:	807 Lake Lansing Road
City, State, ZipCode:	Lansing, MI 48906
Telephone:	517-487-9280

Name of Contractor:	
Address:	
City, State, ZipCode:	
Telephone:	

Michigan Department of Environmental Quality - Resource Management Division

RESIDUALS MANAGEMENT PROGRAM

SECTION I – GENERAL INFORMATION

PLEASE TYPE OR PRINT

FACILITY NAME
Grand Valley Regional Biosolids Authority

NPDES, State Groundwater, or COC PERMIT NUMBER
MIG960073

9. RESIDUALS HANDLING

Provide total English dry tons per 365-day period of biosolids handled under the following practices:

Amount generated at the facility: 0

Amount received from off site: 18350

Amount treated on site (including blending): 12220

Amount sold or given away in a bag or other container for application to the land: _____

Amount of bulk biosolids shipped off site for treatment or for sale/give-away in a bag or other container for application to the land: _____

Amount applied to land in bulk form: 6130

Amount fired in biosolids incinerator: _____

Amount sent to municipal solid waste landfill: 12220

Amount used or disposed by another practice: *

Describe: The intent of the GVRBA is to provide a variety of residuals disposition options, including landfill, land application and composting. Refer to Page 21 for a detailed description of current residuals handling practices.

10. RESIDUALS STORAGE

Enter the volume of residual storage capacity at this facility. (only Wyoming has storage capacity)

6.5 ☒ million gallons **or** ☐ cubic feet

11. WASTEWATER FLOW RATE

Provide design and actual flow rates in million gallons per day (MGD).
Design flow 24 (Wyoming) 61.1 (Grand Rapids) MGD
Average Actual Flow 14. (Wyoming) 42 (Grand Rapids) MGD

12. SERVICE AREA

Enter the population serviced or NA if not applicable. 267,699 (Grand Rapids); 110,000 (Wyoming)

13. INDUSTRIAL PRETREATMENT PROGRAM

Does the generating facility have, or are they required to have, an Industrial Pretreatment Program? (See Appendix B)

Yes – On attached sheet provide list of Significant Industrial Users and list of pollutants monitored.

No – Continue with item 14.

14. SEPTAGE

Does your facility accept septage? **Grand Rapids Only**

Yes – Estimate amount received 1,500 gal. per day

No – Continue with item 15.

15. BLENDING AND TREATMENT FACILITIES

Are (or will) biosolids from another facility (not including septage) be sent to your facility for treatment (including blending) or placement in a bag or other container for sale or give-away?

Yes – Contact the Pretreatment and Biosolids Unit, Lansing
No – Continue with item 16.

16. SOLIDS FLOW DIAGRAM, NARRATIVE DESCRIPTION, and PRODUCTION DATA

Provide a flow diagram (using 8 1/2" x 11" paper **if possible**) showing the solids handling process through the facility. Identify all treatment units and sampling points. Please attach this diagram.

Include a narrative description of all solids handling through the facility and provide solids production data of solids unit processes. Provide detailed information on residuals stabilization process including all solids handling unit processes (i.e. collection, dewatering, digestion, chemical feeds, storage). Include a narrative that briefly describes the history of the residuals handling practices at the treatment facility and any future plans for upgrade. **OPTIONAL-** To assist in calculating production data for your facility, Excel spreadsheets of various processes have been developed by the DEQ Operator Training Unit and are available from the appropriate DEQ RMD Office listed in Appendix A or via the biosolids page at http://www.Michigan.gov/deq.

If you are an industrial or commercial facility treating domestic sewage sludge only, the line diagram shall include all operations contributing wastewater including process and production areas, sanitary flows, cooling water and storm water runoff. Include a narrative, which provides a brief description of the manufacturing processes.

REFER TO APPENDIX G FOR PROCESS DETAILS FOR THE WYOMING, GRAND RAPIDS AND GVRBA FACILITIES.

Michigan Department of Environmental Quality - Resource Management Division

RESIDUALS MANAGEMENT PROGRAM

SECTION II – BIOSOLIDS CHARACTERIZATION

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES, State Groundwater , or COC PERMIT NUMBER
Grand Valley Regional Biosolids Authority	MIG960073

1. BIOSOLIDS CHARACTERISTICS

Report one year biosolids monitoring data, and in no case less than three sampling events for the following Part 24 rules required parameters. Provide the actual analytical data sheets as an attachment. All sampling shall be representative of the biosolids being proposed to be applied to the land and in accordance with the minimum sample frequencies provided on the Page 10. Analytical methods shall be in accordance with R 323.2406 (2) Methods for Biosolids. Data that is available for parameters not specifically listed on this page shall be provided in the Pollutants of Concern table on page 4, Item 3 of this section.

FOLLOWING IS THE ONE YEAR MONITORING DATA FOR LAND-APPLIED BIOSOLIDS; ACTUAL ANALYTICAL DATA SHEETS ARE INCLUDED IN ATTACHMENT H, AS ARE SIMILAR RESULTS FOR LANDFILLE BIOSOLIDS.

Parameter	Average Monthly Concentration	Maximum Monthly Concentration	Units	Number of Analyses	Method Detection Limit	Test Method	Sample Type
Inorganics							
Total Solids	4.44	5.70	%	21	0	D2216	☐ Grab ☒ Composite
Total Arsenic	<1.63	3.9	Mg/kg	21	1.51	SW7060A	☐ Grab ☒ Composite
Total Cadmium	0.371	0.7	Mg/kg	21	0.12	6010B	☐ Grab ☒ Composite
Total Copper	229	287.8	Mg/kg	21	0.61	6010B	☐ Grab ☒ Composite
Total Lead	5.8	11.43	Mg/kg	21	1.51	6010B	☐ Grab ☒ Composite
Total Mercury	<0.186	0.4	Mg/kg	21	0.10	7471A	☐ Grab ☒ Composite
Total Molybdenum	6.62	8.4	Mg/kg	21	0.30	6010B	☐ Grab ☒ Composite
Total Nickel	18.79	23.7	Mg/kg	21	0.30	6010B	☐ Grab ☒ Composite
Total Selenium	<5.157	<8	Mg/kg	21	6.06	SW7010	☐ Grab ☒ Composite
Total Zinc	766	1467.6	Mg/kg	21	1.51	6010B	☐ Grab ☒ Composite
Nutrients							
Total Kjeldahl Nitrogen	50014	72100	mg/kg	21	0.0543	SM4500N	☐ Grab ☒ Composite
Ammonium Nitrogen	24529	31400	mg/kg	21	0.0053	SM4500NH3	☐ Grab ☒ Composite
Total Phosphorus	17681	20600	mg/kg	21	0.0846	SM4500P-E	☐ Grab ☒ Composite
Total Potassium	5990	7700	mg/kg	21	0.0015	6010B	☐ Grab ☒ Composite

Michigan Department of Environmental Quality - Resource Management Division

RESIDUALS MANAGEMENT PROGRAM

SECTION II – BIOSOLIDS CHARACTERIZATION

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES , State Groundwater, or COC PERMIT NUMBER
Grand Valley Regional Biosolids Authority	MIG960073

2. Pollutants of Concern

Do you believe or suspect that pollutants (other than parameters listed on the previous page) could be present in the biosolids to be land applied at concentrations that could possibly make them unsuitable for land application?

☐ Yes - Describe the circumstances below and provide representative analytical data for those pollutants of concern in Item 3.

☒ No

3. Report any biosolids monitoring data from the last permit cycle for parameters not specifically listed on the previous page. Include the actual analytical data sheets as an attachment. Upon submittal review, additional monitoring may be required if RMD has reason(s) to suspect that the information provided (or not provided) does not adequately characterize the residuals proposed to be land applied. For assistance on completing this section or determining the necessity for completing this section, you may contact the appropriate DEQ RMD office (see Appendix A).

Parameter	Average Concentration	Maximum Concentration	Units	Number of Analyses	Method Detection Limit	Test Method	Sample Type
							☐ Grab ☐ Composite
							☐ Grab ☐ Composite
							☐ Grab ☐ Composite
							☐ Grab ☐ Composite
							☐ Grab ☐ Composite
							☐ Grab ☐ Composite
							☐ Grab ☐ Composite
							☐ Grab ☐ Composite
							☐ Grab ☐ Composite
							☐ Grab ☐ Composite
							☐ Grab ☐ Composite

RESIDUALS MANAGEMENT PROGRAM

SECTION III – LAND APPLICATION PLAN

Instructions for completing Section III.

The information provided in this Land Application Plan section outlines the generating facility's RMP. In addition to requirements set forth in the Michigan Part 24 Biosolids Rules, the information provided (except items marked **Optional)** represent enforceable commitments to manage the land application program in the manner indicated. If changes in circumstances arise, opportunities do exist to request modification to approved RMPs during the biosolids permit cycle.

Although land application contractors are commonly utilized to handle many operational aspects of land application programs, each facility is required to take an active role in managing and overseeing certain administrative aspects of their land application program. Although the DEQ may hold contractors responsible for certain violations of Part 24 rules, the generating facility is responsible for ensuring compliance with state and federal statutes and the conditions found in the approved RMP.

A. **Biosolids Treatment** - Identify the exact alternatives used at the facility to meet Pathogen Reduction and Vector Attraction Reduction requirements and include the appropriate documentation to demonstrate compliance with those conditions. If your facility utilizes more than one alternative to meet the requirements, indicate all that apply. Provide additional information on attached sheets.

B. **Procedures –** General programmatic information outlining the facilities biosolids operating procedures.

C. **Site Information –** Information specific to your land application sites and overall site management.

Michigan Department of Environmental Quality - Resource Management Division

RESIDUALS MANAGEMENT PROGRAM

SECTION III – LAND APPLICATION PLAN

A. Biosolids Treatment

PLEASE TYPE OR PRINT

FACILITY NAME
Grand Valley Regional Biosolids Authority

NPDES, State Groundwater, or COC PERMIT NUMBER
MIG960073

1. PATHOGEN / VECTOR ATTRACTION REDUCTION
Describe, on this form or another sheet of paper, any treatment processes used at your facility to reduce pathogen and vector attraction properties in biosolids:

For biosolids that are to be land applied, lime is added to the residuals on a batch basis, bringing the pH to above 12 for 2 hours and holding the pH at or above 11.5 for 24 hours. Example tracking/verification sheets for one month of operation are included in Attachment I.

No pathogen/vector attraction reduction occurs for biosolids that are sent through the dewatering facility.

☐ **Check this box if you need additional space for your answer.**

2. PATHOGEN REDUCTION
Which class of pathogen reduction does the biosolids meet at your facility?

☐ Class A - Continue with item 3.
☒ Class B - Continue with item 4.

3. CLASS A BIOSOLIDS
If Class A, check the alternative used and attach the appropriate certification statement(s) (Appendix C) and documentation demonstrating compliance.

☐ Class A – Alternative 1
☐ Class A – Alternative 2
☐ Class A – Alternative 3
☐ Class A – Alternative 4
☐ Class A – Alternative 5 (indicate which PFRP)
  ☐ (a) composting
  ☐ (b) heat drying
  ☐ (c) heat treatment
  ☐ (d) thermophilic aerobic digestion
  ☐ (e) beta ray irradiation
  ☐ (f) gamma ray irradiation
  ☐ (g) pasteurization
☐ Class A – Alternative 6 (attach PFRP equivalent documentation)

5. VECTOR ATTRACTION REDUCTION
Which vector attraction reduction option(s) is met for the biosolids at your facility? Attach the appropriate certification statement(s) (Appendix C) and documentation to demonstrate compliance.

☐ Option 1 (minimum 38 percent reduction in volatile solids)
☐ Option 2 (Anaerobic process, with bench-scale demonstration)
☐ Option 3 (Aerobic process, with bench-scale demonstration)
☐ Option 4 (Specific oxygen uptake rate, aerobically digested)
☐ Option 5 (Aerobic process plus raised temperature)
☒ Option 6 (Raise pH to 12 and retain at 11.5)
☐ Option 7 (75% solids with no unstabilized solids)
☐ Option 8 (90% solids with unstabilized solids)
☒ Option 9 (Injection below land surface)
☐ Option 10 (Covering active sewage sludge unit daily)

6. Describe, on this form or another sheet of paper, any secondary modes used at your facility to meet vector attraction reduction requirements:

A combination of vector attraction reduction methods are used. Initially, lime is added to the residuals to raise the pH to 12 or above and retained at 11.5 or above for a period of 24 hours (Option 6). When the residuals are subsequently land applied, they are normally injected below the land surface (Option 9) at the time of the application unless otherwise noted in Section III.B.4.

☐ **Check this box if you need additional space for your answer.**

4. CLASS B BIOSOLIDS

If Class B, check the alternative used. Attach the appropriate certification statement(s) (Appendix C) and documentation to demonstrate compliance. Note Class B Site Restrictions on Page 7.

- ☐ Class B –Alternative 1
- ☒ Class B –Alternative 2 (indicate which PSRP)
  - ☐ (a) aerobic digestion
  - ☐ (b) air drying
  - ☐ (c) anaerobic digestion
  - ☐ (d) composting
  - ☒ (e) lime stabilization (pH at 25° C or equivalent)
- ☐ Class B –Alternative 3 (attach PSRP equivalent documentation)

7. RE-USE/DISPOSAL ALTERNATIVES

Should the circumstances arise, describe alternative method(s) for the proper treatment, use or disposal of biosolids (include seeking authorization from the permitting authority).

The primary routes of biosolids disposition include landfilling, composting, and land application given the methodologies outlined above. If an emergency situation arises necessitating an alternative treatment or disposition mechanism, the DEQ will be notified and the appropriate treatment and disposition methodologies communicated.

☐ **Check this box if you need additional space for your answer.**

The following Site Restrictions contained in R323.2414 (f)(l) to (viii) apply to all land-applied biosolids meeting the class B pathogen reduction requirements.

(f) All of the following provisions apply to site restrictions:

(i) A land owner shall not harvest food crops that have harvested parts which touch the biosolids/soil mixture and which are totally above the land surface for 14 months after biosolids are applied.

(ii) A land owner shall not harvest food crops that have harvested parts below the surface of the land for 20 months after biosolids are applied if the biosolids remain on the land surface for 4 months or longer before incorporation into the soil.

(iii) A land owner shall not harvest food crops that have harvested parts below the surface of the land for 38 months after biosolids are applied if the biosolids remain on the land surface for less than 4 months before incorporation into the soil.

(iv) A land owner shall not harvest food crops, feed crops, and fiber crops for 30 days after biosolids are applied.

(v) A land owner shall not graze animals on the land for 30 days after biosolids are applied

(vi) A land owner shall not harvest turf grown on land where biosolids are applied for 1 year after biosolids are applied if the harvested turf is placed on either land that has a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.

(vii) A land owner shall restrict public access to land that has a high potential for public exposure for 1 year after biosolids are applied.

(viii) A land owner shall restrict public access to land with a low potential for public exposure for 30 days after biosolids are applied.

Michigan Department of Environmental Quality - Resource Management Division

RESIDUALS MANAGEMENT PROGRAM

SECTION III – LAND APPLICATION PLAN

B. Procedures

PLEASE TYPE OR PRINT

FACILITY NAME
Grand Valley Regional Biosolids Authority

NPDES, State Groundwater, or COC PERMIT NUMBER
MIG960073

1. ENVIRONMENTAL MANAGEMENT SYSTEM (EMS) **Optional** Would your facility possibly be interested in implementing a voluntary EMS and "Code of Good Practices" as administered by the National Biosolids Partnership?

☒ Yes -Information will be sent to you on implementing an EMS
BOTH FACILITIES CURRENTLY HAVE AN EMS
☐ No

2. TRANSPORTATION
Describe the method of handling and transporting residuals from the treatment facility to the site of land application.

Residuals are transported by tanker trucks, subcontracted by the land application contractor, to the land application site. Tanker trucks generally hold approximately 8,000 gallons of product, and are outfitted with a special transferring apparatus that minimizes spillage during transfer to the sub-surface applicator.

☐ **Check this box if you need additional space for your answer.**

3. SPILL PREVENTION / RESPONSE PLAN
Describe your spill prevention measures and steps to be followed should a spill occur.

The Wyoming facility has an Integrated Contingency Plan (ICP) which details spill response procedures for spills at the facility. The contractor is responsible for safe transportation and correct application procedures and maintains a separate spill response plan. One page laminated spill response procedures are also located in each truck cab.

Spill response plans for the dewatering facility and Grand Rapids facility are also maintained. Select portions of the Wyoming ICP as well as the land application contractor, dewatering facility, Grand Rapids facility and residuals hauler spill response plans are included in Appendix I.

Residuals sent offsite to the composting facility have a separate spill response plan maintained under the separate RMP.

☐ **Check this box if you need additional space for your answer.**

4. LAND APPLICATION METHOD
Describe the methods utilized for land application.

Biosolids will normally be injected using equipment specifically designed for injecting liquid materials below the land surface, according to Part 24 R323.2414(4)(i). The injection process occurs by opening up a soil furrow, injecting ("knifing") the biosolids into the furrow, and closing the furrow for sufficient product coverage.

If surface application must occur, material will be incorporated within 6 hours in accordance with Part 24 R323.2415(4)(j). The additional site restrictions relative to boundaries and access for harvesting and grazing will be adhered to.

The extreme instance of surface application without injection would be performed predominantly on established forage crops such as hay/alfalfa fields or pasture, or to be compatible with no-till farming practices. Surface application would need to be performed on these crops due to the detrimental effect on the crop using standard sub-surface injection. Again, the additional site restrictions relative to boundaries and access for harvesting and grazing will be adhered to.

☐ **Check this box if you need additional space for your answer.**

5. APPLIER OVERSIGHT
Describe the method of applier oversight. Include performance specifications and any training/certification requirements. See Appendix C for applier certification requirements.

The GVRBA is comprised of a Board of Directors – representatives from both Cities of Grand Rapids and Wyoming. An Operations Team, again including members of both communities, generally manages the day-to-day operations of the dewatering facility and land application. True oversight of the land application contractor occurs through the Biosolids Coordinator and Environmental Services Supervisor, employees of the City of Wyoming. Both communities additionally have an EMS and are NBP certified.

The Biosolids Coordinator meets weekly with the contractor to review field information and site planning. The contractor submits a pre-operations checklist (example included in Attachment K) for each field prior to application to the Coordinator. The Coordinator also performs site inspections to ensure fields are correctly flagged and biosolids properly injected. Proper certifications are obtained per 40 CFR 503.

☐ **Check this box if you need additional space for your answer**

Michigan Department of Environmental Quality - Resource Management Division

RESIDUALS MANAGEMENT PROGRAM

SECTION III – LAND APPLICATION PLAN

B. Procedures (continued)

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES, State Groundwater, or COC PERMIT NUMBER
Grand Valley Regional Biosolids Authority	MIG960073

6. REPORTING

Describe your facility's reporting procedure (provide example forms, letters, etc. as an attachment). Specific reporting requirements are summarized in Appendix C.

The Biosolids Annual Report is prepared and submitted to the MDEQ before October 1 of each year.

☐ **Check this box if you need additional space for your answer**

7. RECORDKEEPING

Describe your facility's recordkeeping procedures and retention schedules. Specific recordkeeping and certification requirements are summarized in Appendix C.

Analytical data related to land application is managed internally. The contractor completes daily load sheets listing field identity, driver name, truck number, product volume, load time, etc. An aliquot from each tanker load (approximately 8,000 gallons) is composited into a bi-monthly sample, the results of which are included in the annual report.

Example land application site identification forms and pre-operations checklists are included in Appendix C.

☐ **Check this box if you need additional space for your answer**

8. COMPLAINT RESPONSE

Describe the procedure for responding to citizen complaints. Include details of any biosolids educational programs.

Citizen complaints are typically received either by the Biosolids Coordinator or Environmental Services Supervisor. When a complaint is received, it is assessed to determine the need for MDEQ involvement. The MDEQ is notified if deemed appropriate. Staff visit the site or individual to assess the validity of the complaint. Response actions (potentially including sampling, meetings, reports, etc.) are retained on file at the City of Wyoming Clean Water Plant. Response and communication procedures are followed as identified in the EMS.

Educational measures include: school tours (>200 children annually), participation at various state-wide conferences and seminars, and farmer appreciation days. Additional educational measures are detailed in the EMS.

☐ **Check this box if you need additional space for your answer**

9. SAMPLING PLAN

a. Describe the proposed sample frequency and quality control methods utilized to assure representative samples are obtained. Minimum Sample Frequencies are provided on Page 10.

Lime Stabilization Procedure: Prior to land application, biosolids are held in holding tanks where lime is added. The pH is recorded for each batch to ensure it meets PSRP/VAR requirements, as noted on daily operation logs included in Attachment I.

Biosolids Storage Tanks: If used, the storage tanks are sampled to ensure a well-mixed product is available to be land applied. Data is used to ensure compliance with regulatory requirements.

Hauling Tankers: An aliquot is collected from each load and composited bi-monthly for land application compliance purposes.

☐ **Check this box if you need additional space for your answer**

b. Describe the procedure for assuring that analytical results are below regulated limits and appropriate methods were used. Pollutant Limit Tables are provided on Page 11.

Analytical results are reviewed by the Biosolids Coordinator to ensure compliance with regulatory requirements prior to land application. The Wyoming Clean Water Plant laboratory performs the aforementioned analytical testing and has a full Quality Assurance/Quality Control Plan in place.

☐ **Check this box if you need additional space for your answer**

Minimum Sample Frequencies

R 323.2412 Frequency of monitoring.

Table 7

Amount of Biosolids Produced (per 365-day period)

English Dry Tons	Metric Dry Tons	Frequency
Greater than zero, but less than 320	Greater than zero, but less than 290	Once per year
Equal to or greater than 320, but less than 1,650	Equal to or greater than 290, but less than 1,500	Once per quarter (4 times per year)
Equal to or greater than 1,650, but less than 16,500	Equal to or greater than 1,500, but less than 15,000	Once per 60 days (6 times per year)
Equal to or greater than 16,500	Equal to or greater than 15,000	Once per month (12 times per year)

Note: Additional monitoring beyond that stated above may be required to obtain representative data of the material proposed to be land applied or to meet the following additional requirements of the Part 24 Rules. The following words in bold below are not part of the Part 24 Rules.

(4) If biosolids are accumulated before removal, the monitoring frequency, at a minimum, is that specified in this rule. If monitoring of biosolids or a derivative indicates a pollutant concentration in excess of that provided in table 3 of R 323.2409(5)(c) (**see page 11 of this document**), then the monitoring frequency shall be increased to not less than twice that provided for in table 7 (**sample frequency table above)** until pollutant concentrations are at or below the concentrations provided in table 3 of R 323.2409(5)(c). In the case of biosolids accumulating for periods of more than 1 year, biosolids must be monitored at the frequency determined in table 7 only in the year the biosolids are used. For a generator who removes biosolids monthly or more frequently, monitoring is required at least once per month each month that the biosolids are removed, unless more frequent monitoring is required in subrule(1) of this rule.

R 323.2409 APPLICATION OF LIMITATIONS

(a) TABLE 1 -- Ceiling Pollutant Concentrations

Pollutant	Ceiling Concentration (milligrams per kilogram)[1] (dry weight basis)
Arsenic	75
Cadmium	85
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7500

(b) TABLE 2 -- Cumulative Pollutant Loading Rates

Pollutant	Cumulative Pollutant Loading Rate	
	kilograms per hectare	pounds per acre
Arsenic	41	37
Cadmium	39	35
Copper	1500	1335
Lead	300	267
Mercury	17	15
Nickel	420	374
Selenium	100	89
Zinc	2800	2492

(c) TABLE 3 -- Pollutant Concentrations

Pollutant	Concentration (milligrams per kilogram) (on a dry weight basis)
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2800

(d) TABLE 4 -- Annual Pollutant Loading Rates

Pollutant	Annual Pollutant Loading Rate[1]	
	kilograms per hectare	pounds per acre
Arsenic	2.0	1.8
Cadmium	1.9	1.7
Copper	75	67
Lead	15	13
Mercury	0.85	0.76
Nickel	21	19
Selenium	5.0	4.5
Zinc	140	125

[1] per 365-day period.

Michigan Department of Environmental Quality - Resource Management Division

RESIDUALS MANAGEMENT PROGRAM

SECTION III – LAND APPLICATION PLAN

C. Site Information

PLEASE TYPE OR PRINT

FACILITY NAME
Grand Valley Regional Biosolids Authority

NPDES, State Groundwater, or COC PERMIT NUMBER
MIG960073

1. CUMMULATIVE POLLUTANT LOADING AND REMAINING ALLOTMENTS (CPLR)

a. Has your facility land applied biosolids exceeding Table 3 - Pollutant Concentrations since July 20, 1993?

☐ Yes - You have sites subject to CPLRs. Attach the appropriate certification statement (See Appendix C) and continue with question b.

☒ No - Continue with Item 2.

b. Have you contacted the State where the bulk biosolids subject to CPLRs will be applied, to ascertain whether the bulk biosolids subject to CPLRs have been applied to your sites since July 20, 1993?

☐ Yes - Continue with question c.

☐ No - Bulk biosolids subject to CPLRs may not be applied to these sites.

c. Provide the following information for each site that has received bulk biosolids subject to CPLRs since July 20, 1993.

Site ID #	CPLR Pollutant	Total English Dry Tons	Cumulative Loading (lb/ac)	Allotment Remaining (lb/ac)

2. LAND APPLICATION FREQUENCY

a. How often do you plan to land apply?

☒ Monthly during the land application season

☐ Once during permit cycle (i.e. lagoon cleaning)

☐ Seasonal, provide approximate timeframe

from to

3. WINTERTIME LAND APPLICATION

Do you intend to land apply between December 21 and March 21?

☒ Yes, provide the following:

- Description of what instances this activity would take place.
- Types of equipment utilized to achieve "substantial soil coverage" and the method of applier oversight.
- Listing of physical limitations of sites and a specification of "substantial soil coverage" that the applier must meet.
- Commitment for informal DEQ notification.

☐ No, continue with item 4.

Describe, (use additional sheets as necessary)

The normal mode of winter biosolids disposition for Wyoming is to pump to the GVRBA dewatering facility. However, conditions may arise causing land application to occur during the winter months. This will occur subject to local road restrictions and frozen ground limitations.

Substantial soil coverage is achieved through a subsurface injection application machine owned and operated by the contractor. Oversight occurs as detailed in Section 3 B 5.

If substantial frost is present to prevent proper coverage and/or incorporation, land application will not occur. In determining what fields are suitable for winter land application, the Biosolids Coordinator will take into account all land application guidelines, protocols, and regulations as specified by 40 CFR 503 and Part 24 of the Michigan Rules.

This RMP is considered informal MDEQ notification that wintertime land application will occur if the aforementioned conditions are met.

☐ **Check this box if you need additional space for your answer**

Michigan Department of Environmental Quality - Resource Management Division

RESIDUALS MANAGEMENT PROGRAM

SECTION III – LAND APPLICATION PLAN

C. Site Information (continued)

PLEASE TYPE OR PRINT

FACILITY NAME
Grand Valley Regional Biosolids Authority

NPDES, State Groundwater, or COC PERMIT NUMBER
MIG960073

4. NEW SITES

a. Indicate the geographical area covered by your Land Application Plan.

Land application sites are located within a 50-mile radius of the Wyoming Clean Water Plant.

☐ **Check this box if you need additional space for your answer**

b. Describe your site selection criteria. Note the Management Practices summary on Page 14 and Class B site restrictions - Page 7. Applier/Preparer certification requirements are summarized in Appendix C.

Sites are selected based on a variety of factors, including access road class, soil type, water and well proximity, acreage, access, surrounding population density, proximity to the Clean Water Plant, historical problems, and/or farmer relationship. All sites are also selected in accordance with applicable regulations.

☐ **Check this box if you need additional space for your answer**

5. LAND OWNER AGREEMENTS

Do you have a signed landowner agreement for each existing site? See Appendix D for Landowner Agreement considerations.

☒ Yes - Continue with Item 6.

☐ No - Rule 323.2413(2)(b) and (c) requires written consent to apply biosolids and a written agreement not to apply biosolids from other sources or septage to a listed land application site.

6. OUT OF STATE SITES

Will the proposed land application activity occur on lands outside of the State of Michigan?

☐ Yes (describe procedure for permitting authority notification).

☒ No, Continue with Item 7.

☐ **Check this box if you need additional space for your answer**

7. AGRONOMIC RATE

a. Will biosolids be applied at the agronomic rate for the crop to be grown? See Appendix E for agronomic rate calculations.

☒ Yes - Continue with Item 8.

☐ No - Biosolids must be applied at the agronomic rate unless done in accordance with a DEQ approved Site Reclamation Plan.

*NOTE: Be advised that application rates may also need to be further restricted for operational reasons or based on loading rates for biosolids exceeding Table 3 limits or to avoid exceeding the 300 lb/ac P limit in site soils. Refer to RMD guidance for calculations of agronomic rates based on Phosphorus.

8. SITE NOTIFICATION

Specific notification requirements and a sample public notification letter are provided in Appendix F. A DEQ site identification form is provided on page 15. **Optional:** Describe your facility's site notification procedure, including informal DEQ notification prior to seasonal or wintertime application. Provide any other sample forms and letters.

The following process is used for site notification, and example documentation is included in Attachment K:

1. Contractor provides notification and appropriate information to the DEQ on a site application packet.
2. Contractor provides notification letter and plat to the local authority and health department.
3. Contractor completes a pre-operating checklist, detailing requirements and field-specific instructions.
4. Following application, soil and nutrient information is sent to the land owner or renter.

☐ **Check this box if you need additional space for your answer**

MANAGEMENT PRACTICES

Slope Restrictions R 323.2410(4)
A person shall not apply bulk biosolids on lands having a slope of more than 6% for surface application or more than 12% for subsurface injected biosolids, unless the person uses the bulk biosolids in accordance with a DEQ-approved site management plan.

Isolation Distance Requirements R 323.2410(11)

TABLE 6

ISOLATION DISTANCE REQUIREMENTS		
Isolation from existing:	Distance (feet)	
	Injection or Surface application with incorporation*	Surface application without incorporation
Municipal well (type I or type IIA)**	2000	2000
Non-community public water supply (type IIB or type III)	800	800
Domestic well	100	150
Homes	100	150
Commercial Buildings	100	150
Surface waters***	50	150

* Incorporation must be within 48 hours, unless a shorter time period is specified in these rules.

** As defined and specified in Act No. 399 of the Public Acts of 1976, as amended, being §325.1001 et seq. of the Michigan Compiled Laws and known as the safe drinking water act. As specified in Act No. 399 of Public Acts of 1976, as amended, the term includes water supplies such as schools, restaurants, industries, campgrounds, parks, and hotels.

*** Surface waters do not include grassed drainage ways or drainage ways that are tilled and planted.

Refer to Rule R 323.2410 for the entire management practices section of Part 24 Rules.

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DEQ SITE IDENTIFICATION FORM

Complete the following information and provide the attachments listed below for each new site or existing site that has not had a Site Identification Form with attachments submitted to the DEQ since January 1, 1998. Please amend any previous Site Identification Forms when it becomes known that any of the information requested below has changed (i.e. new land owner).

FACILITY NAME	NPDES, State Groundwater, or COC PERMIT NUMBER
A SAMPLE SITE ID FORM IS INCLUDED IN ATTACHMENT K	

SITE IDENTIFICATION FORM

A. Site ID

Site ID #	Street or Route #

B. County/Township:

County	Township

C. State Planar Coordinates:

1/4	1/4	Section	Town	Range

D. Lat/Long (decimal degrees):

Latitude	Longitude	Method Used (i.e. GPS, topo)

E. Site Ownership

Name of Owner	Phone

Street or P.O. Box

City or Town	State	Zip

Is there a written agreement from the owner to land apply? ☐ Yes ☐ No, written agreement is required	Previous landowners name Property purchase date

Name of Lessee (if different)	Phone

Street or P.O. Box

City or Town	State	Zip

F. Site Characteristics

Site Type

☐ Agricultural ☐ *Reclamation Site

☐ Forest ☐ **Lawn/Home Garden

*Separate approval is required **Requires EQ Biosolids

Expected crops/vegetation to be grown

Crop/Vegetation	Nitrogen Requirement
_____	_____ lbs. N/acre
_____	_____ lbs. N/acre
	_____ lbs. N/acre

Total acreage of site _____

Acreage used for crops _____

Public Exposure

Is this land with a high potential for public exposure? (See Definitions section on Page 19)

☐ Yes ☐ No

Soils Information

Date of last soils analysis _____

*Phosphorous _____ units _____

Potassium _____units _____

pH _____ Soil type(s)

*300 lb/ac Bray P1 maximum

Percent slope

Highest percent slope of the site?

☐ 0-6%

☐ 6-12%

☐ *Higher (Requires an approved site reclamation plan)

If agricultural, is the site tiled?

☐Yes ☐No ☐NA

On an attached sheet provide a copy of the following:

- A Farm Services Agency map (formerly ASCS) of the proposed application site with property boundaries, surface waters, and discharge location of field tiles when present.
- A copy of the soil test analysis that is no older than 2 years old at the time of land application.
- A copy of the plat map (or other map showing property dimensions) with the proposed land application site highlighted.
- A soil survey map with the land application site identified.

Michigan Department of Environmental Quality - Resource Management Division

RESIDUALS MANAGEMENT PROGRAM

SECTION III – LAND APPLICATION PLAN

Land Application Site List

Provide the following information for every new or existing site that you intend to use in the next five years (biosolids permit cycle). Each listed site should either have had a Site Identification Form with attachments submitted to the DEQ since January 1, 1998, or the completed forms should be included with this document. To add new sites to the Land Application Site List during the biosolids permit cycle, modify your RMP by submitting a completed DEQ Site Identification Form with attachments, a copy of your public notification letter and wait the required ten-day notification period. Use additional sheets as necessary.

A LISTING OF SITES THAT THE GVRBA CURRENTLY LAND APPLIES BIOSOLIDS ON IS INCLUDED IN ATTACHMENT L

PLEASE TYPE OR PRINT

Facility Name Grand Valley Regional Biosolids Authority					NPDES, State Groundwater, or COC PERMIT NUMBER MIG960073	
Site Identification Number	Latitude	Longitude	Acres	Owners Last Name	New Site? (check if yes)	CPLR Site? (check if yes)
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐

Michigan Department of Environmental Quality - Resource Management Division

RESIDUALS MANAGEMENT PROGRAM

SECTION IV – SIGNATURE PAGE

PLEASE TYPE OR PRINT

Facility Name	NPDES, State Groundwater, or COC PERMIT NUMBER
Grand Valley Regional Biosolids Authority	MIG960073

1. CERTIFICATION

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

Name and official title

Signature

Telephone number (616) 456-3119

Date signed March 28, 2013

Upon request from the State, you may be required to submit additional information necessary to access biosolids use or disposal practices at your facility or to identify appropriate permitting requirements.

SEND COMPLETED FORMS TO THE APPROPRIATE DISTRICT OFFICE LISTED IN APPENDIX A.

DEFINITIONS

Act means Act No. 451 of the Public Acts of 1994, as amended, being §324.101 et seq. of the Michigan Compiled Laws.

Aerobic digestion means the biochemical decomposition of organic matter in biosolids into carbon dioxide and water by microorganisms in the presence of air.

Agricultural land means land on which a food crop, a feed crop, or a fiber crop is grown. The term includes range land and land used as pasture.

Agronomic rate means the calculated biosolids application rate (dry weight basis) which provides the amount of plant available nitrogen (PAN) needed by the crop or vegetation grown on the land; which minimizes the amount of nitrogen that passes below the root zone of the crop or vegetation grown; and which considers the amounts of phosphate (P_2O_5) and potash (K_2O) added by the biosolids as part of the total nutrient management plan.

Biosolids means solid, semisolid, or liquid residues generated during the treatment of sanitary sewage or domestic sewage in a treatment works. The term "biosolids" includes, but is not limited to, scum or solids removed in primary, secondary, or advanced wastewater treatment processes and a derivative of the removed scum or solids.

Bulk biosolids means biosolids that are not sold or given away in a bag or other container for application to a lawn or home garden.

Class A means biosolids that meet the requirement in R 323.2414(2)(b) and the requirements in R 323.2414(2)(c),(d),(e),(f),(g), or (h) with respect to pathogens.

Class B means biosolids that meet the requirements in R 323.2414 (3)(c),(d), or (e) with respect to pathogens.

Composite Sample is a number of proportional samples collected and mixed so as to be representative of the biosolids to be applied to land and soils that receive biosolids.

Cumulative pollutant loading rate (CPLR) means the maximum amount of an inorganic pollutant that can be applied to an area of land.

Daily Concentration is the sum of the concentrations of the individual samples of a parameter divided by the number of samples taken during any calendar day. If the parameter concentration in any sample is less than the method detection level, regard that value as the detection level when calculating the daily concentration, and indicate that the result is "less than" the value reported.

Department means the director of the department of environmental quality or his or her designee.

Derivative means a product for land application derived from biosolids that does not include solid waste or other waste regulated under the act. A derivative does not include materials or treatment chemicals, that is, lime or ferric chloride, integral to wastewater treatment and biosolids unit processes.

Distributor means a person who applies, markets, or distributes, except at retail, a derivative.

Domestic sewage means waste and wastewater from humans or household operations that is discharged to, or otherwise enters, a treatment works.

Dry weight basis means calculated on the basis of having been dried at 105 degrees Celsius until reaching a constant mass that is essentially 100% solids content.

Exceptional quality (EQ) means biosolids or a derivative that meets all of the following criteria: (i) Pollutant ceiling concentrations in R 323.2409(5)(a). (ii) Pollutant concentrations in R 323.2409(5)(c). (iii) One of the vector attraction reduction options in R 323.2415(4)(a)to(h) and one of the class A pathogen reduction alternatives in R 323.2414(2)(a).

Forest means a tract of land that is thick with trees and underbrush.

Generator means a person who generates biosolids that are applied to land.

Grab Sample is a single sample taken at neither a set time nor flow.

Groundwater means water below the land surface in the saturated zone.

Incorporation means the blending of surface-applied biosolids into the soil so that a significant amount of the biosolids is not present on the land surface within 1 hour after land application.

Injection means the placement of biosolids below the land surface so that a significant amount of the biosolids is not present on the land surface within 1 hour after land application.

Land application means spraying or spreading biosolids onto the land surface, injecting biosolids below the land surface, or incorporating biosolids into the soil so that the biosolids can either condition the soil or fertilize crops or vegetation grown in the soil.

Land application plan means the process a generator uses to identify and select land application sites that are not included in a land application site list. At a minimum a plan shall include all of the following: (i) A description of the geographical area covered by the plan. (ii) Identification of the criteria used for site selection. (iii) A description of how the sites are managed.

Land with a low potential for public exposure means land that the public uses infrequently. The term includes, but is not limited to, agricultural land, forest land, and a reclamation site located in an unpopulated area, for example, a strip mine located in a rural area.

Land with a high potential for public exposure means land that the public uses frequently. The term includes, but is not limited to, a public contact site and a reclamation site located in a populated area, for example, a construction site located in a city.

Listed land application site means a site which has been approved by the DEQ and is used for biosolids land application by a generator.

Monthly Concentration is the sum of the daily concentrations determined during a reporting month (or 30 consecutive days), divided by the number of daily concentrations determined. If any daily concentration is less than the method detection level, regard that value as the detection level when calculating the monthly concentration, and indicate that the result is "less than" the value reported.

Permit means 1 of the following: (i) A national pollutant discharge elimination system (NPDES) permit that is issued by the DEQ under section 3112(1) of the act to control wastewater discharges to the surface waters and to manage biosolids. (ii) A permit that is issued by the DEQ under section 3112(1) of the act to control wastewater discharges to the groundwaters and to manage biosolids. (iii) A biosolids permit issued by the DEQ.

Permitting authority means the DEQ.

Person means an individual, association, partnership, corporation, local unit, state or federal agency, or an agent or employee of any of the entities specified in this definition.

Person who prepares biosolids means either the person who generates biosolids during the treatment of domestic sewage or sanitary sewage in a treatment works or the person who derives a material from biosolids.

pH means the logarithm of the reciprocal of the hydrogen ion concentration measured at 25 degrees Celsius or measured at another temperature and then converted to an equivalent value at 25 degrees Celsius.

Pollutant means an organic substance, an inorganic substance, a combination of organic and inorganic substances, or a pathogenic organism that, after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food chain, could, on the basis of information available to the administrator of EPA or the DEQ, cause death; disease; behavioral abnormalities; cancer; genetic mutations; physiological malfunctions, including malfunction in reproduction; or physical deformations in either organisms or offspring of the organisms.

Pollutant limit means a numerical value that describes the amount of a pollutant allowed per unit amount of biosolids, for example milligrams per kilogram of total solids; the amount of a pollutant that can be applied to a unit area of land, for example, kilograms per hectare or pounds per acre; or the volume of a material that can be applied to a unit area of land, for example, gallons per acre.

Public contact site means land that has a high potential for contact by the public. The term includes, but is not limited to, any of the following: (i) Public parks. (ii) Ball fields. (iii) Cemeteries. (iv) Plant nurseries. (v) Turf farms. (vi) Golf courses.

Reclamation site means drastically disturbed land that is reclaimed using biosolids. The term includes, but is not limited to, strip mines and construction sites.

Residuals Management Program means a program that is required by a generator's permit and is developed in accordance with R 323.2403(3)(a)to(d).

Retail means EQ biosolids or an EQ derivative sold directly to the consumer or through retail establishments in bags or other containers that have a load capacity of 1 metric ton (2200 pounds) or less of biosolids.

Septage means either liquid or solid material that is removed from any of the following that receive only domestic sewage. (i) A septic tank. (ii) A cesspool. (iii) A portable toilet. (iv) A Type III marine sanitation device. (v) A similar treatment works.

Site means a contiguous tract of land to which biosolids or a derivative are land applied in accordance with the requirements in these rules.

Specific oxygen uptake rate (SOUR) means the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in biosolids.

Surface application means the spraying or spreading of biosolids or derivatives onto the land surface for use as a soil conditioner or as a nutrient source for plant growth.

Surface water means any of the following: (i) Lakes. (ii) Rivers. (iii) Streams. (iv) Wetlands. (v) All other watercourses. (vi) Waters within the jurisdiction of this state. (vii) The Great Lakes bordering this state.

Treatment of" or "to treat", with respect to biosolids, means the preparation of biosolids for final use or disposal. The term includes, but is not limited to, the thickening, stabilization, and dewatering of biosolids. The term does not include the storage of biosolids.

Treatment works means either a federally owned, publicly owned, or privately owned device or system used to treat, including recycling and reclaiming, either domestic sewage or sanitary sewage.

Total solids means the materials in biosolids that remain as residue when biosolids are dried at 103 to 105 degrees Celsius.

Vector attraction means the characteristic of biosolids that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.

Volatile solids means the amount of the total solids in biosolids lost when biosolids are combusted at 550 degrees Celsius in the presence of excess air.

Wetlands means areas that are inundated or saturated by surface water or groundwater at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

RESIDUALS MANAGEMENT PROGRAM

Please use this page if you need to add any additional information to your answers to any of the items in this form. Please be sure to identify which item each additional information statement belongs to. Use a separate row for each separate item. (The rows will expand to accommodate as much information as you place into them.)

Section/Item # Page 2,Section 1, Question 9 Additional Information: Wyoming and Grand Rapids facilities are connected with a pipeline, terminating at a dewatering facility owned by the GVRBA. During normal operation, approximately 25% of Wyoming residuals and 100% of Grand Rapids residuals are dewatered at this facility. Beginning in 2013, it is anticipated that approximately 66% of the dewatered residuals will be composted by a third-party contractor at an off-site location. This contractor and location will be managed under a separate NPDES COC and RMP. Currently, SPURT Industries has been contracted to perform these activities, and is operating under COC# MIG960082. The remaining 33% of residuals will be sent to a solid waste landfill. The remaining 75% of residuals generated at the Wyoming facility will be land applied via subsurface injection into local farm fields.	
Section/Item # Additional Information:	
Section/Item #	Additional Information:
Section/Item #	Additional Information:
Section/Item #	Additional Information:
Section/Item #	Additional Information:
Section/Item #	Additional Information:
Section/Item #	Additional Information:
Section/Item #	Additional Information:

Michigan Department of Environmental Quality - Resource Management Division

RESIDUALS MANAGEMENT PROGRAM APPENDIX A

Appendix A - District Office Addresses and Boundaries

Appendix B - NPDES Industrial Pretreatment Program Requirements

Appendix C - Reporting / Record Keeping / Certification Requirements

Appendix D –Land Owner Agreement Considerations

Appendix E - Agronomic Rate Calculations

Appendix F - Notification Requirements / Sample Public Notification Letter

Please do not return this appendix with the completed RMP.

Appendix A

RESIDUALS MANAGEMENT PROGRAM APPENDIX A

Resource Management Division District Office Addresses and County Jurisdictions

DEQ DISTRICT OFFICES	TELEPHONE # FAX #	COUNTY JURISDICTIONS		
CADILLAC DISTRICT OFFICE 120 WEST CHAPIN ST CADILLAC, MI 49601-2158	231-775-3960 231-775-1511	ALPENA ALCONA ANTRIM BENZIE CHARLEVOIX CHEBOYGAN CRAWFORD EMMET	GRAND TRAVERSE KALKASKA LAKE LEELANAU MANISTEE MASON MISSAUKEE MONTMORENCY	OSCEOLA OSCODA OTSEGO PRESQUE ISLE ROSCOMMON WEXFORD
SOUTHEAST MICHIGAN DISTRICT OFFICE 27700 DONALD CT WARREN, MI 48092-2793	586-753-3780	MACOMB OAKLAND ST. CLAIR WAYNE		
GRAND RAPIDS DISTRICT OFFICE STATE OFFICE BUILDING 6TH FLOOR 350 OTTAWA N.W. GRAND RAPIDS, MI 49503-2341	616-356-0500 616-356-0276	BARRY IONIA KENT MECOSTA MONTCALM MUSKEGON	NEWAYGO OCEANA OTTAWA	
JACKSON DISTRICT OFFICE 301 EAST LOUIS GLICK HIGHWAY JACKSON, MI 49201-1556	517-780-7690 517-780-7855	HILLSDALE JACKSON LENAWEE MONROE WASHTENAW		
UPPER PENINSULA DISTRICT OFFICE 420 5TH STREET GWINN, MI 49841	906-346-8300 906-346-8528	ALGER BARAGA CHIPPEWA DELTA DICKINSON GOGEBIC	HOUGHTON IRON KEWEENAW LUCE MARQUETTE MACKINAC	MENOMINEE ONTONAGON SCHOOLCRAFT
KALAMAZOO DISTRICT OFFICE 7953 ADOBE ROAD KALAMAZOO, MI 49009	269-567-3500	ALLEGAN BERRIEN BRANCH CALHOUN CASS KALAMAZOO	ST. JOSEPH VAN BUREN	
SAGINAW BAY DISTRICT OFFICE 503 NORTH EUCLID AVENUE BAY CITY, MI 48706-2965	989-686-8025 ext 8269	ARENAC BAY CLARE GLADWIN HURON IOSCO	ISABELLA MIDLAND OGEMAW SAGINAW SANILAC TUSCOLA	
LANSING DISTRICT OFFICE 525 WEST ALLEGAN STREET LANSING, MI 48933	517-335-6110	CLINTON EATON GENESEE GRATIOT INGHAM LIVINGSTON	SHIAWASSEE	

RESIDUALS MANAGEMENT PROGRAM APPENDIX A

Resource Management Division District Boundaries With County Divisions

Appendix B

Industrial Pretreatment Program

The industrial Pretreatment Program (IPP) regulates industrial discharges to publicly owned treatment works (POTWs). Requirements for an IPP are placed in a POTW's NPDES permit when it is determined that they receive non-domestic wastewater which: may cause passthrough; may interfere with POTW operations; or are subject to categorical pretreatment standards. The IPP regulates the discharge of pollutants from industrial users to public sanitary sewers and wastewater treatment plants to protect the environment and the infrastructure. The DEQ has assisted 102 local units of government with the development and implementation of formal IPPs.

In 1983, the U.S. EPA formally delegated the State of Michigan to implement the IPP. Regulations governing the program are contained in 40 CFR Part 403, and R 323.2301 – R 323.2317 of the Michigan Administrative Code. Industry specific technology based treatment requirements are contained in 40 CFR Parts 405-471.

Communities with pretreatment programs are divided into two categories:

- Federal IPPs – Those POTWs with a design flow greater than 5 million gallons day(MGD).

- Michigan IPPs – Those POTWs with a design flow equal to or less than 5 MGD.

While both programs are similar, MIPPs have been provided some regulatory relief from certain Federal requirements including: No requirement for whole effluent testing with the permit application if design flow is under one mgd; RCRA notification to users is not required; only categorical industrial users must be published if in significant noncompliance; slug control plan evaluations are not required; and local limits do not have to be re-evaluated with the permit applications.

Program oversight is conducted by both the Pretreatment and Biosolids Unit of the Program Support Section and RMD's District Staff. Oversight activities include audits (generally performed by PBU), pretreatment compliance inspections (PCIs), and PCI recons. Inspections are scheduled to correspond to the reissuance of the NPDES permits, which are based on a watershed (basin year) approach. Program submittals include sewer use ordinances, interjurisdictional agreements, enforcement response plans, local limits and procedures for program implementation. The Director has delegated all IPP decisions, including final program approvals and modifications to the RMD District Supervisors (Executive Order 1991-31 Delegation Letter, Letter No.: WD-31-07).

Local limits for toxic pollutants are reviewed by District staff for completeness then forwarded to the pretreatment staff of the PBU. The PBU determines the maximum amount of pollutants that would be discharged if the proposed local limits were imposed. These are compared to existing NPDES limits, or if not limited theoretical Water Quality Based Effluent limits generated by GLEAS. PBU forwards their recommendations to the District Supervisor. To the extent that NPDES permit limits become more restrictive due to the Great Lakes Initiative (GLI), local limits may need to become more stringent to reduce the amount of pollutants discharged to the POTW by industrial users.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1		Permittee	Site Address	City	State	Zip Code	Local Limit Parameters							Categorical Parameters
2							Compatibles	Metals	FOG	CN	Hg	VOCs	pH	
3	1	Agropur Inc.	5252 Clay Avenue S.W.	Wyoming	MI	49548	x	x	x				x	
4	2	Allied Photo Lab	517 32nd Ave SE	Wyoming	MI	495482303		x					x	
5	3	American Metal & Plastics	450 - 32nd Street S.W.	Grand Rapids	MI	49508		x					x	
6	4	Amerikam	1337 Judd S.W.	Wyoming	MI	495091096		x					x	
7	5	Antonucci, Joseph DDS	937 52nd Street SE	Kentwood	MI	49508					x			
8	6	Argo, Dean DDS	4489 Byron Center Ave.	Wyoming	MI	49519					x		x	
9	7	Atlas EPS	8240 Byron Center Road S.W.	Byron Center	MI	49315	x		x				x	
10	8	BASF										x		
11	9	Benteler Industries Inc.	3721 Hagen Drive S.E.	Wyoming	MI	49548	x	x	x				x	
12	10	Bishop, Larissa DDS	4050 Del Mar Drive SW Suite B	Grandville	MI	49418					x		x	
13	11	Brillcast	3400 Wentworth Drive S.W.	Wyoming	MI	49509		x					x	
14	12	Caraustar Industries	1957 Beverly SW	Wyoming	MI	49509	x	x					x	
15	13	Cascade Die Casting	7750 S Division	Grand Rapids	MI									No Discharge
16	14	Center Manufacturing #1	990 - 84th Street S.W.	Byron Center	MI	49315	x	x	x				x	
17	15	Clore, Jerry L. DMD	334 68th St. SW	Grand Rapids	MI	49548					x		x	
18	16	Coe, Kevin D.D.S.	4760 Kalamazoo	Grand Rapids	MI	49508					x		x	
19	17	Combs, Keith D.D.S.	2411 Byron Station Dr. SW	Byron Center	MI	49318					x		x	
20	18	Conlon, Steven DDS	6208 Kalamazoo Ave	Grand Rapids	MI	49508					x		x	
21	19	Country Fresh Inc	2555 Buchanan S.W.	Wyoming	MI	495081091	x		x				x	
22	20	Country Fresh Inc - 24 Hour	2555 Buchanan SW	Wyoming	MI	49508	x	x	x				x	
23	21	Despres, Richard DDS	5102 Byron Center	Wyoming	MI	49519					x		x	
24	22	Detail Technologies	5900 Cross Roads Commerce Dr	Wyoming	MI	49519	x	x	x				x	
25	23	Dew, Jason DDS	900 52nd Street	Wyoming	MI	49519					x		x	
26	24	Dyna Plate	344 Mart S.W.	Wyoming	MI	495081015		x		x			x	x
27	25	ElectroChemical Finishing 1	379 - 44th Street S.W.	Wyoming	MI	49508		x		x			x	x
28	26	ElectroChemical Finishing 2	2610 Remico S.W.	Wyoming	MI	495092490		x		x			x	x
29	27	Fingleton, Iliana DDS	4124 56th Street, Suite 4	Grandville	MI	49418					x		x	
30	28	Garchow, Peter DDS	630 36th Street SW	Wyoming	MI	49509					x		x	
31	29	GLR Properties	1710 Clyde Park	Grand Rapids	MI	49508	x	x	x				x	
32	30	GM Components Holdings LLC	2100 Burlingame S.W.	Wyoming	MI	49509	x	x	x			x	x	x
33	31	Gordon Food Service (50th)	P.O. Box 1787 50th St.	Grand Rapids	MI	495091787	x	x	x				x	
34	32	Gordon Food Service (Clay)	P.O. Box 1787 Clay St.	Grand Rapids	MI	49509-1787	x		x				x	
35	33	Grand Northern Products	9000 Byron Commerce Dr	Byron Center	MI	49315	x	x					x	
36	34	Great Lakes Tank Wash	5565 Clay S.W.	Wyoming	MI	495095798	x		x				x	x
37	35	Hahn, Kevin DDS	954 52nd Street SE	Kentwood	MI	49508					x		x	
38	36	Held, Richard DDS	5278 Kalamazoo SE	Kentwood	MI	49508					x		x	
39	37	Helmus, Jeff DDS	2663 44th Street SW Suite 204	Wyoming	MI	49519					x		x	
40	38	Hoekwater, Jim DDS	2024 Health Drive, SW Suite A	Wyoming	MI	49509					x		x	
41	39	Hur, James DDS	1402 36th St. SW	Wyoming	MI	49509					x		x	
42	40	Jeld-wen	4200 Roger B. Chaffee Drive	Wyoming	MI	495083487	x						x	
43	41	Keith Combs, DDS	2411 Byron Station Drive SW	Byron Center	MI	49318					x			
44	42	Kellogg's North	3300 Roger B Chaffee	Grand Rapids	MI	49508	x		x				x	
45	43	Kellogg's South	3750 Roger B Chaffee	Grand Rapids	MI	49508	x		x				x	
46	44	Kent Design	3522 Lousma Dr. S.E.	Grand Rapids	MI	495482282	x	x	x	x	x		x	
47	45	Kentwood Fire Station #3	5340 Eastern Ave. SE	Kentwood	MI	49508						x		
48	46	Kentwood Landfill	1500 Scribner N.W.	Grand Rapids	MI	495043299		x			x		x	
49	47	Licari, Brian DDS	4050 Del Mar Dr. SW Suite A	Grandville	MI	49418					x		x	

Compatibles: BOD, TSS, and/or phos
Metals: As, Cd, Cr, Cu, Pb, Mo, Ni, Se, Ag, Zn
Categorical parameters are specific to the industry's federal category

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
50	48	Light Metals	2740 Prairie SW	Wyoming	MI	495090902		x					x	x
51	49	Magic Finishing	2947 Buchanan S.W.	Wyoming	MI	49548	x	x					x	x
52	50	Mancewicz, Gary DDS	2351 Countrywood Dr.	Kentwood	MI	49508					x		x	
53	51	McCoy, Steven DDS	1500 44th Street	Kentwood	MI	49508					x		x	
54	52	Mechanical Finishing	1350 Belfield S.W.	Wyoming	MI	495091807		x					x	
55	53	Media Center	3670 Jefferson SE	Wyoming	MI	49508		x					x	
56	54	Metal Components	3281 Roger B. Chaffee S.E.	Wyoming	MI	495482321		x					x	x
57	55	Metro Health	5900 Byron Center	Wyoming	MI	49519	x						x	
58	56	Michigan Turkey Producers	2140 Chicago Dr SW	Wyoming	MI	49509	x		x					
59	57	Michigan Turkey Producers 1 - 24	2140 Chicago Drive	Wyoming	MI	49509	x	x	x				x	
60	58	Michigan Turkey Producers 2	1100 Hall Street SW	Grand Rapids	MI	495034961	x							
61	59	Michigan Turkey Producers 2 - 24	1100 Hall Street SW	Grand Rapids	MI	49503	x	x	x				x	
62	60	Novak, Stephen DDS	1500 44th Street	Kentwood	MI	49508					x		x	
63	61	Otten, Justin D.D.S.	2255 Lee Street	Wyoming	MI	49519					x		x	
64	62	Padnos Wyoming Recycling Division	500 - 44th Street SW	Wyoming	MI	49548	x	x					x	
65	63	Peters, Drs. Daniel and Debra D.D.S.	6651 Crossings Dr. SE Suite A	Kentwood	MI	49508					x		x	
66	64	Phillips, David DDS	2110 Enterprise Street, Ste 201	Kentwood	MI	49508					x		x	
67	65	Plummer's Environmental Services	10075 Sedroc Industrial Drive	Byron Center	MI	49315	x	x	x	x	x		x	x
68	66	Plummer's Septic	4750 Clyde Park SW	Wyoming	MI	49509	x	x	x				x	
69	67	Pratt Industries	2000 Beverly S.W.	Wyoming	MI	495191798	x	x					x	
70	68	Precision Finishing	1010 Chicago Drive S.W.	Wyoming	MI	495091199		x					x	
71	69	Quality Brass	1251 Judd S.W.	Wyoming	MI	49509								No Discharge
72	70	Quest Diagnostics	2740 - 28th Street S.W.	Wyoming	MI	49518					x		x	
73	71	Rader, Ralph DDS	1535 44th Street	Wyoming	MI	49509					x		x	
74	72	Ralcorp Frozen Bakery Products	1661 28th Street SW	Grand Rapids	MI	49519	x		x				x	
75	73	Rapid Line Manufacturing	1475 Gezon Parkway SW	Wyoming	MI	49509		x	x	x			x	x
76	74	Reliance Finishing	1236 Judd S.W.	Wyoming	MI	495091094		x					x	x
77	75	Roman Manufacturing	861 - 47th Street S.W.	Wyoming	MI	49509		x					x	
78	76	Rossi, Joseph D.D.S.	4611 N. Breton SE	Kentwood	MI	49508					x		x	
79	77	Smiths Group	Gannett Fleming Inc.	Madison	WI	537171900						x		
80	78	Snyder, Steven J., D.D.S.	2700 84th Street SW	Byron Center	MI	49315					x		x	
81	79	South Kent Landfill	1500 Scribner NW	Grand Rapids	MI	495043299	x	x			x		x	
82	80	Spartan Stores	850 - 76th Street S.W.	Byron Center	MI	493159333	x						x	
83	81	Star Truck Rental	3940 Eastern S.E.	Wyoming	MI	49508	x		x				x	
84	82	Stockwell Mfg.	4971 Clay S.W.	Wyoming	MI	49508	x	x	x				x	
85	83	Suspa	3970 Roger B. Chaffee S.E.	Wyoming	MI	495083440	x	x					x	x
86	84	Univar USA Inc.	2940 Stafford SW	Wyoming	MI	49508						x		
87	85	UPS	5757 Clyde Park S.W.	Wyoming	MI	49509	x						x	
88	86	USF Holland Inc.	4600 Clyde Park S.W.	Wyoming	MI	495095198	x	x	x		x		x	
89	87	Van Solkema Produce	2630 Prescott St SW	Byron Center	MI	49315	x						x	
90	88	Van Timmeren Family Dentistry	2757 44th Street SW Suite 303	Wyoming	MI	49519					x		x	
91	89	VanderLaan, Matthew DDS	6714 S. Division Ave	Grand Rapids	MI	49548					x		x	
92	90	VanderMeer, Todd, D.D.S.	1869 Porter Street	Wyoming	MI	49519					x		x	
93	91	Waste Management	1668 Porter S.W.	Wyoming	MI	495091796	x	x					x	
94	92	Weber, Dean, D.D.S.	1621 44th Street	Wyoming	MI	49509					x		x	
95	93	Westbrook, Wayne DDS	3125 68th Street SE	Dutton	MI	49316					x		x	
96	94	Wikoff Color Corp.	3410 Jefferson SE	Wyoming	MI	49509		x					x	
97	95	Wil-Kast	8025 S. Division	Byron Center	MI									No Discharge
98	96	Zuidema, Lee DDS	6677 Crossings Drive SE	Grand Rapids	MI	49508					x		x	

Compatibles: BOD, TSS, and/or phos
Metals: As, Cd, Cr, Cu, Pb, Mo, Ni, Se, Ag, Zn
Categorical parameters are specific to the industry's federal category

Grand Rapids IPP List

	Permittee	Site Address	City	State	Zip Code	Local Limit Parameters							Categorical Parameters
						Compatibles	Metals	FOG	CN	Hg	VOCs	pH	
1	Allied Finishing Inc	4100 Broadmoor Ave SE	Kentwood	MI	49512		x		x			x	x
2	American Seating, North Bldg.	401 American Seating Center	Grand Rapids	MI	49504		x		x			x	x
3	Spectrum Industries Wealthy	700 Wealthy St., S.W.	Grand Rapids	MI	49504		X						
4	Di-Anodic Finishing	736 Ottawa Ave., N.W.	Grand Rapids	MI	49503		x		x			x	x
5	Grand Rapids Stripping Co.	1933 Will Ave, N.W.	Grand Rapids	MI	49504		x					x	
6	H. R. Terryberry Company	2033 Oak Industrial Dr., N.E.	Grand Rapids	MI	49505		x		x			x	
7	HCP Finishing LLC	1516 Blaine Ave SE	Grand Rapids	MI	49507		x		x			x	x
8	Haviland Products Co (East)	421 Ann St. NW	Grand Rapids	MI	49504		x		x			x	
9	Knape & Vogt Manufacturing Co.	2700 Oak Industrial Dr., N.E.	Grand Rapids	MI	49505		X						
10	Lacks Enterprises (Airlane)	4260 Airlane, S.E.	Kentwood	MI	49512		x		x			x	x
11	Master Finish Company	1160 Burton St.	Grand Rapids	MI	49507		x		x			x	x
12	Midwest Plating Company, Inc.	613 North Ave., N.E.	Grand Rapids	MI	49503		x		x			x	x
13	Lacks Enterprises (Plastic Plate)	1648 Monroe Ave., N.W.	Grand Rapids	MI	49505		x		x			x	x
14	Steelcase Inc. (Kentwood East)	4386 52nd St. SE	Kentwood	MI	49512		x		x			x	x
15	Valley City Plating	3353 Eastern, S.E.	Grand Rapids	MI	49508		x		x			x	x
16	Decc Company, Inc.	1266 Wallen, S.W.	Grand Rapids	MI	49507		X						
17	CSX Transportation, Inc.	945 Freeman St., S.W.	Grand Rapids,	MI	49503			x			x	x	
18	Spectrum Health-Butterworth 58	100 Michigan, NE	Grand Rapids	MI	49503		x						
19	Access Business Group L.L.C.	7575 Fulton, E.	Ada	MI	49355	x							
20	Mitco Inc. a division of DuBois Chemica	1601 Steele Ave., S.W.	Grand Rapids	MI	49507		X						
21	Dematic Corp. (0077)	507 Plymouth,N.E.	Grand Rapids	MI	49505		x		x			x	
22	Knoll, Inc.	4300 36th St., S.E.	Grand Rapids	MI	49512		x		x			x	x
23	Irwin Seating	3251 Fruitridge N.W.	Grand Rapids	MI	49544		X						
24	Arkema Inc.	1415 Steele Ave., S.W.	Grand Rapids	MI	49507								no discharge
25	Kentwood Powder Coat Inc.	3900 Swank, S.E.	Grand Rapids	MI	49512		x		x			x	x
26	Lacks Enterprises (Paint East)	4375 52nd St. SE	Kentwood	MI	49512		x				x	x	
27	Steelcase Inc. (Kentwood West)	4360 52nd St. SE	Kentwood	MI	49512		x		x			x	x
28	Controlled Plating Tech.	1100 Godfrey Ave., S.W.	Grand Rapids	MI	49503		X						
29	Michigan Medical P.C.	4100 Lake Dr. SE	Grand Rapids	MI	49546		x						
30	Orthopaedic & Spinal Assoc.	751 Kenmoor Ave., S.E.	Grand Rapids	MI	49546		x						
31	Midwest Plating Plant II	738 Lafayette, N.E.	Grand Rapids	MI	49503		x		x			x	x
32	Spectrum Cubic McConnell	13 McConnell, S.W.	Grand Rapids	MI	49504						x		
33	Walgreen's Store #2581	1601 Kalamazoo Ave. SE	Grand Rapids	MI	49507		x						
34	Industrial Stripping Services	2235 29th St. SE	Grand Rapids	MI	49508		x					x	
35	Professional Metal Finishers	2474 Turner St., N.W.	Grand Rapids	MI	49544		X						
36	Pro-Finish Powder Coating	1000 Ken-O-Sha Industrial Dr.	Grand Rapids	MI	49508		x		x			x	x
37	Premier Finishing	3180 Fruitridge Ave NW	Walker	MI	49544		x		x			x	
38	G.E. Aviation	3290 Patterson Ave., S.E.	Grand Rapids	MI	49512		x		x			x	x
39	American Seating, West Bldg.	801 Seward St., N.W.	Grand Rapids	MI	49504		x		x			x	x
40	Meijer, Inc, Store # 158	1997 E. Beltline, Knapp's Corner	Grand Rapids	MI	49525		X						
41	Walgreen's #5095	1964 Fuller Ave., N.E.	Grand Rapids	MI	49505		x						
42	Valley City Environmental Services	1040 Market Ave., S.W.	Grand Rapids	MI	49503	x	x						
43	Haviland Products Co (West)	525 Ann St. NW	Grand Rapids	MI	49504		x					x	
44	West Michigan Coating	3150 Fruitridge Ave., N.W.	Walker	MI	49544		X						
45	Grand Rapids Chair Company	625 Chestnut St., S.W.	Grand Rapids	MI	49503		x		x			x	
46	Concentra Medical Center 0689	933 3 Mile Rd., N.W.	Grand Rapids	MI	49544-1673		x						
47	Southern Lithoplate DBA American Lith	4150 Danvers Ct., S.E.	Grand Rapids	MI	49512							x	
48	Costco Wholesale #784	5100 28th St. SE	Grand Rapids	MI	49512		x						
49	Lacks Industries, Inc. (0711)	4090 Barden S.E.	Kentwood	MI	49512		X						
50	Walgreen's Store #9131	2643 Kalamazoo Ave., S.E.	Grand Rapids	MI	49507		x						
51	Keeler Brass Company - Kentwood	2929 32nd St.	Kentwood	MI	49512		x				x	x	
52	Advance Plating and Finishing	840 Cottage Grove St. SE	Grand Rapids	MI	49507		x		x			x	x
53	Accurate Coating Inc.	955 Godfrey Ave SW	Grand Rapids	MI	49503		x		x			x	x
54	Yamaha Musical Products	3050 Breton Ave SE	Kentwood	MI	49512						x		
55	Walgreens#4413	6790 Cascade Rd. SE	Grand Rapids	MI	49546		x						

Compatibles: BOD, TSS, and/or phos
Metals: As, Cd, Cr, Cu, Pb, Mo, Ni, Se, Ag, Zn
Categorical parameters are specific to the industry's federal category

Grand Rapids IPP List

	Permittee	Site Address	City	State	Zip Code	Local Limit Parameters							Categorical Parameters
						Compatibles	Metals	FOG	CN	Hg	VOCs	pH	
56	Ventra Grand Rapids 29, LLC	2890 29th st. SE	Grand Rapids	MI	49512		X						
57	Speedway SuperAmerica #8767	4417 Remembrance Road	Walker	MI	49534-1121						X		
58	Haviland Products Co (North)	2168 Avastar Parkway	Grand Rapids	MI	49544		x					x	
59	Walgreens #12777	4365 Lake Michigan Dr. N.W.	Walker	Michigan	49534		x						
60	Coatings Plus, Inc.	675 Chestnut St. SW	Grand Rapids	MI	49503		x		x			x	
61	Lacks Enterprises (Paint West)	4245 52nd St.	Kentwood	MI	49512		x				x	x	
62	Michigan Street Orthopedics, PC	1300 Michigan St. Suite 200	Grand Rapids	Michigan	49503		X						
63	Autocam Medical, LLC.	4162 East Paris Ave, SE	Kentwood	MI	49512		x		x			x	x
64	El Matador Tortilla Factory	45 Franklin, S.W.	Grand Rapids	MI	49507	x							
65	Earthgrains Baking Company Inc.	210 28th St., S.E.	Grand Rapids	MI	49548	x							
66	Keebler Company	310 28th St. SE	Grand Rapids	MI	49548	x							
67	Model Coverall Services	100 28th St. SE	Grand Rapids	MI	49548	x							
68	Eurasia Feather	655 Evergreen, S.E.	Grand Rapids	MI	49507	x							
69	Valley City Linen	10 Diamond SE	Grand Rapids	MI	49506	x							
70	Arnie's Bakery, Div of Arnie's Inc	815 Leonard St., N.W.	Grand Rapids	MI	49504	x							
71	Cintas Walker	3149 Wilson Dr. NW	Walker	MI	49544	x							
72	Kerry Sweet Ingredients	4444 52nd St. SE	Kentwood	MI	49512	x							
73	Hearthside Food Solutions LLC	3061 Shaffer Ave	Grand Rapids	MI	49501	x							
74	Cheeze Kurls	2915 Walkent Dr. N.W.	Grand Rapids	MI	49544	x							
75	Roskam Broadmoor	5353 Broadmoor Ave.	Kentwood	MI	49501	x							
76	Hearthside Oak Industrial	2455 Oak Industrial Dr	Grand Rapids	MI	49505	x							
77	Hearthside 44th St.	4185 44th St.	Grand Rapids	MI	49512	x							
78	Roskam 2600 29th	2600 29th St.	Grand Rapids	MI	49512	x							
79	Roskam 4855 52nd St	4855 52nd St.	Kentwood	MI	49512	x							
80	Hearthside 3225 32nd St	3225 32nd St.	Kentwood	MI	49512	x							
81	Roskam 3035 32nd St.	3035 32nd St.	Kentwood	MI	49512	x							
82	ConAgra Foods	4490 44th St.	Grand Rapids	MI	49512	x							
83	Festida Foods Ltd	219 Canton SW	Grand Rapids	MI	49507	x							
84	Surefil	4560 Danvers Dr.	Kentwood	MI	49512	x							x
85	Advanced Food Technologies	1140 Butterworth S.W.	Grand Rapids	Michigan		x							
86	Baker Tent Rental	201 Matilda ST NE	Grand Rapids	MI	49503								volume only billing

Compatibles: BOD, TSS, and/or phos
Metals: As, Cd, Cr, Cu, Pb, Mo, Ni, Se, Ag, Zn
Categorical parameters are specific to the industry's federal category

Appendix C

RESIDUALS MANAGEMENT PROGRAM APPENDIX C

Michigan Part 24 Rules Summary -Reporting / Recordkeeping Requirements:

R 323.2416 Reporting:

(2) Each biosolids generator and distributor shall annually report to the DEQ for each fiscal year, the number of dry tons of biosolids it generated or the number of dry tons of biosolids in derivatives it distributed that were applied to land in the state of Michigan in the state fiscal year. A biosolids generator located in the state of Michigan that land applies outside the state of Michigan will be assessed only an administrative fee and a fee for biosolids that are land applied in the state of Michigan. The report is due 30 days after the end of the state fiscal year.

(3) A generator or distributor that land applied biosolids or a derivative to land within the state at any time during the previous state fiscal year shall report to the DEQ the information required in Record Keeping Requirements, R 323.2413 (3) to (8), except R 323.2413 (6) (b), (7) (b), and (8) (b), on or before October 30. **See summary of record keeping requirements**

(Optional) Submittal of the Biosolids Recycling Sheets (formerly sludge disposal sheets) with the annual report for each land application site used during the previous state fiscal year will help meet the record keeping requirements contained in R 323.2413 (f) (g) and (h). An electronic or hardcopy version of this form can be obtained on the DEQ's Biosolids web page or by contacting the appropriate District Office listed in Appendix A.

R 323.2413 Record Keeping:

(1) A generator shall keep records for a minimum of 5 years unless a longer period is specified by the permitting authority.

(2) A person who generates bulk biosolids or bulk derivatives, including a generator out of state shall keep the following records available for inspection and copying.

(a) Site information, of each application site, which includes the following:
- (i) Plat map
- (ii) Soil survey map, if available
- (iii) Name and address of property owner and farm operator if different from owner
- (iv) Latitude and Longitude

(b) Written consent from the property owner and the farm operator if different from owner.

(c) Written agreement between the generator and the farmer not to apply biosolids from other sources or septage to a listed land application site.

(d) Biosolids analysis parameters listed in table 1 R 323.2409 at the frequency of analysis stated in table 7 of R 323.2412.

(e) Soil fertility test results for each site.

(f) Summary of all application activity, including:
- (i) Site identification
- (ii) Biosolids analysis
- (iii) Total acres on the site
- (iv) Acres used
- (v) Application rate in dry tons per acre
- (vi) Each nutrient required to be monitored in pounds per acre
- (vii) Each pollutant listed in table 3, in pounds per acre

(g) If biosolids have been applied that exceed table three limits than the generator shall keep records documenting the cumulative loading for life.

(h) An annual summary, including the following:
- (i) Biosolids volume generated
- (ii) Total dry tons applied
- (iii) Total dry tons disposed of by other methods
- (iv) Total acres used
- (v) Sites that received biosolids application subject to table 2 of R 323.2409 (5) (b).

Part 24 Rules Certification Requirement Citations

- Class A - person who derives R 323.2413(4)(b)
- Class A - person who prepares R 323.2413(5)(a)(ii)
- Class A - person who applies R 323.2413(5)(b)(ii)
- Class B - person who prepares R 323.2413(6)(a)(ii)
- Class B - person who applies R 323.2413(6)(b)(i)
- CPLR - person who prepares R 323.2413(7)(a)(ii)
- CPLR - person who applies R 323.2413(7)(b)(vi) for site information and R 3232.2413(7)(b)(viii) for management practices
- Class B - person who applies R 323.2413(7)(b)(x) for site restrictions
- Class B - person who applies R 323.2413(7)(b)(xii) for injection or incorporation to meet VAR
- APLR - person who prepares R 323.2413(8)(c)

A person who prepares can be either a generator or a person who derives a material from biosolids.

RESIDUALS MANAGEMENT PROGRAM APPENDIX C

40 CFR Part 503 -Reporting / Recordkeeping / Certification Responsibilities

TYPE OF BIOSOLIDS	RECORDS THAT MUST BE KEPT	PERSON RESPONSIBLE			RECORDS TO REPORT
		PREPARER		APPLIER	
EQ Biosolids	Pollutant Concentrations	X			X
	Pathogen reduction certification and description	X			X
	Vector attraction reduction certification and description	X			X
PC Biosolids	Pollutant Concentrations	X			X
	Management practice certification and description			X	
	Site restriction certification and description (where Class B pathogen requirements are met)			X	
	Pathogen reduction certification and description	X			X
	Vector attraction reduction certification and description	X		*X	X
CPLR Biosolids	Pollutant Concentrations	X			X
	Pathogen reduction certification and description	X			X
	Management practice certification and description			X	
	Site restriction certification and description (where Class B pathogen requirements are met)			X	
	Pathogen reduction certification and description	X			X
	Vector attraction reduction certification and description	X	or	*X	X
	Other information: Certification and description of information gathered(from previous applier, landowner, or permitting authority re: existing CPLR at site from previous biosolids applications) *Site location* *Number of hectares* *Amount of biosolids applied* *Cumulative amount of pollutant applied (including previous amounts)* *Date of application*			X	**X
APLR Biosolids Retail/sold or given away	Pollutant Concentrations	X			X
	Management practice certification and description	X	or	X	X
	Pathogen reduction certification and description	X			X
	Vector attraction reduction certification and description	X			X
	The AWBAR for the biosolids	X			X

*(The preparer certifies and describes vector attraction reduction methods other than injection and incorporation of biosolids into the soil. The applier certifies when incorporating or injecting)

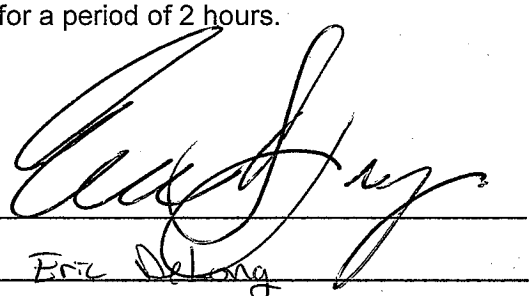
**(Some information reported when 90% or more of CPLRs is reached at a site)

Federal Certification
503.17(a)(4)(i)(B-C)

(B) The following certification statement: I certify, under penalty of law, that the information that will be used to determine compliance with the Class B pathogen requirements in § 503.32(b) and the vector attraction reduction requirement in (insert one of the vector attraction reduction requirements in § 503.33(b)(1) through (b)(8)if one of those requirements is met) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

(C) A description of how the Class B pathogen requirements in § 503.32(b) are met.

Sewage sludge is treated by Lime Stabilization, one of the Processes to Significantly Reduce Pathogens as described in Appendix B of Part 503. Sufficient lime is added to the sewage sludge on to raise the pH of the sewage sludge to 12. This pH is retained for a period of 2 hours.

Signed 

Printed Eric DeLong

Title GVRBA Chairperson

Date March 28, 2013

Federal Certification
503.17(a)(4)(ii)(A-D)

(A) "I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in § 503.14, the site restrictions in § 503.32(b)(5), and the vector attraction reduction requirement in (insert either § 503.33(b)(9) or (b)(10) if one of those requirements is met) was prepared for each site on which bulk sewage sludge is applied under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(B) A description of how the management practices in § 503.14 are met for each site on which bulk sewage sludge is applied.

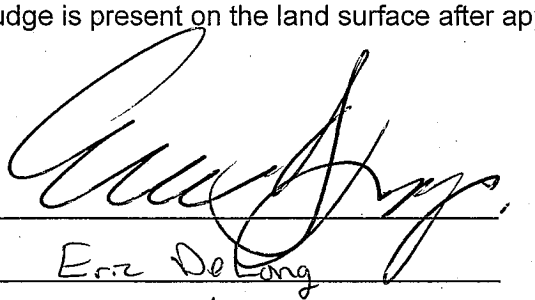
> Biosolids are applied to agricultural land by injection under the soil surface. Application is restricted to slopes under 7%, greater than 10 meters from the waters of the United States, at locations unlikely to adversely affect a threatened or endangered species, and biosolids are applied at equal to or less than the agronomic rate for the crop grown on the site.

(C) A description of how the site restrictions in § 503.32(b)(5) are met for each site on which bulk sewage sludge is applied.

> Biosolids are applied on fields by injection under the soil surface. Fields are used for feed crops only. Application occurs a minimum of 30 days prior to the harvesting season. Animal grazing and public access are not allowed on applied fields. Land owners limit access to fields to crop production only.

(D) When the vector attraction reduction requirement in either § 503.33 (b)(9) or (b)(10) is met, a description of how the vector attraction reduction requirement is met.

> Biosolids are injected below the subsurface of the land. Requirement 503.33(b)(9) is used. Injection is accomplished via a sludge injection vehicle. No significant amount of sludge is present on the land surface after application.

Signed 

Printed Eric DeLong

Title GVRBA Chairperson

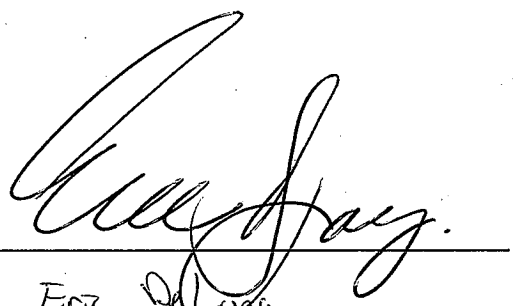
Date March 28, 2013

Michigan Rules Certification
Rule 323.2413(6)(a)(ii)

"I certify under, penalty of law, that the information that will be used to determine compliance with the class B pathogen requirements in R 323.2414(3) and the vector attraction reduction requirement in R 323.2415(4)(f) has been prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

Michigan Rules Certification
Rule 323.2413(6)(b)(i)

"I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in R 323.2410, the site restrictions in R 323.2414(3)(f), and the vector attraction reduction requirements in R 323.2415(4)(i) has been prepared for each site on which bulk biosolids are applied under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

Signed 

Printed Eric DeLong

Title GVRBA Chairperson

Date March 28, 2013

Appendix D

Landowner Agreements

Rule 323.2413(2)(b) and (c) requires written consent from the property owner and the farm operator to apply biosolids and a written agreement not to apply biosolids from other sources or septage to a listed land application site. Beyond these requirements, comprehensive formal agreements with participating landowners covering other aspects of land application are not required by statute or rule, however the DEQ recommends that they be developed with each participating landowner. Formal agreements make clear that the owner and/or operator of the land is aware of and agrees with the restrictions that are included in the Part 24 rules. Past failures to make sure that all parties are aware of their responsibilities have resulted in confusion and in extreme cases, settlements negotiated to avoid litigation.

The agreement should identify the biosolids generator, the application contractor (if used) the landowner, the farm operator (if different from the landowner), the lands on the property that will be involved, and the crops to be grown.

The agreement should also make clear that agents of the generator, federal, state and local regulatory staff might access the land for the purpose of inspecting the site, applying biosolids, obtaining soil samples, and testing.

The agreement should make sure that the land owner and farm operator understand that the biosolids must be applied in accordance with requirements of the Part 24 Rules and the federal Part 503 requirements. The owner and operator must understand that certain site management criteria must be met for proper utilization of biosolids.

We recommend that the following requirements of the Part 24 Rules be considered when drafting up agreements:

- A landowner shall not harvest food crops that have harvested parts which touch the biosolids/soil mixture and which are totally above the land surface for 14 months after biosolids are applied.
- A landowner shall not harvest food crops that have harvested parts below the surface of the land for 20 months after biosolids are applied if the biosolids remain on the land surface for 4 months or longer before incorporation into the soil.
- A landowner shall not harvest food crops that have harvested parts below the surface of the land for 38 months after biosolids are applied if the biosolids remain on the land surface for less than 4 months before incorporation into the soil.
- A landowner shall not harvest food crops, feed crops, and fiber crops for 30 days after biosolids are applied.
- A landowner shall not graze animals on the land for 30 days after biosolids are applied.
- A land owner shall not harvest turf grown on land where biosolids are applied for 1 year after biosolids are applied if the harvested turf is placed on either land that has a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.
- A landowner shall restrict public access to land that has a high potential for public exposure for 1 year after biosolids are applied.

Landowner Agreements, Appendix D, (cont.)

- A landowner shall restrict public access to land with a low potential for public exposure for 30 days after biosolids are applied.

The generator could agree to furnish the farmer with the amount of nutrients applied so that the farmer can adjust their fertilizer usage accordingly.

Agreements should consider transfer or sale of the property, where a new owner might want to change the use or cropping of the land. Restrictions on cropping or public access may interfere with new plans until the appropriate amount of time has passed. It is the responsibility of the generator to ensure that the site restrictions are maintained regardless if the property is transferred or sold and a formal agreement is a good method to help maintain that control.

The generator may wish to make clear that they do not guarantee specific quantities or delivery dates of biosolids, or crop yields.

It is recommended that an attorney review the draft landowner agreement before it is implemented.

Appendix E

Worksheet 1

Calculations for Determining PAN Mineralized From Residual Organic N Applied as Sewage Sludge in Previous Years

Residual N from previously-applied sewage sludge that will be mineralized and released as plant-available N (PAN) must be accounted for as part of the overall budget for PAN, when determining the agronomic N rate for sewage sludge (i.e., Worksheet 2). This residual N credit can be estimated for some sites using soil nitrate tests, but more commonly the PAN credit is estimated by multiplying a mineralization factor (K_{min}) times the amount of sludge organic N (Org-N) still remaining in the soil one and two years after sludge has been applied.

Instructions: Complete a separate chart for each year that sewage sludge was previously-applied. Studies and experience have shown that any residual sludge Org-N remaining 2-3 years after application will not contribute significantly to PAN normally mineralized from soil organic matter decomposition. Therefore, calculating PAN credits beyond the third year is usually not necessary. To determine total mineralized Org-N released as PAN, sum the values under Mineralized Org-N (Column D) for the "Growing Season Year" for which you are planning a new sludge application to estimate the residual N credit for sludge applications the previous two years.

A. Year of Growing Season[1]	B. Starting Org-N[2] (lb/acre)	C. Mineralization Rate[3] (K_{min})	D. Mineralized Org-N[4] or PAN (lb/acre)	E. Org-N Remaining[5] (lb/acre)
0-I (sludge applied)				
1-2 (one year later)				
2-3 (two years later)				

[1] Begin with the growing season (i.e., year the crop will be grown) for which sewage sludge was applied and continue two more years (i.e., two more growing seasons).
[2] For the first year, this equals the percent Org-N in the sludge times the rate of application. For years 1-2 and 2-3. this quantity equals the amount of Org-N remaining from the previous year (i.e., column E).
[3] The mineralization rate is the fraction of sludge Org.N expected to be released as PAN for the year being calculated. Example mineralization rates can be found in Table 7-7.
[4] Multiply column C times column B and round to the nearest whole pound.
[5] Subtract column D from column B and round to the nearest whole pound.

Table 7-7. Estimated mineralization rates (K_{min}) for different sewage sludges (from Sommers et al, 1981).

Time After Sewage Sludge Application (Years)	Fraction (K_{min})* of Organic N Mineralized From the Following Stages:			
	Unstabilized Primary and Waste	Aerobically Digested	Anaerobically Digested	Composted
0-1	0.40	0.30	0.20	0.10
1-2	0.20	0.15	0.10	0.05
2-3	0.10	0.08	0.05	-t
3-4	0.05	0.04		

* Fraction of the sludge organic N (Org-N) initially applied, or remaining in the soil, that will be mineralized during the time interval shown. K_{min} values are provided as examples only and may be quite different for different sewage sludges, soils, and climates. Therefore, site-specific data, or the best judgement of individuals familiar with N dynamics in the soil-plant system, should always be used in preference to these suggested K_{min} values.

t Once the mineralization rate becomes less than 3% (i.e., 0.03), no net gain of PAN above that normally obtained from the mineralization of soil organic matter is expected. Therefore, additional credits for residual sludge N do not need to be calculated.

RESIDUALS MANAGEMENT PROGRAM APPENDIX E

Example

Assume that anaerobically digested sewage sludge with 2.5% Org-N (dry weight basis) was applied at a rate of 3 ton/acre for the 1996 growing season. For the 1997 growing season, 2 ton/acre of a sludge containing 3.0% Org-N was applied to the same site. For the 1998 growing season, you want to calculate the amount of PAN that will be mineralized from the sludge Org-N applied in the previous 2 years.

In 1996, the sludge Org-N applied = $\frac{2.5 \text{ lb Org-N}}{100 \text{ lb sludge}} \times \frac{3 \text{ ton sludge}}{\text{acre}} \times \frac{2000 \text{ lb sludge}}{\text{ton sludge}}$ = 150 lb Org-N/acre

In 1997, the sludge Org-N applied = $\frac{3.0 \text{ lb Org-N}}{100 \text{ lb sludge}} \times \frac{2 \text{ ton sludge}}{\text{acre}} \times \frac{2000 \text{ lb sludge}}{\text{ton sludge}}$ = 120 lb Org-N/acre

Use Worksheet 1 to calculate the PAN released during the 1998 growing season from the sludge applied in 1996 and 1997.

A. Year of Growing Season	B. Starting Org.N (lb/acre)	C. Mineralization Rate (K_{min})	D. Mineralized Org-N (lb/acre)	E. Org-N Remaining (lb/acre)
1996 Sludge Application				
0-1 (1986 Application)	150	0.20	30	120
1-2 (1987)	120	0.10	12	108
2-3 (1988)	108	0.05	5	103
1997 Sludge Application				
0-1 (1987 Application)	120	0.20	24	96
1-2 (1988)	96	0.10	10	86
2-3 (1989)	86	0.05	4	82

To determine the total amount of PAN mineralized in 1998 from sludge applied in 1996 and 1997, add the Mineralized Org-N (or PAN) value in the 1998 row under column D for each year's chart (i.e., 5 + 10 = 15 lb PAN/acre). Therefore, the total PAN, or mineralized Org-N, for the 1998 growing season from previous sludge applications equals 15 lb/acre.

F. Year of Growing Season	G. Starting Org.N (lb/acre)	H. Mineralization Rate (K_{min})	I. Mineralized Org-N (lb/acre)	J. Org-N Remaining (lb/acre)
_____ Sludge Application				
0-1 (____ Application)				
1-2 (____)				
2-3 (____)				
_____ Sludge Application				
0-1 (____ Application)				
1-2 (____)				
2-3 (____)				

Worksheet 2
Nitrogen Budget Sheet for Determining the Agronomic N Rate for Sewage Sludge Applications

Symbols and Abbreviations Used

Org-N = Organic N content of the sewage sludge obtained from analytical testing and determined by subtracting (NO_3-N + NH_4-N) from total N, usually given in percent (%); the resulting concentration should be converted to lb/ton (dry weight basis).

NH_4-N = Ammonium N content of the sewage sludge obtained from analytical testing and usually given in percent (%); then convert to lb/ton (d.w. basis).

NO_3-N = Nitrate N content of the sewage sludge obtained from analytical testing and often given in mg/kg: then convert to lb/ton (d.w. basis).

K_{min} = Mineralization rate for the sewage sludge expressed as a fraction of the sludge Org-N expected to be released as PAN for the year being calculated; example mineralization rates for different sewage sludges can be found in Table 7-7.

K_{vol} = Volatilization factor for estimating the amount of NH_4-N remaining after loss to the atmosphere as ammonia and expressed as a fraction (e.g., if K_{vol} = 1.0. 100% of the NH_4-N is retained and contributes to PAN; if K_{vol} = 0.5. then (0.5 x NH_4-N Content) estimates the amount of NH_4-N contributing to PAN).

PAN = Plant-available N which is determined by calculating: NO_3-N + K_{vol}(NH_4-N) + K_{min}(Org-N)

Helpful Conversions

mg/kg x 0.002 = lb/ton	lb/acre x 1.12 = kg/ha	(lb/ton) / 2 = kg/mt
% x 20 = lb/ton	ton/acre x 2.24 = mt/ha	(mt = metric ton = 1000 kg)

1. Total N requirement of crop to be grown
   _____lb/acre

(obtain information from Cooperative Extension Service agricultural agents. USDA Natural Resource Conservation Service Conservationists. or other agronomy professionals).

2. Nitrogen provided from other N sources added or mineralized in the soil
   a. N from a previous legume crop (legume credit) or green manure crop _____lb/acre
   b. N from supplemental fertilizers already, or expected to be added
      _____lb/acre
   c. Estimate of available N from previous sludge applications (From Worksheet 1) _____lb/acre
   d. Estimate of available N from a previous manure application (obtain mineralization factors from land-grant university to calculate similarly as for previous sewage sludge applications).
   e. Soil nitrate test of available N present in soil [this quantity can be substituted in place of (a + d + e), if test is conducted properly; do not use this test value if estimates for a, d and c are used] _____lb/acre

   Total N available from existing, expected, and planned sources of N (add a+b+c+d+e or b+c+f)
3. Loss of available N by denitrification, immobilization, or NH_4^+ fixation
   _____lb/acre (check with state regulatory for regulatory for approval, before using this site-specific factor).

4. Calculate the adjusted fertilizer N requirement for the crop to be grown
   _____lb/acre
   (subtract Total N for 2 from 1; amount for 3 can be added to this difference, only if 3 is approved for this additional adjustment).

5. Determine the PAN/dry ton for the sludge that will be applied
   _____lb/acre
   [i.e.. NO_3-N + K_{vol} (NH_4-N) + K_{min} (Org-N) = PAN]

6. Calculate the agronomic N rate of sewage sludge (Divide 4 by 5)
   _____lb/ton
7. Convert the rate of sewage sludge in dry tons/acre into gallons/acre, cubic yards/acre, or wet tons/acre, since the sludge will be applied to land as a liquid or as a wet cake material.

Appendix F

RESIDUALS MANAGEMENT PROGRAM APPENDIX F

Notification Requirements:

R323.2408

(4)(a) A generator or distributor shall provide written notification not less than ten days before the initial land application. This notification shall be provided to the Resource Management Division district office, county health department, city, village, or township clerk in the jurisdiction of the land application site (See sample letter on Page 40). The notification shall include a cover letter comprised of the following:

(i)The proposed land application activity

(ii) The site location by latitude and longitude

(iii) A plat map identifying the site

(iv) The name and address of the property owner

(v) The name and address of the farm operator if different than the owner

(vi) A record of biosolids monitoring information containing the following:

(A) The most current monitoring results of the following:

(1) Arsenic
(2) Cadmium
(3) Copper
(4) Lead
(5) Mercury
(6) Molybdenum
(7) Nickel
(8) Selenium
(9) Zinc

(B) Applicable limitations

(C) Name, address, and phone number of the generator or distributor

(c) A person who prepares bulk biosolids that are applied to agricultural land, a forest, a public contact site, or a reclamation site, shall provide the person who applies the bulk biosolids with written notification of the concentration of the total nutrients, on a dry weight basis, in the bulk biosolids required to be monitored.

(d) A person who prepares bulk biosolids and provides the bulk biosolids to another person who prepares or applies these biosolids shall provide them with the proper notice and necessary information to comply with requirements in this part

(e) A person who applies bulk biosolids to the land shall provide the owner or leaseholder of the land on which the bulk biosolids are applied notice and necessary information to comply with all requirements in this part

(f) A person who land applies bulk biosolids subject to the cumulative pollutant loading rate in R 323.2409(5) (b) shall provide written notice, before the initial application of bulk biosolids to a land application site by the applier, to the permitting authority for the state in which the bulk biosolids will be applied. The permitting authority shall retain, and provide access to, the notice. The notice shall include the following information:

(i) The location, by latitude and longitude, of the land application site.

(ii) The name, address, telephone number, and national pollutant discharge elimination system (NPDES) permit number, if appropriate, of the person who will apply the bulk biosolids.

Michigan Department of Environmental Quality - Resource Management Division

RESIDUALS MANAGEMENT PROGRAM APPENDIX F

Facility Letterhead

Date:

To: County Health Department/ Township Clerk
Address

Subject: Biosolids Application Notification

Generator is preparing to apply biosolids (sewage sludge) on land located in township name (See attached plat map), owned by Name/Address of Property owner and operator, if different. This notice is provided in accordance with Michigan Part 24 Biosolids Rules, to inform you of our activities within your area, and to give you a basic understanding of the fertilizer value of this material. Generator will provide you free of charge any additional information as needed including any record created in accordance with State rules pertaining to the actual biosolids application.

The following analytical data represents the average contents of the biosolids that will be applied in your area. The U.S. EPA has developed the maximum limits from over 20 years of research. These limits represent a *conservative* annual application rate and at no time shall biosolids be applied which exceed any of these maximum values.

Most Recent Biosolids Average Analysis in mg/kg (dry weight basis)

Constituent	Concentration	Max. Allowable Concentration Limit
Arsenic (As)		75
Cadmium (Cd)		85
Copper (Cu)		4300
Lead (Pb)		840
Mercury (Hg)		57
Molybdenum (Mo)		75
Nickel (Ni)		420
Selenium (Se)		100
Zinc (Zn)		7500
Nitrogen (N)		Ag Rate
Phosphorus (P)		Ag Rate
Potassium (K)		Ag Rate

Biosolids are the nutrient-rich organic materials produced during the biological and physical treatment of wastewater. The solids treated during this process produce a stabilized liquid or semi-solid material that contains nutrients required for crop growth, as well as organic matter to condition the soil. Treated biosolids contain the three primary crop nutrients: nitrogen, phosphorus, and potassium. They also contain nutrients that crops need in smaller amounts. These "micronutrients" are not commonly found in commercial fertilizers.

The DEQ's, Resource Management Division, regulates the land application of biosolids. The program is endorsed by the Michigan Department of Agriculture and Rural Development, Michigan State University, Michigan Farm Bureau, Michigan Water Environment Association, Michigan Municipal League, U.S. Environmental Protection Agency, U.S. Department of Agriculture, and the U.S. Food and Drug Administration.

For more information, contact: generator
Address:
Phone:
Fax:DEQ, RMD, Twpntform, Ref Part 24 R.323.2408

APPENDIX G

WASTEWATER AND BIOSOLIDS TREATMENT PROCESSES FOR WYOMING, GRAND RAPIDS AND GVRBA

General Description of Wastewater Treatment at the Wyoming Clean Water Plant

The Wyoming Clean Water Plant (CWP) has a design flow of 24 MGD with an average daily flow of 16 MGD. The CWP utilizes conventional activated sludge as a means of wastewater treatment. The wastewater treatment process uses bar screens, grit removal, primary clarification, biological phosphorus removal (activated sludge), secondary clarification, and disinfection (chlorine gas and sulfur dioxide) before discharge to the Grand River occurs. Solids can be processed in a variety of ways either at the CWP or at the Grand Valley Regional Biosolids Authority (GVRBA) dewatering facility, as the following narrative notes.

Solids Processing at the CWP

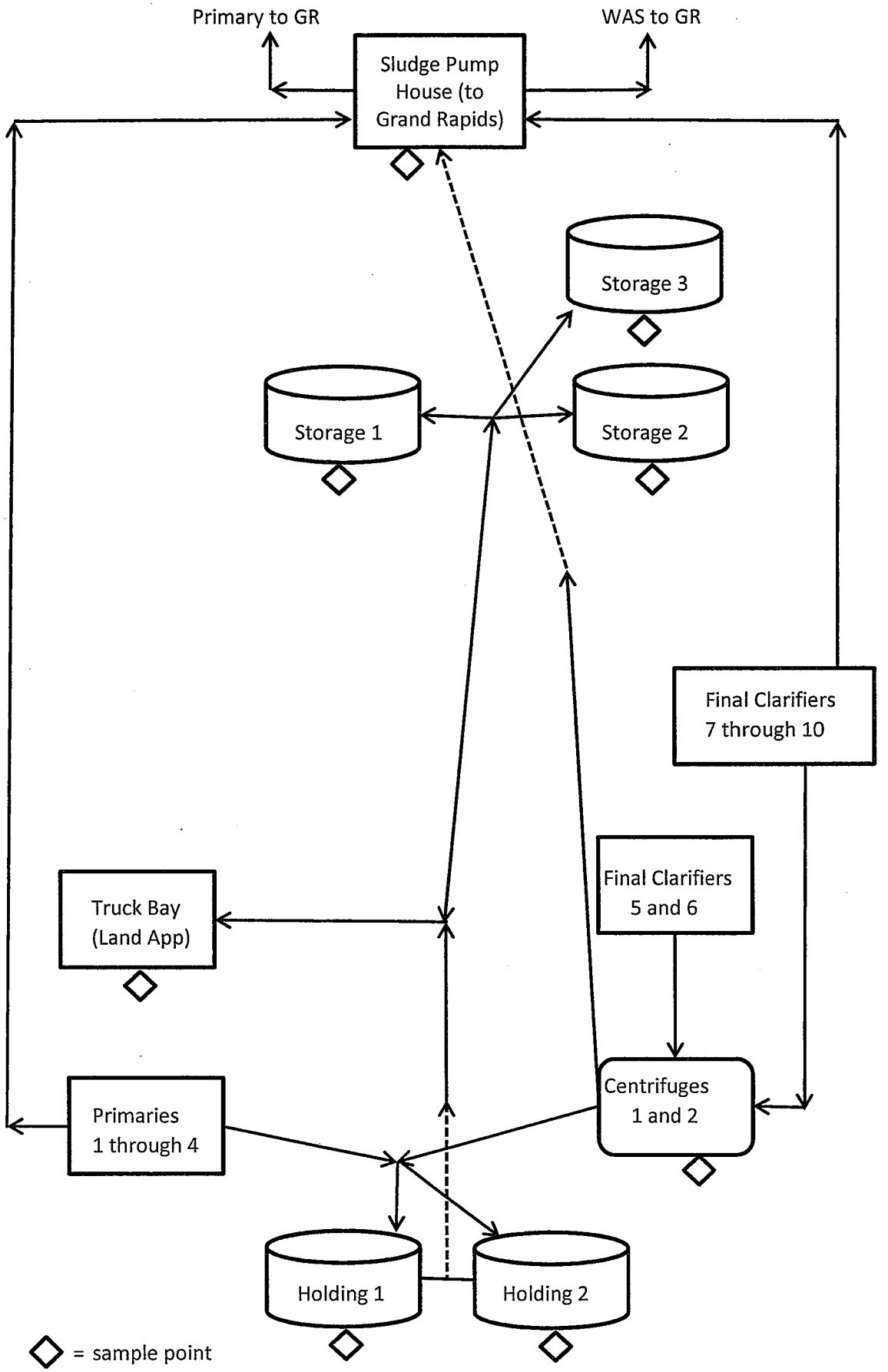
The attached diagram depicts the different paths that solid residuals flow through the CWP. All arrows represent solids (wastewater flows are not shown).

Primary sludge under normal conditions only contains primary sludge. On occasion it may contain a small amount of Waste Activated Sludge (WAS) that is pumped to the raw sewage wetwell to co-settle in the primaries. On rare occasion it also may contain sludge settled with ferric chloride, which is sometimes fed to the primary tanks during an upset condition. Primary sludge can be pumped to the holding tanks at the main building or directly to the wetwell of the Sludge Pump House to the GVRBA dewatering facility.

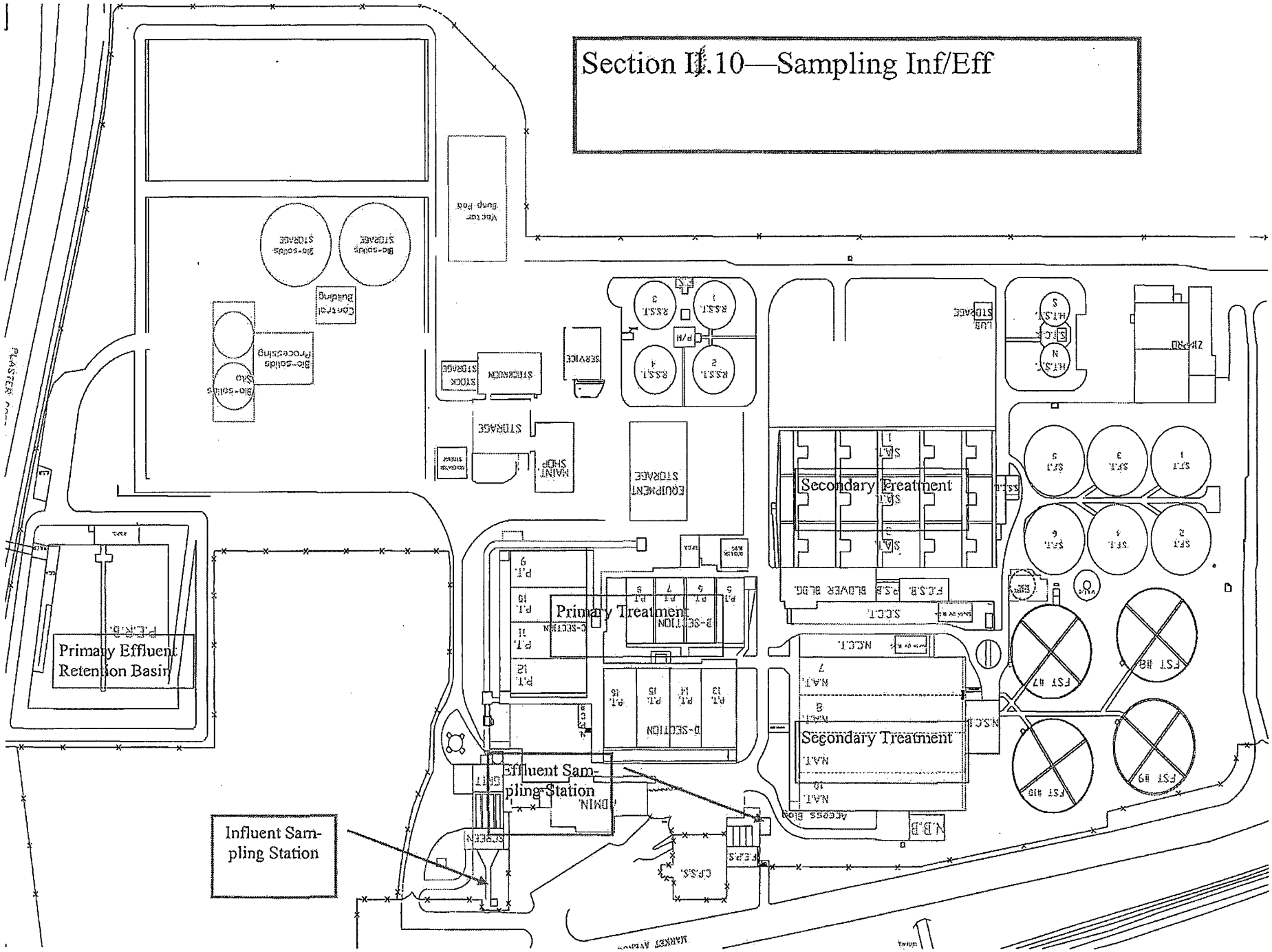
WAS generated in the final clarifiers can follow several paths. Usually the flow is sent from the final clarifiers to the centrifuges to be thickened and then blended with primary sludge in the holding tanks. At times, the WAS flow can be pumped from the final clarifiers back to the raw sewage wetwell to co-settle in the primaries. Finally, WAS flow can be pumped from the final clarifiers directly to the wetwell of the Sludge Pump House to the GVRBA dewatering facility.

Thickened sludge is usually shipped from the centrifuges to the holding tanks where it is blended with primary sludge or pumped directly to the Sludge Pump House to the GVRBA dewatering facility.

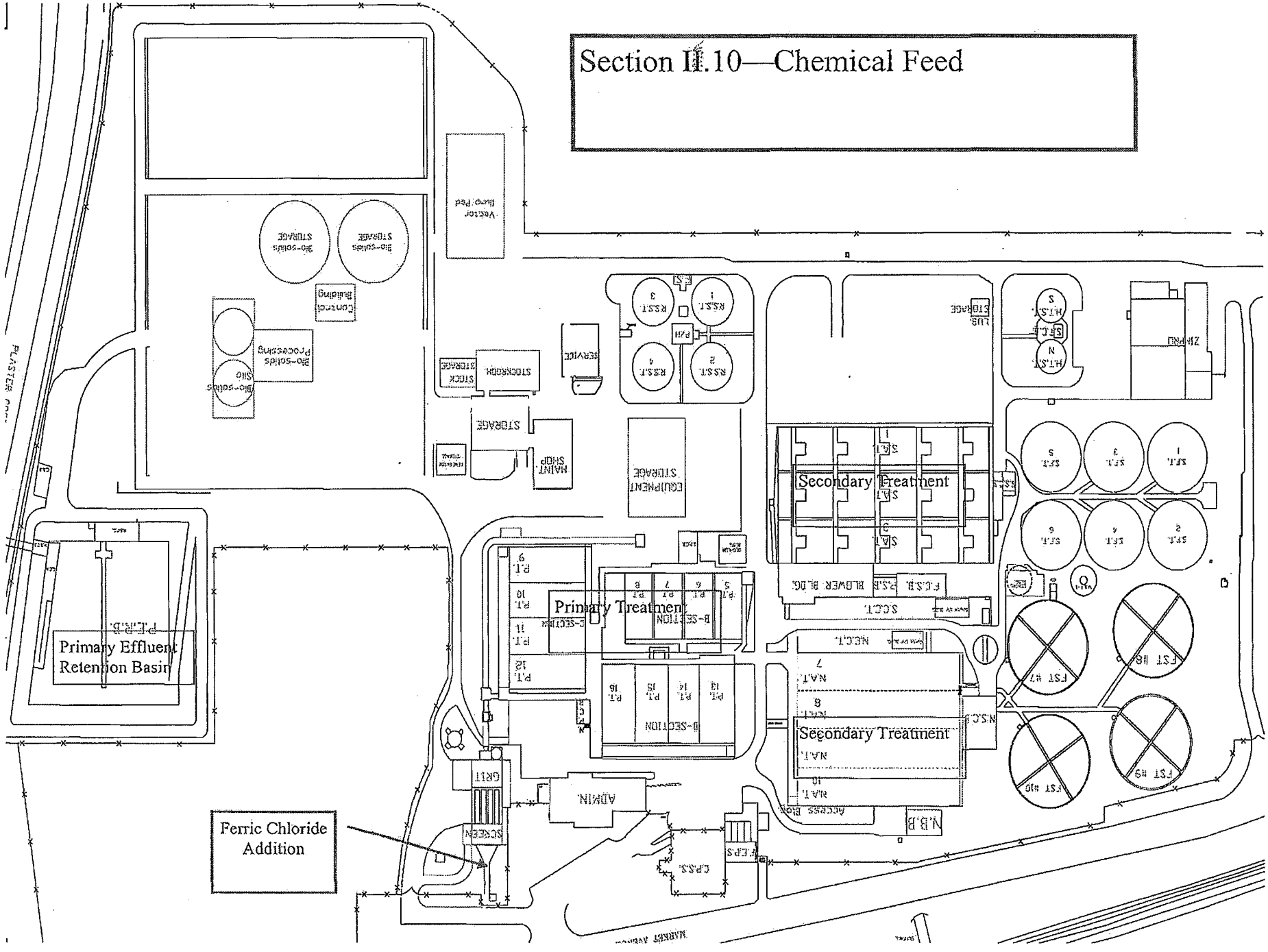
If the sludge is shipped to the holding tanks at the main building, it is lime stabilized and then either directly pumped to the truck bay for land application or pumped to the storage tanks at the back of the plant to await land application at a further date. Land application typically occurs nine months per year (as weather allows), and pumping to the GVRBA dewatering facility typically occurs three months per year. Solids processing at the GVRBA dewatering facility is detailed on a following process diagram and description.


Primary to GR
WAS to GR
Sludge Pump House (to Grand Rapids)
Storage 3
Storage 1
Storage 2
Final Clarifiers 7 through 10
Final Clarifiers 5 and 6
Truck Bay (Land App)
Centrifuges 1 and 2
Primaries 1 through 4
Holding 1
Holding 2
= sample point

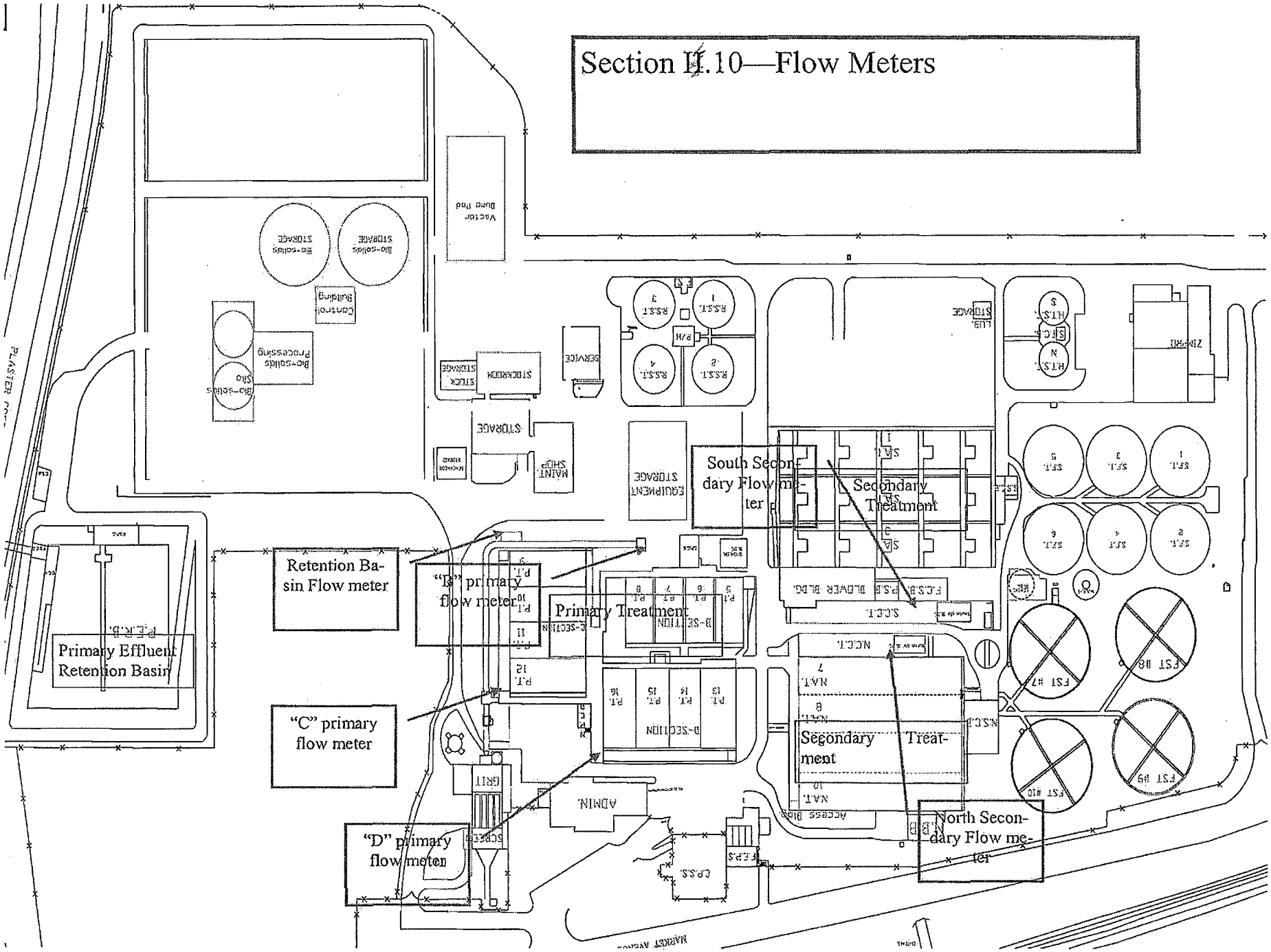
Section II.10—Sampling Inf/Eff



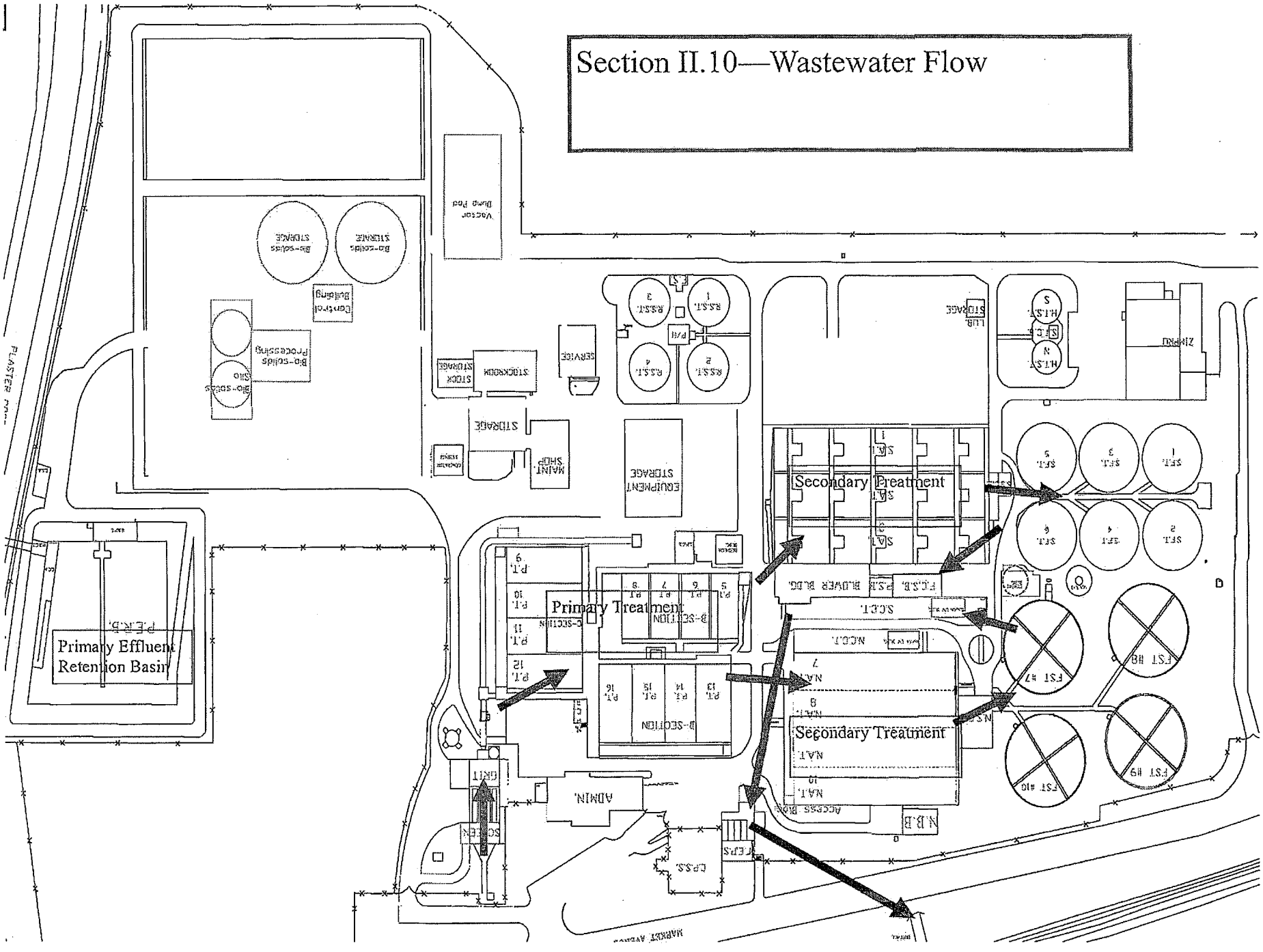
Section II.10—Chemical Feed



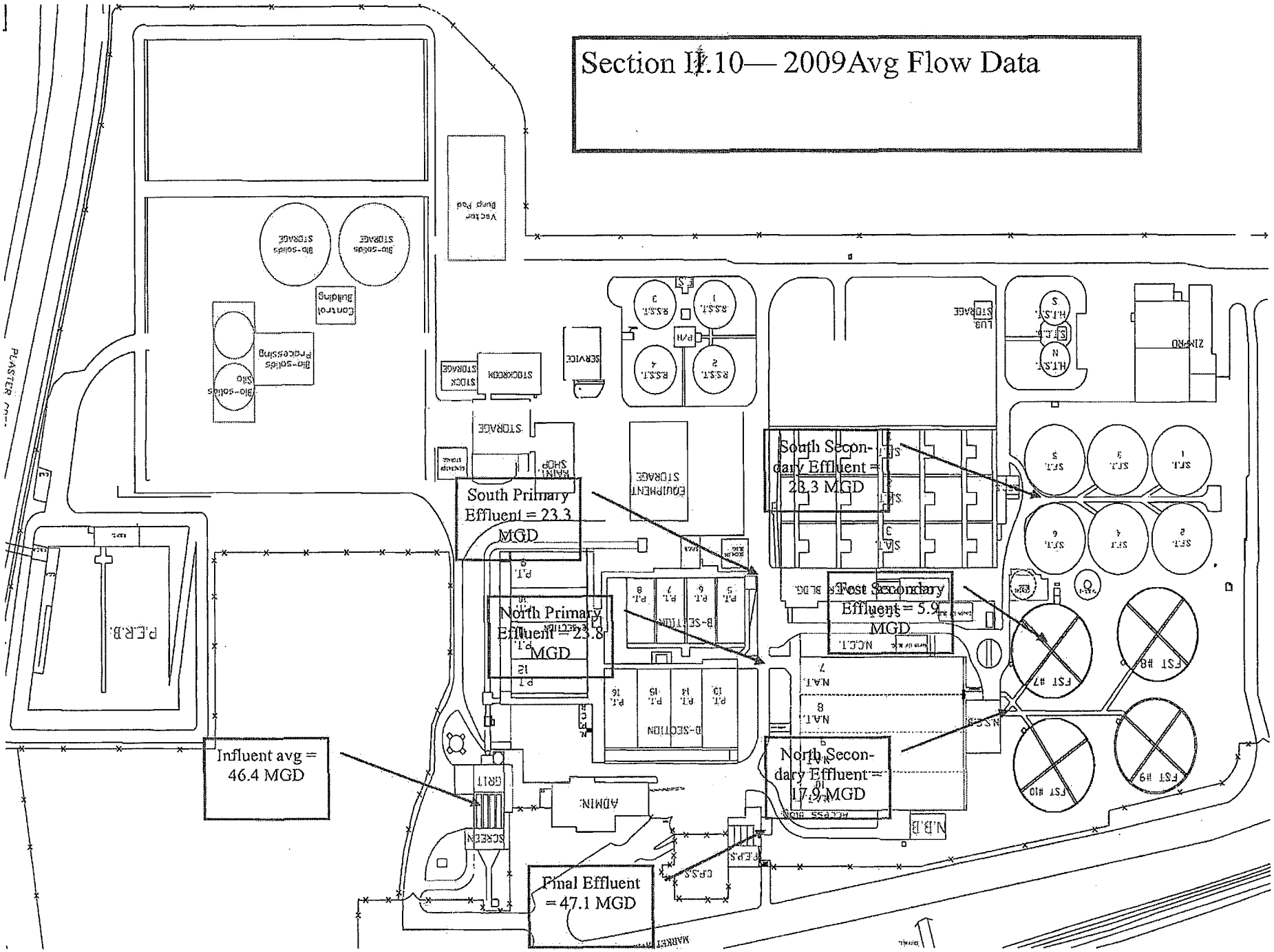
Section H.10—Flow Meters



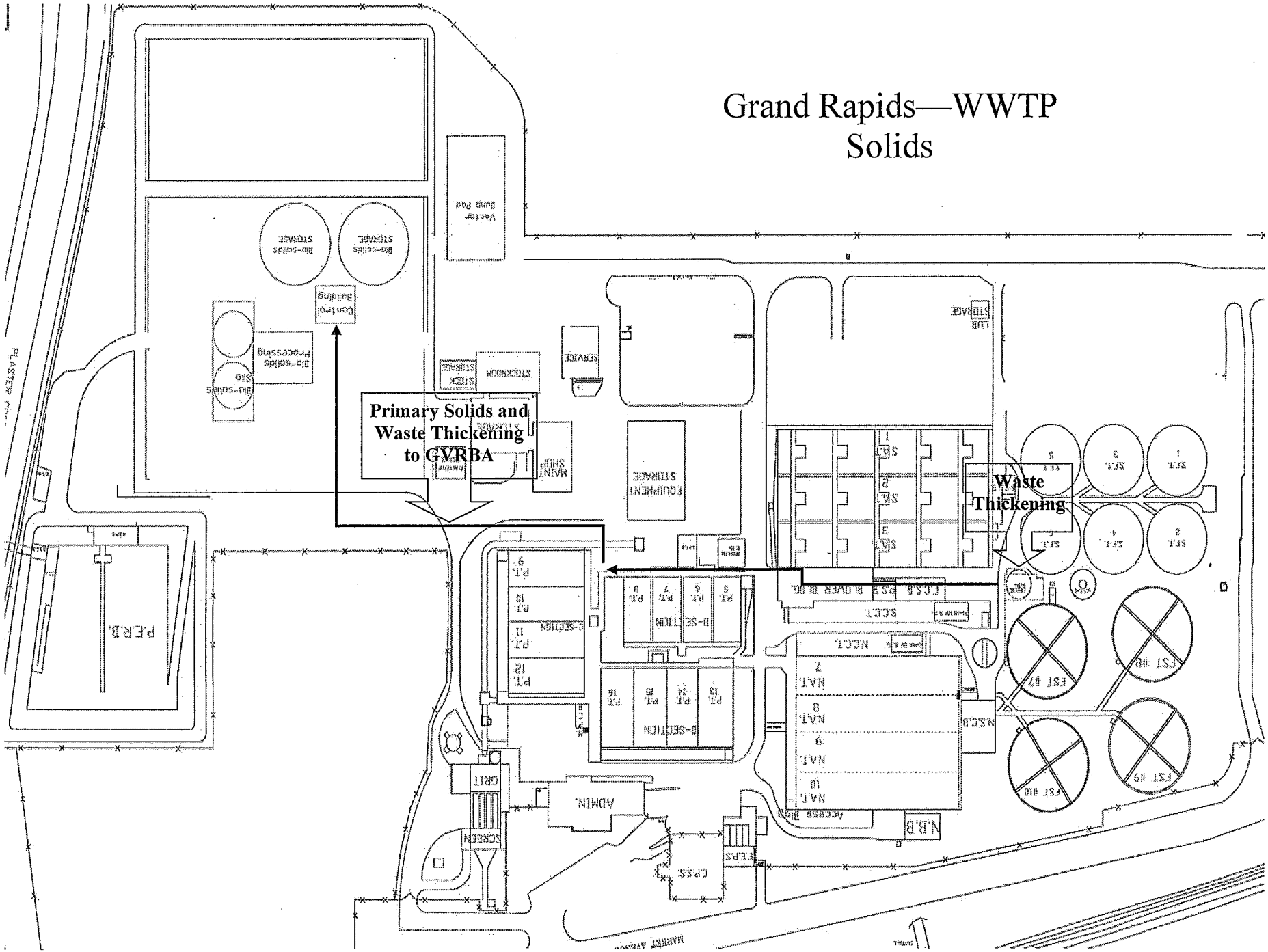
Section II.10—Wastewater Flow



Section II.10— 2009Avg Flow Data



Grand Rapids—WWTP
Solids



Grand Valley Regional Biosolids Facilities

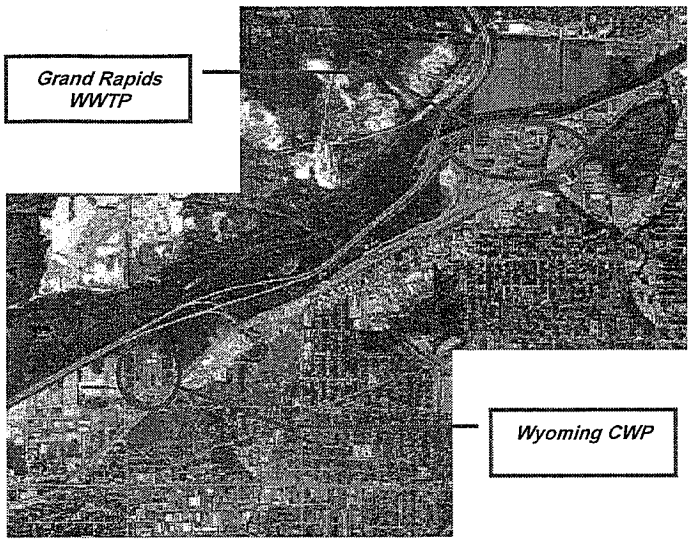
A. Joint Regional Biosolids Management Project

1. Project Purpose

The methods in which biosolids are processed and utilized have presented challenges to both the Grand Rapids Wastewater Treatment Plant (WWTP) and the Wyoming Clean Water Plant (CWP) for several years, prompting staff at both facilities to explore alternatives for the future of their respective biosolids programs. In response to similar challenges identified through separate evaluations at each facility, a regional approach was considered and agreed upon. The Grand Valley Regional Biosolids Authority (GVRBA) was formed to oversee and manage the implementation of the Joint Regional Biosolids Management Project. The initial project consists of four interconnected project segments:

1. Segment 1: Biosolids storage tanks, for waste activated sludge, primary sludge, and a Control Building at the Grand Rapids WWTP.
2. Segment 2: Biosolids Pump Station at the Wyoming CWP.
3. Segment 3: Two pipelines connecting the Pump Station and storage tanks.
4. Segment 4: Facilities for dewatering and truck loadout at the Grand Rapids WWTP.

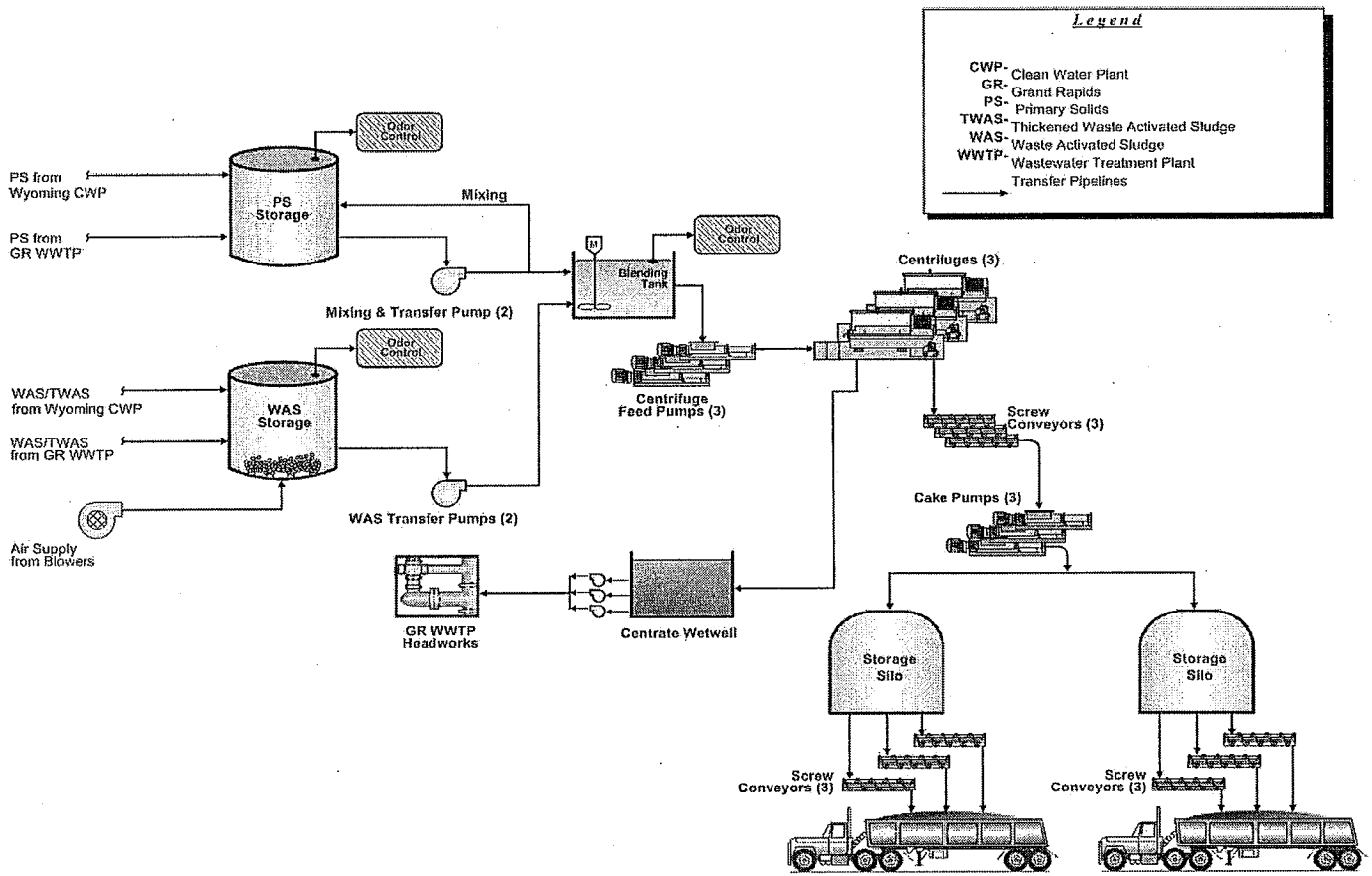
The following aerial photo shows the location of the Wyoming CWP and Grand Rapids WWTP in relationship to each other.



Showing Locations of Wyoming CWP and Grand Rapids WWTP

The following schematic depicts the overall biosolids conveyance and process flow from the Wyoming CWP through the truck Loadout Facility at the Grand Rapids WWTP.

Figure 1: Biosolids Transfer and Process Flow Schematic

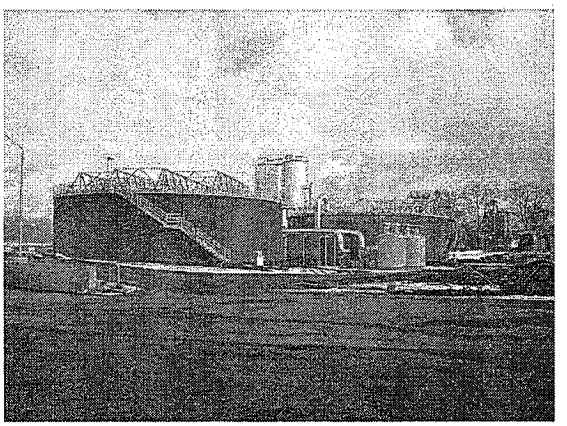


GVRBA BIOSOLIDS FACILITIES PROCESS SCHEMATIC

The following photos show the Biosolids Transfer Pump Station at the Wyoming CWP and the storage tanks and Dewatering Facilities at the Grand Rapids WWTP.

Picture 1: Biosolids Transfer Pumping Station

Picture 2: Biosolids Storage



Picture 3: Dewatering Facilities

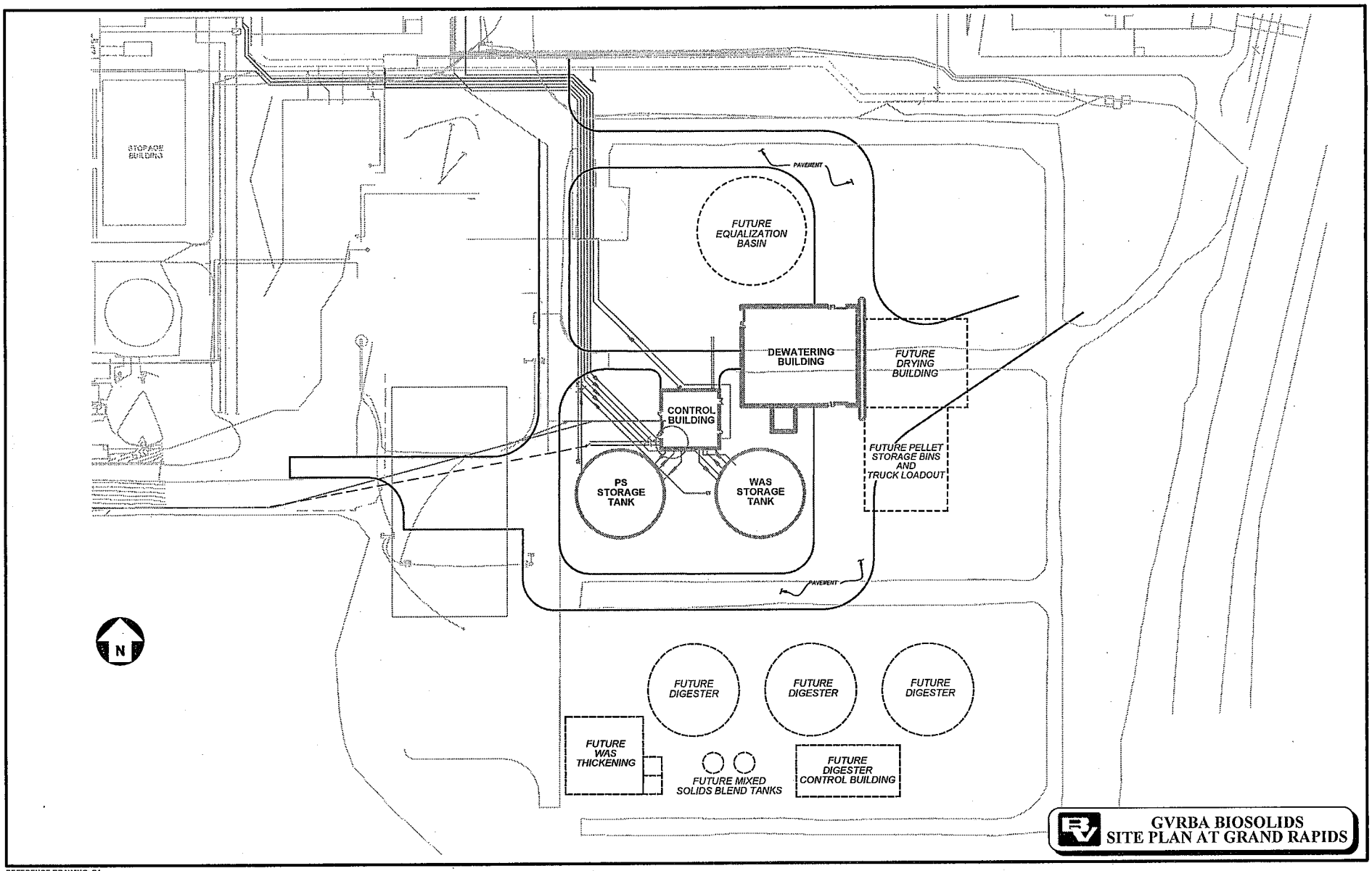
2. Project Description

This operations and maintenance (O&M) manual describes the GVRBA facilities at the Grand Rapids WWTP, and the GVRBA Pump Station at the Wyoming CWP. The facilities include the equipment and systems listed below:

- Biosolids storage tanks for primary and waste activated sludge.
- Biosolids blending tank.
- Centrifuges for dewatering.
- Centrate and cake conveyance.
- Storage silos and truck loadout facilities.
- Odor control.

Two ancillary systems, polymer and ferrous chloride feed, are not shown on the GVBRA Biosolids Process Schematic.

The following schematic depicts the GVRBA Biosolids Facilities Site Plan.



GVRBA BIOSOLIDS SITE PLAN AT GRAND RAPIDS

REFERENCE DRAWING: C1

Figure 2

The Grand Rapids WWTP biosolids are composed of primary sludge, waste activated sludge (WAS), thickened waste activated sludge (TWAS), and/or co-settled sludge (CSS).

These biosolids streams are managed as described in the sections below:

a. Primary Sludge

Primary sludge removed from the liquid process facilities at the Grand Rapids WWTP is directly discharged from the primary clarifiers to the GVRBA primary sludge storage tank, where it is combined with primary sludge from the Wyoming CWP. The primary sludge is pumped from the bottom of each primary clarifier on a relatively continuous basis based on a daily check of the sludge blanket level in the clarifiers.

Two underground 8 inch lines that exit the piping gallery at the southeast corner of the B-Section primary settling tanks transfer the primary sludge. Valves can be positioned to pump primary sludge to either the primary sludge storage tank or the WAS storage tank.

b. WAS and TWAS

Activated sludge is removed from the final clarifiers on a continuous basis, with WAS pumps drawing solids off the return activated sludge (RAS) pump discharge lines. The WAS can be conveyed directly to the (1) GVRBA WAS storage tank, (2) Grand Rapids WWTP centrifuges for thickening, or (3) primary clarifiers for co-settling.

WAS from the North Plant is transferred to the GVRBA storage facilities through a 10 inch WAS line. The WAS from the South Plant is conveyed to the GVRBA storage facilities through a 12 inch WAS pipe that exits the South Primary Control Building. The WAS is combined with WAS and TWAS from the Wyoming CWP at the storage tank.

TWAS from the Grand Rapids WWTP centrifuges can be transferred to either the WAS or primary sludge storage tank at the Grand Rapids WWTP. TWAS conveyed to the storage tank combines with Wyoming CWP WAS/TWAS. A 6 inch pipeline conveys TWAS from the southeast corner of the B-Section primary settling tanks through the piping gallery and exits adjacent to the WAS and primary sludge lines. Valves are provided to allow flexibility in operations so that each plant (North and

South) can independently thicken or send WAS directly to the GVRBA storage facility.

Due to the pumping characteristics of TWAS, the TWAS pumps need to be started by pumping unthickened WAS. TWAS can be added to the WAS flow after initial pump startup. Piping is configured to allow either unthickened WAS or partially thickened WAS to be sent to the WAS storage tank by sending a portion of the WAS through the Grand Rapids WWTP thickening centrifuges and then re-combining the thickened and unthickened streams. Control of the partially thickened WAS is as follows:

- Valves allow a portion of the flow to be sent through the centrifuges and the remainder of the flow to bypass the centrifuges and transfer to the WAS storage tank.
- TWAS pump discharge piping is configured to allow the sludge to be sent to the WAS storage tank. If utilizing aeration for phosphorous control in the WAS storage tank, operation strategies are required to limit the resultant concentration of WAS to 2 percent Total Solids (% TS). This is the maximum concentration for proper aeration to prevent phosphorous release. It is necessary for plant staff to periodically check the resultant sludge concentration at the mixing point of combined WAS and TWAS, and adjust the modulating valve set point as required.

c. Co-settled Sludge

WAS is discharged to the primary clarifiers during co-settling. The resultant CSS is pumped from the bottom of each primary clarifier on a relatively continuous basis based on a daily check of the sludge blanket level in the clarifiers to the GVRBA primary sludge storage tank. Valves allow flexibility of operation to enable each plant (North and South) to co-settle independently.

d. Primary Sludge and WAS Storage Tanks

The primary sludge and WAS storage tanks are sized to receive and temporarily store biosolids from both the Grand Rapids and Wyoming plants, including sludge removed in daily plant operations at each plant and sludge accumulated and stored in the tanks when the GVRBA dewatering facilities are not operating. Primary sludge storage concentrations are approximately 3.5 percent TS; WAS ranges from 0.7 (unthickened) to 2.0 percent TS when both plants are thickening WAS. Volumes in the primary sludge storage tank are greater than that in the WAS storage tank when

the Grand Rapids WWTP operates in the co-settling mode. In this mode, the Grand Rapids WWTP has the option of directing a portion of unthickened or partially thickened WAS directly to the WAS storage tank.

The sludge is pumped from the storage tanks to a blending tank, where it is mechanically mixed and pumped to the centrifuges. The centrifuges separate the solids from the liquids. Polymer is added to the centrifuge feed to aid in dewatering. A shaftless screw conveyor transfers the solids (cake) into a progressive cavity pump, from where they are pumped into two sliding frame silos for temporary storage prior to truck loadout. Polymer is added to the sludge discharge pipe a short distance downstream of the cake pump to prevent buildup of excessive pressure in the discharge line. Screw conveyors located in the bottom of the silos convey the cake into trucks. The liquid centrate from the centrifuge drains to a wetwell, and is pumped to the head of the plant.

Odor control at the facilities includes carbon adsorption units. Ferrous chloride may be fed to reduce the loading to the carbon adsorption units. In addition, ferrous chloride may be used to prevent phosphorus release.

The required GVRBA operating schedule varies based on actual loadings to the storage tanks and dewatering facilities, including biosolids directed to land application from the Wyoming CWP. As of April 2010, the dewatering facilities have been operated when the electrical energy cost is lowest, which includes nights and weekends. The dewatering system can only be operated when there is space available in the silos; therefore, it is important to have sufficient space in the silos to meet the dewatering requirements when hauling is not possible.

During peak loading periods, the dewatering facilities may be required to continue operations through Saturday morning until the landfill closes or, continue dewatering operations on Sunday or holiday evenings in order to begin hauling biosolids as soon as the landfill re-opens. It may be necessary to store dewatered sludge in trucks until it can be delivered to the landfill, depending on production rates.

The detailed Basis of Design and Operations Reports for Segments 1 and 4 are available by selecting the following links:

- Basis of Design Report – Segment 1: Storage Facilities
- Basis of Design Report – Segment 4: Dewatering Facilities

APPENDIX H

BIOSOLIDS ANALYTICAL DATA

Analytical Information

For Land Applied Biosolids

10/1/2012 mg/kg	1st 2	2nd 2
Cd	0.200	
Cr	38.400	
Cu	211.500	
Pb	12.100	
Mo	8.700	
Ni	26.400	
Zn	588.300	
As	<1.27	
Se	<5.10	
Hg	0.180	

Nov-12	1st 2	2nd 2
Cd	0.300	0.300
Cr	33.800	36.000
Cu	240.000	254.400
Pb	10.300	9.600
Mo	8.300	8.400
Ni	21.800	20.400
Zn	568.300	575.700
As	<1.15	<1.28
Se	<4.60	<5.14
Hg	0.27	0.210

Dec-12	1st 2	2nd 2
Cd	<0.12	<0.10
Cr	33.600	33.500
Cu	207.900	200.100
Pb	10.200	8.300
Mo	7.600	8.100
Ni	18.900	19.500
Zn	542.400	591.200
As	<1.46	<1.28
Se	<5.83	<5.13
Hg	0.12	0.170

Jan-13	1st 2	2nd 2
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

Feb-13	1st 2	2nd 2
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

Mar-13	1st 2	2nd 2
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

Apr-13	1st 2	2nd 2
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

May-13	1st 2	2nd 2
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

Jun-13	1st 2	2nd 2
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

Jul-13	1st 2	2nd 2
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

Aug-13	1st 2	2nd 2
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

Sep-13	1st 2	2nd 2
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

2011 Biosolids Metals Data in mg/kg, taken every two weeks while hauling

	Jan-11	
	1st 2	2nd 2
Cd	0.600	
Cr	94.700	
Cu	193.900	
Pb	8.800	
Mo	4.500	
Ni	10.800	
Zn	769.600	
As	<2.78	
Se	<2.78	
Hg	0.12	

	Feb-11	
	1st 2	2nd 2
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

	Mar-11	
	1st 2	2nd 2
Cd	0.500	
Cr	149.000	
Cu	194.200	
Pb	10.600	
Mo	4.500	
Ni	13.500	
Zn	981.800	
As	<3.18	
Se	<3.18	
Hg	0.130	

	Apr-11	
	1st 2	2nd 2
Cd	0.600	0.600
Cr	88.600	170.800
Cu	247.700	250.900
Pb	9.900	11.300
Mo	5.400	6.000
Ni	14.200	17.100
Zn	1183.000	1291.100
As	3.100	1.700
Se	<4.16	<4.52
Hg	0.17	0.160

	May-11	
	1st 2	2nd 2
Cd	0.600	0.700
Cr	195.700	151.800
Cu	235.800	255.200
Pb	15.000	16.500
Mo	6.700	8.100
Ni	22.400	23.400
Zn	1416.300	1141.300
As	1.400	2.000
Se	<5.47	<5.27
Hg	0.100	0.190

	Jun-11	
	1st 2	2nd 2
Cd	0.900	0.800
Cr	129.900	119.100
Cu	286.000	267.000
Pb	17.900	13.500
Mo	8.800	7.800
Ni	23.200	20.800
Zn	1039.700	969.600
As	3.200	4.100
Se	<5.10	<4.68
Hg	0.240	0.270

	Jul-11	
	1st 2	2nd 2
Cd		0.700
Cr		154.900
Cu		308.000
Pb		13.500
Mo		7.400
Ni		26.400
Zn		1106.100
As		<1.80
Se		<7.20
Hg		0.200

	Aug-11	
	1st 2	2nd 2
Cd	0.700	0.700
Cr	162.300	186.500
Cu	294.500	279.100
Pb	16.900	15.200
Mo	8.700	9.800
Ni	24.300	21.700
Zn	1231.700	1490.600
As	<1.46	2.000
Se	7.300	5.900
Hg	0.140	0.210

	Sep-11	
	1st 2	2nd 2
Cd	0.700	0.500
Cr	227.400	182.600
Cu	246.800	204.200
Pb	15.300	9.200
Mo	10.900	7.800
Ni	23.000	16.300
Zn	1843.900	1318.900
As	<1.18	<1.16
Se	<4.72	<4.62
Hg	0.150	0.150

	Oct-11	
	1st 2	2nd 2
Cd	0.600	0.600
Cr	238.500	234.200
Cu	212.500	241.700
Pb	10.300	14.800
Mo	8.400	8.100
Ni	22.400	18.300
Zn	1467.600	1455.800
As	3.000	3.900
Se	<3.93	<5.14
Hg	0.230	0.160

	Nov-11	
	1st 2	2nd 2
Cd	0.500	0.500
Cr	251.300	240.900
Cu	220.000	219.900
Pb	13.500	13.800
Mo	7.700	8.400
Ni	20.000	18.800
Zn	1381.700	1410.900
As	<1.17	<1.15
Se	<4.68	5.800
Hg	<0.10	0.190

	Dec-11	
	1st 2	2nd 2
Cd	0.600	0.600
Cr	185.400	146.600
Cu	215.300	211.000
Pb	15.900	14.300
Mo	8.200	7.600
Ni	18.300	18.600
Zn	1243.500	1070.100
As	<1.14	<1.14
Se	<4.54	<4.57
Hg	0.34	0.400

SEMI-VOLATILE JAN-JUNE 2011

Sample Date:	1/11/2011	1/11/2011	4/21/2011	4/21/2011	4/18/2011	
Month:	January		April			
Sample Point:	Influent	Effluent	Influent	Effluent	Bioisolids	
Compound	ug/l	ug/l	ug/l	ug/l	mg/kg	
N-nitrosodimethylamine	ND	ND	ND	ND	ND	
bis (2-chloroethyl) ether	ND	ND	ND	ND	ND	
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	
bis (2-chloroisopropyl) ether	ND	ND	ND	ND	ND	
N-nitrosodi-n-propylamine	ND	ND	ND	ND	ND	
Hexachloroethane	ND	ND	ND	ND	ND	
Nitrobenzene	ND	ND	ND	ND	ND	
Isophorone	ND	ND	ND	ND	ND	
bis (2-chloroethoxy) methane	ND	ND	ND	ND	ND	
Benzoic acid	ND	ND	ND	NA	ND	
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	
Naphthalene	ND	ND	ND	ND	ND	
Hexachlorobutadiene	ND	ND	ND	ND	ND	
2-Methylnaphthalene	ND	ND	ND	ND	ND	
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	
2-Chloronaphthalene	ND	ND	ND	ND	ND	
Dimethyl phthalate	ND	ND	ND	ND	ND	

2,6-Dinitrotoluene	ND	ND	ND	ND	ND	
Acenaphthylene	ND	ND	ND	ND	ND	
Acenaphthene	ND	ND	ND	ND	ND	
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	
Diethyl phthalate	5.1	ND	ND	ND	ND	
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	
Fluorene	ND	ND	ND	ND	ND	
N-nitrosodiphenylamine	ND	ND	ND	ND	ND	
1,2-Diphenylhydrazine	NA	NA	ND	ND	ND	
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	
alpha BHC	NA	NA	NA	NA	ND	
Hexachlorobenzene	ND	ND	ND	ND	ND	
beta BHC	NA	NA	NA	NA	ND	
gamma BHC (Lindane)	NA	NA	NA	NA	ND	
Phenanthrene	ND	ND	ND	ND	ND	
Anthracene	ND	ND	ND	ND	ND	
delta BHC	NA	NA	NA	NA	ND	
Heptachlor	ND	ND	NA	NA	ND	
Di-n-butyl phthalate	ND	ND	9.40	ND	ND	
Aldrin	NA	NA	NA	NA	ND	
Heptachlor epoxide	NA	NA	NA	NA	ND	
Fluoranthene	NA	NA	ND	ND	ND	
gamma Chlordane	NA	NA	NA	NA	1.20	
Benzidine	NA	NA	ND	ND	ND	
alpha Chlordane	NA	NA	NA	NA	ND	
Endosulfan II	NA	NA	NA	NA	ND	
Pyrene	ND	ND	ND	ND	ND	

Sample Date:	1/11/2011	1/11/2011	4/21/2011	4/21/2011	4/21/2011	
Month:	January		April			
Sample Point:	Influent	Effluent	Influent	Effluent	Biosolids	
Compound	ug/l	ug/l	ug/l	ug/l	mg/kg	
4,4-DDE	NA	NA	NA	NA	ND	
Dieldrin	NA	NA	NA	NA	ND	
Endrin	NA	NA	NA	NA	ND	
4,4-DDD	NA	NA	NA	NA	ND	
Endosulfan I	NA	NA	NA	NA	ND	
Endrin aldehyde	NA	NA	NA	NA	ND	
Butyl benzyl phthalate	8.3	ND	ND	ND	ND	
4,4-DDT	NA	NA	NA	NA	ND	
Endosulfan sulfate	NA	NA	NA	NA	ND	
Endrin ketone	NA	NA	NA	NA	ND	
Methoxychlor	NA	NA	NA	NA	ND	
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	
Benzo (a) anthracene	ND	ND	ND	ND	ND	
bis (2-ethylhexyl) phthalate	13.0	ND	29.0	ND	ND	
Chrysene	ND	ND	ND	ND	ND	
Di-n-octyl phthalate	ND	ND	ND	ND	ND	
Benzo (b) fluoranthene	ND	ND	ND	ND	ND	
Benzo (k) fluoranthene	ND	ND	ND	ND	ND	
Benzo (a) pyrene	ND	ND	ND	ND	ND	

SEMI-VOLATILE 2011 JULY-DEC

Sample Date:	7/20/2011	7/25/2011		10/19/2011	10/18/2011
Month:	July		Oct		
Sample Point:	Influent	Effluent	Influent	Effluent	Bioisolids
Compound	ug/l	ug/l	ug/l	ug/l	mg/kg
N-nitrosodimethylamine	ND	ND	ND	ND	ND
bis (2-chloroethyl) ether	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND
bis (2-chloroisopropyl) ether	ND	ND	ND	ND	ND
N-nitrosodi-n-propylamine	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND
bis (2-chloroethoxy) methane	ND	ND	ND	ND	ND
Benzoic acid	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND

Indeno (1,2,3-cd) pyrene	ND	ND	ND	ND	ND
Dibenzo (a,h) anthracene	ND	ND	ND	ND	ND
Benzo (g,h,I) perylene	ND	ND	ND	ND	ND
PCB's	NA	NA	NA	NA	ND
Toxaphene	NA	NA	NA	NA	ND
Phenol	15.0	ND	ND	ND	250.0
2-Chlorophenol	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND
3 and 4-Methylphenol	ND	NA	ND	NA	580.0
2-Nitrophenol	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	5.60	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	NA	NA	NA	NA	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND
2-Methyl-4,6-dinitrophenol	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND
Pyridine	NA	NA	NA	NA	ND

NOTE:
Biosolids as mg/kg dry
ND = Not Detected
NA = Not Applicable

2,6-Dinitrotoluene	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND
Diethyl phthalate	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND
N-nitrosodiphenylamine	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND
alpha BHC	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND
beta BHC	ND	ND	ND	ND	ND
gamma BHC (Lindane)	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND
delta BHC	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND
Di-n-butyl phthalate	31.00	ND	ND	ND	ND
Aldrin	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND
gamma Chlordane	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND
alpha Chlordane	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND

Sample Date:	7/20/2011	7/25/2011		10/19/2012	10/18/2011
Month:	July		Oct		
Sample Point:	Influent	Effluent	Influent	Effluent	Biosolids

Compound	ug/L	ug/L	ug/L	ug/L	mg/kg
4,4-DDE	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND
4,4-DDD	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND
Butyl benzyl phthalate	12.00	ND	ND	ND	ND
4,4-DDT	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND
Endrin ketone	ND	ND	ND	ND	ND
Methoxychlor	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND
Benzo (a) anthracene	ND	ND	ND	ND	ND
bis (2-ethylhexyl) phthalate	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND
Benzo (b) fluoranthene	ND	ND	ND	ND	ND
Benzo (k) fluoranthene	ND	ND	ND	ND	ND
Benzo (a) pyrene	ND	ND	ND	ND	ND
Indeno (1,2,3-cd) pyrene	ND	ND	ND	ND	ND
Dibenzo (a,h) anthracene	ND	ND	ND	ND	ND
Benzo (g,h,I) perylene	ND	ND	ND	ND	ND
PCB's	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	910.0
2-Chlorophenol	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND
3 and 4-Methylphenol	ND	ND	ND	ND	580.0
2-Nitrophenol	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND

2,4-Dichlorophenol	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	6.50	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND
2-Methyl-4,6-dinitrophenol	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND
Pyridine	ND	ND	ND	ND	ND

NOTE:
Biosolids as mg/kg dry
ND = Not Detected
NA = Not Applicable

	Oct-10	
	1st 2	2nd 2
Cd	0.600	0.600
Cr	109.400	107.800
Cu	189.400	214.000
Pb	10.600	11.100
Mo	7.200	8.200
Ni	10.200	11.100
Zn	959.800	937.700
As	<3.98	<3.52
Se	<3.98	<3.52
Hg	0.220	0.230

	Nov-10	
	1st 2	2nd 2
Cd	0.600	0.500
Cr	176.500	179.400
Cu	205.800	179.400
Pb	11.900	10.000
Mo	7.700	7.500
Ni	17.900	15.900
Zn	1217.000	1196.400
As	3.600	<2.72
Se	<3.1	<2.72
Hg	0.14	0.110

	Dec-10	
	1st 2	2nd 2
Cd	0.500	0.500
Cr	154.200	122.100
Cu	186.700	198.700
Pb	13.000	9.700
Mo	7.200	5.500
Ni	14.000	12.300
Zn	1129.600	981.000
As	<2.78	<2.77
Se	<2.78	<2.77
Hg	0.13	0.140

	Jan-11	
	1st 2	2nd 2
Cd	0.600	
Cr	94.700	
Cu	193.900	
Pb	8.800	
Mo	4.500	
Ni	10.800	
Zn	769.600	
As	<2.78	
Se	<2.78	
Hg	0.12	

	Feb-11	
	1st 2	2nd 2
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

	Mar-11	
	1st 2	2nd 2
Cd		0.500
Cr		149.000
Cu		194.200
Pb		10.600
Mo		4.500
Ni		13.500
Zn		981.800
As		<3.18
Se		<3.18
Hg		0.130

	Apr-11	
	1st 2	2nd 2
Cd	0.600	0.600
Cr	88.600	170.800
Cu	247.700	250.900
Pb	9.900	11.300
Mo	5.400	6.000
Ni	14.200	17.100
Zn	1183.000	1291.100
As	3.100	1.700
Se	<4.16	<4.52
Hg	0.17	0.160

	May-11	
	1st 2	2nd 2
Cd	0.600	0.700
Cr	195.700	151.800
Cu	235.800	255.200
Pb	15.000	16.500
Mo	6.700	8.100
Ni	22.400	23.400
Zn	1416.300	1141.300
As	1.400	2.000
Se	<5.47	<5.27
Hg	0.100	0.190

	Jun-11	
	1st 2	2nd 2
Cd	0.900	0.800
Cr	129.900	119.100
Cu	286.000	267.000
Pb	17.900	13.500
Mo	8.800	7.800
Ni	23.200	20.800
Zn	1039.700	969.600
As	3.200	4.100
Se	<5.10	<4.68
Hg	0.240	0.270

	Jul-11	
	1st 2	2nd 2
Cd		0.700
Cr		154.900
Cu		308.000
Pb		13.500
Mo		7.400
Ni		26.400
Zn		1106.100
As		<1.80
Se		<7.20
Hg		0.200

	Aug-11	
	1st 2	2nd 2
Cd	0.700	0.700
Cr	162.300	186.500
Cu	294.500	279.100
Pb	16.900	15.200
Mo	8.700	9.800
Ni	24.300	21.700
Zn	1231.700	1490.600
As	<1.46	2.000
Se	7.300	5.900
Hg	0.140	0.210

	Sep-11	
	1st 2	2nd 2
Cd	0.700	0.500
Cr	227.400	182.600
Cu	246.800	204.200
Pb	15.300	9.200
Mo	10.900	7.800
Ni	23.000	16.300
Zn	1843.900	1318.900
As	<1.18	<1.16
Se	<4.72	<4.62
Hg	0.150	0.150

Jan 16-31, 2010

	Synagro	COW
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

Feb 16-29, 2010

	Synagro	COW
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

Mar 16-31, 2010

	Synagro	COW
Cd		0.700
Cr		129.400
Cu		233.900
Pb		14.500
Mo		5.400
Ni		14.300
Zn		708.200
As		<3.0
Se		<3.0
Hg		0.120

April 16-30, 2010

	Synagro	COW
Cd		0.600
Cr		135.900
Cu		216.200
Pb		9.600
Mo		5.800
Ni		14.100
Zn		809.000
As		<3.03
Se		<3.03
Hg		2.900

May 16-31, 2010

	Synagro	COW
Cd		4.600
Cr		160.800
Cu		228.900
Pb		57.400
Mo		7.000
Ni		31.900
Zn		1023.600
As		<3.66
Se		<3.66
Hg		0.230

June 16-30, 2010

	Synagro	COW
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

July 16-31, 2010

	Synagro	COW
Cd		0.700
Cr		225.900
Cu		262.400
Pb		13.700
Mo		5.300
Ni		15.900
Zn		1034.200
As		<3.9
Se		<3.9
Hg		0.280

August 16-31, 2010

	Synagro	COW
Cd		0.600
Cr		164.700
Cu		212.900
Pb		13.000
Mo		7.500
Ni		15.500
Zn		1288.800
As		<3.4
Se		<3.4
Hg		0.140

September 16-30, 2010

	Synagro	COW
Cd		0.500
Cr		130.000
Cu		170.000
Pb		9.000
Mo		7.800
Ni		13.000
Zn		970.000
As		1.900
Se		3.300
Hg		0.160

	Oct-10		Nov-10		Dec-10	
	1st 2	2nd 2	1st 2	2nd 2	1st 2	2nd 2
Cd	0.6	0.6	0.6	0.5	0.5	0.5
Cr	109.4	107.8	176.5	179.4	154.2	122.1
Cu	189.4	214	205.8	179.4	186.7	198.7
Pb	10.6	11.1	11.9	10	13	9.7
Mo	7.2	8.2	7.7	7.5	7.2	5.5
Ni	10.2	11.1	17.9	15.9	14	12.3
Zn	959.8	937.7	1217	1196.4	1129.6	981
As	<3.98	<3.52	3.6	<2.72	<2.78	<2.77
Se	<3.98	<3.52	<3.1	<2.72	<2.78	<2.77
Hg	0.22	0.23	0.14	0.11	0.13	0.14

CITY OF WYOMING CLEAN WATER PLANT
SEMI-VOLATILE ORGANIC REPORT
Year 2010 (January-June)

Sample Date:		1/26/2010	1/26/2010									4/27/2010	4/27/2010						
Month:		January			Feb			March			April				May			June	
Sample Point:	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent
Compound	mg/kg	mg/L	mg/L	mg/kg	ug/l	ug/l	mg/kg	mg/L	mg/L	mg/kg	ug/l	ug/l	mg/kg	ug/l	ug/l	mg/kg	ug/L	ug/l
N-nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis (2-chloroethyl) ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis (2-chloroisopropyl) ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis (2-chloroethoxy) methane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzoic acid	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	NA
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	0.0	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
alpha BHC	ND	NA	NA	ND	NA	NA	ND	ND	ND	ND	NA	NA	ND	NA	NA	ND	NA	NA
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
beta BHC	ND	NA	NA	ND	NA	NA	ND	ND	ND	ND	NA	NA	ND	NA	NA	ND	NA	NA
gamma BHC (Lindane)	ND	NA	NA	ND	NA	NA	ND	ND	ND	ND	NA	NA	ND	NA	NA	ND	NA	NA
Phenanthrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
delta BHC	ND	NA	NA	ND	NA	NA	ND	ND	ND	ND	NA	NA	ND	NA	NA	ND	NA	NA
Heptachlor	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	NA	NA	ND	NA	NA	ND	NA	NA
Di-n-butyl phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin	ND	NA	NA	ND	NA	NA	ND	ND	ND	ND	NA	NA	ND	NA	NA	ND	NA	NA
Heptachlor epoxide	ND	NA	NA	ND	NA	NA	ND	ND	ND	ND	NA	NA	ND	NA	NA	ND	NA	NA
Fluoranthene	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
gamma Chlordane	ND	NA	NA	ND	NA	NA	ND	ND	ND	ND	NA	NA	ND	NA	NA	ND	NA	NA
Benzidine	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
alpha Chlordane	ND	NA	NA	ND	NA	NA	ND	ND	ND	ND	NA	NA	ND	NA	NA	ND	NA	NA
Endosulfan II	ND	NA	NA	ND	NA	NA	ND	ND	ND	ND	NA	NA	ND	NA	NA	ND	NA	NA
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

CITY OF WYOMING CLEAN WATER PLANT
SEMI-VOLATILE ORGANIC REPORT
Year 2010 (January-June cont'd)

Sample Date:										4/27/2010	4/27/2010							
Month:		January			Feb			March			April			May			June	
Sample Point:	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent	Biosolics	Influent	Effluent	Biosolids	Influent	Effluent
Compound	mg/kg	mg/L	mg/L	mg/kg	ug/l	ug/l	mg/kg	mg/L	mg/L	mg/kg	mg/L	mg/l	mg/kg	ug/l	ug/l	mg/kg	ug/L	ug/l
4,4-DDE	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA
Dieldrin	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA
Endrin	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA
4,4-DDD	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA
Endosulfan I	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA
Endrin aldehyde	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA
Butyl benzyl phthalate	ND	0.0	ND	ND	ND	ND	ND		ND	ND		ND	ND	ND	ND	ND		ND
4,4-DDT	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA
Endosulfan sulfate	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA
Endrin ketone	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA
Methoxychlor	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (a) anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis (2-ethylhexyl) phtnalate	ND	0.0	ND	ND		ND	ND		ND	ND	0.0	0.0	ND		ND	ND		ND
Chrysene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (b) fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (k) fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (a) pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno (1,2,3-cd) pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo (a,h) anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (g,h,I) perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB's	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA
Toxaphene	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA
Phenol	ND	0.0	ND	ND	ND	ND	ND		ND	ND	0.0	ND	ND	ND	ND	ND		ND
2-Chlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3 and 4-Methylphenol	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND		ND
4-Chloro-3-methylphenol	ND	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	NA	NA	ND	NA	NA
2,4,5-Trichlorophenol	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methyl-4,6-dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyridine	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA

NOTE:
Biosolids as mg/kg dry
ND = Not Detected
NA = Not Applicable

CITY OF WYOMING
SEMI-VOLATILE ORGANIC REPORT
Year 2010 (July-December)

Sample Date:				8/16/2010	8/16/2010		9/16/2010	9/16/2010		10/13/2010	10/13/2010							
Month:		July			August			Sept			Oct			Nov			Dec	
Sample Point:	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent
Compound	mg/kg	ug/l	ug/l	mg/kg	mg/L	mg/L	mg/kg	mg/L	mg/L	mg/kg	mg/L	mg/L	mg/kg	ug/l	ug/l	mg/kg	mg/L	mg/L
N-nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis (2-chloroethyl) ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis (2-chloroisopropyl) ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis (2-chloroethoxy) methane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzoic acid	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	ND	ND	ND	0.01	ND	ND	ND	ND	ND	0.01	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
alpha BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
beta BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
gamma BHC (Lindane)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
delta BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
gamma Chlordane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
alpha Chlordane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

CITY OF WYOMING
SEMI-VOLATILE ORGANIC REPORT
Year 2010 (July-December)

Sample Date:				8/15/2010	8/16/2010		9/16/2010	9/16/2010		10/13/2010	10/13/2010							
Month:		July			August			Sept			Oct			Nov			Dec	
Sample Point:	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent	Biosolids	Influent	Effluent
Compound	mg/kg	ug/l	ug/l	mg/kg	mg/l	mg/l	mg/kg	mg/l	mg/l	mg/kg	mg/l	ug/l	mg/kg	ug/l	ug/l	mg/kg	mg/l	mg/l
4,4-DDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4-DDD	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	0.02	ND	ND	0.01	ND	ND	0.01	ND	ND	ND	ND	ND		ND
4,4-DDT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (a) anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis (2-ethylhexyl) phthalate	ND	ND	ND	ND	0.02	ND	ND	0.02	ND	ND	0.02	ND	ND	ND	ND	ND		ND
Chrysene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (b) fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (k) fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (a) pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno (1,2,3-cd) pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo (a,h) anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (g,h,i) perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB's	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	0.01	ND	ND	0.02	ND	ND	0.02	ND	ND	ND	ND	ND		ND
2-Chlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3 and 4-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	ND	ND	ND	ND		ND	ND	ND	ND	ND	0.01	ND	ND	ND	ND	ND		ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methyl-4,6-dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyridine	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

* TriMatrix analyzed

* TriMatrix analyzed

NOTE:
Biosolids as mg/kg dry
ND = Not Detected
NA = Not Applicable

Biosolids Qualified - Organochlorine Pest's & PCBs Low Surrogate Recovery.

Biosolids Qualified -Pest's & PCBs
Surrog' Spk Recovery > Upper Control Limit

October 16-31 2008		
	Synagro	COW
Cd		1.400
Cr		72.500
Cu		237.600
Pb		<1.21
Mo		7.800
Ni		13.600
Zn		546.800
As		4.400
Se		12.100
Hg		<0.10

Nov 16-30, 2008		
	Synagro	COW
Cd		0.600
Cr		52.400
Cu		241.500
Pb		12.100
Mo		9.700
Ni		15.900
Zn		547.600
As		4.200
Se		16.900
Hg		0.280

Dec 16-31, 2008		
	Synagro	COW
Cd		0.600
Cr		52.800
Cu		248.400
Pb		12.600
Mo		8.800
Ni		19.600
Zn		437.000
As		2.600
Se		4.900
Hg		0.160

Jan 16-31, 2009		
	Synagro	COW
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

Feb 16-29, 2009		
	Synagro	COW
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

Mar 16-31, 2009		
	Synagro	COW
Cd		1.000
Cr		82.700
Cu		314.300
Pb		12.700
Mo		6.400
Ni		22.600
Zn		561.900
As		2.900
Se		<3.64
Hg		0.180

April 16-30, 2009		
	Synagro	COW
Cd		0.800
Cr		82.800
Cu		308.200
Pb		11.200
Mo		4.900
Ni		16.900
Zn		514.300
As		3.500
Se		<
Hg		0.190

May 16-31, 2009		
	Synagro	COW
Cd		1.000
Cr		86.600
Cu		261.700
Pb		15.600
Mo		6.500
Ni		14.700
Zn		492.700
As		2.600
Se		6.900
Hg		0.380

June 16-30, 2009		
	Synagro	COW
Cd		0.900
Cr		95.300
Cu		327.000
Pb		13.500
Mo		8.300
Ni		40.800
Zn		823.000
As		3.900
Se		7.200
Hg		0.290

July 16-31, 2009		
	Synagro	COW
Cd		0.800
Cr		83.600
Cu		375.200
Pb		16.600
Mo		9.100
Ni		21.700
Zn		725.900
As		5.200
Se		5.600
Hg		0.440

August 16-31, 2009		
	Synagro	COW
Cd		
Cr		
Cu		
Pb		
Mo		
Ni		
Zn		
As		
Se		
Hg		

September 16-30, 2009		
	Synagro	COW
Cd		1.600
Cr		114.400
Cu		288.900
Pb		18.400
Mo		9.600
Ni		31.900
Zn		866.400
As		6.500
Se		6.400
Hg		0.200

Analytical Information

For Landfilled Biosolids

Analysis Request / Chain of Custody Form

Client: City of Grand Rapids
1300 Market SW
Grand Rapids, MI 49503
Attn:Tom Schaub
616 456-3631 fax: 616 456-3711
tschaub@ci.grand-rapids.mi.us

Lab: ALS Laboratory Group
Environmental Division
3352 128th Avenue
Holland, MI 49424
616 399-6070

Sales Rep: Joe Ribar
616 738-7313 fax: 616 399-6185
616 399-6070 x.526
cell 616 218-7990
joe.ribar@alsenviro.com

	Sample Information				Containers			Parameters				
#	Client's Sample Identification	Date	Time	Type	Type	Size	#	TCLP: metals	TCLP: VOC's	TCLP: SVOC's	PCB's	Post Filter
	1104654	11/17	13:00		Glass	1000	2	X	X	X	X	X

Relinquished by: _____ Received by: _____ Date/Time 11/18/1 09:15

Relinquished by: _____ Received by: _____ Date/Time _____

Relinquished by: _____ Received by: _____ Date/Time _____

Comments/Special Requirements: _____

ALS Environmental

29-Nov-2011

Tom Schaub
City of Grand Rapids WWTP
1300 Market, S.W.
Grand Rapids, MI 49503

Re: **1104654** Work Order: **1111664**

Dear Tom,

ALS Environmental received 2 samples on 18-Nov-2011 10:20 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 28.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Joseph Ribar

Electronically approved by: Joseph Ribar

Joseph Ribar
Project Manager

ACCREDITED IN ACCORDANCE WITH nelac

Certificate No: IL100452

ALS Group USA, Corp

Date: 29-Nov-11

Client: City of Grand Rapids WWTP
Project: 1104654
Work Order: **1111664**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1111664-01	1104654	Solid		11/17/2011 13:00	11/18/2011 10:20	☐
1111664-02	1104654	Tclp Extract		11/17/2011 13:00	11/18/2011 10:20	☐

TCLP Metals - 40 CFR Part 261.24 (b)

Parameter	Maximum Concentration For Toxicity Characteristic (mg/L)
Mercury	0.2
Arsenic	5.0
Barium	100
Cadmium	1.0
Chromium	5.0
Lead	5.0
Selenium	1.0
Silver	5.0

TCLP Semi-Volatiles - 40 CFR Part 261.24 (b)

Parameter	Maximum Concentration For Toxicity Characteristic (µg/L)
1,4-Dichlorobenzene	7,500
2,4-Dinitrotoluene	130
Hexachloro-1,3-butadiene	500
Hexachlorobenzene	130
Hexachloroethane	3,000
Nitrobenzene	2,000
Pyridine	5,000
m-Cresol	200,000
o-Cresol	200,000
p-Cresol	200,000
Pentachlorophenol	100,000
2,4,5-Trichlorophenol	400,000
2,4,6-Trichlorophenol	2,000

TCLP Volatiles - 40 CFR Part 261.24 (b)

Parameter	Maximum Concentration For Toxicity Characteristic (µg/L)
1,1-Dichloroethene	700
1,2-Dichloroethane	500
2-Butanone	200,000
Benzene	500
Carbon Tetrachloride	500
Chlorobenzene	100,000
Chloroform	6,000
Tetrachloroethene	700
Trichloroethene	500
Vinyl Chloride	200

ALS Group USA, Corp

Date: 29-Nov-11

Client: City of Grand Rapids WWTP
Project: 1104654
WorkOrder: 1111664

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

Units Reported	Description
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter
none	

ALS Group USA, Corp

Date: *29-Nov-11*

Client: City of Grand Rapids WWTP
Project: 1104654

Work Order: 1111664

Lab ID: 1111664-01A
Client Sample ID: 1104654

Collection Date: 11/17/2011 1:00:00 PM
Matrix: SOLID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep Date: **11/20/2011**	Analyst: **JD**
Aroclor 1016	ND		160	µg/Kg-dry	1	11/21/2011 08:38 PM
Aroclor 1221	ND		160	µg/Kg-dry	1	11/21/2011 08:38 PM
Aroclor 1232	ND		160	µg/Kg-dry	1	11/21/2011 08:38 PM
Aroclor 1242	ND		160	µg/Kg-dry	1	11/21/2011 08:38 PM
Aroclor 1248	ND		160	µg/Kg-dry	1	11/21/2011 08:38 PM
Aroclor 1254	ND		160	µg/Kg-dry	1	11/21/2011 08:38 PM
Aroclor 1260	ND		160	µg/Kg-dry	1	11/21/2011 08:38 PM
PCBs, Total	ND		160	µg/Kg-dry	1	11/21/2011 08:38 PM
Surr: Decachlorobiphenyl	*56.1*		*40-140*	*%REC*	1	11/21/2011 08:38 PM
PAINT FILTER (FREE LIQUIDS)			**SW9095**			Analyst: **JJG**
Free Liquids	**Pass**			**none**	1	11/21/2011 01:25 PM
MOISTURE			**A2540 G**			Analyst: **CG**
Moisture	**76**		**0.050**	**% of sample**	1	11/21/2011 02:50 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *29-Nov-11*

Client: City of Grand Rapids WWTP
Project: 1104654

Work Order: 1111664

Lab ID: 1111664-02A
Client Sample ID: 1104654

Collection Date: 11/17/2011 1:00:00 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep Date: **11/21/2011**	Analyst: **LR**
Mercury	ND		0.0020	mg/L	1	11/21/2011 02:29 PM
TCLP METALS ANALYSIS BY ICP-MS			**SW6020A**		Prep Date: **11/21/2011**	Analyst: **RH**
Arsenic	ND		0.010	mg/L	1	11/21/2011 09:25 PM
Barium	**0.58**		**0.050**	**mg/L**	1	11/21/2011 09:25 PM
Cadmium	ND		0.0020	mg/L	1	11/21/2011 09:25 PM
Chromium	**0.059**		**0.020**	**mg/L**	1	11/21/2011 09:25 PM
Lead	ND		0.010	mg/L	1	11/21/2011 09:25 PM
Selenium	ND		0.020	mg/L	1	11/21/2011 09:25 PM
Silver	ND		0.0050	mg/L	1	11/21/2011 09:25 PM
TCLP SEMI-VOLATILE ORGANICS			**SW8270**		Prep Date: **11/23/2011**	Analyst: **CW**
1,4-Dichlorobenzene	ND		100	µg/L	1	11/24/2011 03:03 AM
2,4,5-Trichlorophenol	ND		100	µg/L	1	11/24/2011 03:03 AM
2,4,6-Trichlorophenol	ND		100	µg/L	1	11/24/2011 03:03 AM
2,4-Dinitrotoluene	ND		100	µg/L	1	11/24/2011 03:03 AM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	11/24/2011 03:03 AM
Hexachlorobenzene	ND		100	µg/L	1	11/24/2011 03:03 AM
Hexachloroethane	ND		100	µg/L	1	11/24/2011 03:03 AM
m-Cresol	**1,800**		**500**	**µg/L**	5	11/26/2011 05:07 PM
Nitrobenzene	ND		100	µg/L	1	11/24/2011 03:03 AM
o-Cresol	ND		100	µg/L	1	11/24/2011 03:03 AM
p-Cresol	**1,800**		**500**	**µg/L**	5	11/26/2011 05:07 PM
Pentachlorophenol	ND		400	µg/L	1	11/24/2011 03:03 AM
Pyridine	ND		400	µg/L	1	11/24/2011 03:03 AM
Surr: 2,4,6-Tribromophenol	*55.9*		*21-125*	*%REC*	1	11/24/2011 03:03 AM
Surr: 2-Fluorobiphenyl	*43.4*		*39-94*	*%REC*	1	11/24/2011 03:03 AM
Surr: 2-Fluorophenol	*31.1*		*10-75*	*%REC*	1	11/24/2011 03:03 AM
Surr: 4-Terphenyl-d14	*62.5*		*26-119*	*%REC*	1	11/24/2011 03:03 AM
Surr: Nitrobenzene-d5	*42.8*		*41-104*	*%REC*	1	11/24/2011 03:03 AM
Surr: Phenol-d6	*21.6*		*11-50*	*%REC*	1	11/24/2011 03:03 AM
TCLP VOLATILE ORGANICS			**SW8260**		Prep Date: **11/20/2011**	Analyst: **BG**
1,1-Dichloroethene	ND		20	µg/L	20	11/28/2011 04:47 PM
1,2-Dichloroethane	ND		20	µg/L	20	11/28/2011 04:47 PM
2-Butanone	**2,100**		**500**	**µg/L**	50	11/29/2011 01:09 PM
Benzene	ND		20	µg/L	20	11/28/2011 04:47 PM
Carbon tetrachloride	ND		20	µg/L	20	11/28/2011 04:47 PM
Chlorobenzene	ND		20	µg/L	20	11/28/2011 04:47 PM
Chloroform	ND		20	µg/L	20	11/28/2011 04:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Tetrachloroethene	ND	20	µg/L	20	11/28/2011 04:47 PM
Trichloroethene	ND	20	µg/L	20	11/28/2011 04:47 PM
Vinyl chloride	ND	20	µg/L	20	11/28/2011 04:47 PM
Surr: 1,2-Dichloroethane-d4	*105*	*70-130*	*%REC*	50	11/29/2011 01:09 PM
Surr: 1,2-Dichloroethane-d4	*106*	*70-130*	*%REC*	20	11/28/2011 04:47 PM
Surr: 4-Bromofluorobenzene	*98.4*	*70-130*	*%REC*	50	11/29/2011 01:09 PM
Surr: 4-Bromofluorobenzene	*97.6*	*70-130*	*%REC*	20	11/28/2011 04:47 PM
Surr: Dibromofluoromethane	*102*	*70-130*	*%REC*	50	11/29/2011 01:09 PM
Surr: Dibromofluoromethane	*100*	*70-130*	*%REC*	20	11/28/2011 04:47 PM
Surr: Toluene-d8	*97.7*	*70-130*	*%REC*	50	11/29/2011 01:09 PM
Surr: Toluene-d8	*98.7*	*70-130*	*%REC*	20	11/28/2011 04:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 29-Nov-11

Client: City of Grand Rapids WWTP

Work Order: 1111664

Project: 1104654

QC BATCH REPORT

Batch ID: **37625** Instrument ID **GC4** Method: **SW8082**

MBLK Sample ID: **PBLKS1-37625-37625** Units: **µg/Kg** Analysis Date: **11/21/2011 03:36 PM**

Client ID: Run ID: **GC4_111121A** SeqNo: **1831910** Prep Date: **11/20/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	40								
Aroclor 1221	ND	40								
Aroclor 1232	ND	40								
Aroclor 1242	ND	40								
Aroclor 1248	ND	40								
Aroclor 1254	ND	40								
Aroclor 1260	ND	40								
PCBs, Total	ND	40								
Surr: Decachlorobiphenyl	*27.33*	0	*33.3*	0	*82.1*	*40-140*	0			

LCS Sample ID: **PLCSS1-37625-37625** Units: **µg/Kg** Analysis Date: **11/21/2011 03:56 PM**

Client ID: Run ID: **GC4_111121A** SeqNo: **1831911** Prep Date: **11/20/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	940	40	833	0	113	50-130	0			
Aroclor 1260	1002	40	833	0	120	50-130	0			
Surr: Decachlorobiphenyl	*26.67*	0	*33.3*	0	*80.1*	*40-140*	0			

LCSD Sample ID: **PLCSDS1-37625-37625** Units: **µg/Kg** Analysis Date: **11/21/2011 04:16 PM**

Client ID: Run ID: **GC4_111121A** SeqNo: **1831912** Prep Date: **11/20/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	979	40	833	0	118	50-130	940	4.06	25	
Aroclor 1260	1021	40	833	0	123	50-130	1002	1.88	25	
Surr: Decachlorobiphenyl	*27.33*	0	*33.3*	0	*82.1*	*40-140*	26.67	*2.47*	*25*	

MS Sample ID: **1111714-01A MS** Units: **µg/Kg** Analysis Date: **11/21/2011 09:19 PM**

Client ID: Run ID: **GC4_111121A** SeqNo: **1831927** Prep Date: **11/20/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	968	38	796	0	122	40-140	0			
Aroclor 1260	853	38	796	0	107	40-140	0			
Surr: Decachlorobiphenyl	*18.47*	0	*31.82*	0	*58.1*	*40-140*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **37625** Instrument ID **GC4** Method: **SW8082**

MSD Sample ID: **1111714-01A MSD** Units: **µg/Kg** Analysis Date: **11/21/2011 09:39 PM**
Client ID: Run ID: **GC4_111121A** SeqNo: **1831928** Prep Date: **11/20/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	1038	39	813.6	0	128	40-140	968	7.01	50	
Aroclor 1260	940.3	39	813.6	0	116	40-140	853	9.74	50	
Surr: Decachlorobiphenyl	*21.49*	0	*32.53*	0	*66.1*	*40-140*	18.47	*15.1*	*50*	

The following samples were analyzed in this batch: 1111664-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **37660** Instrument ID **HG1** Method: **SW7470**

MBLK Sample ID: **MBLK-37660-37660** Units: **mg/L** Analysis Date: **11/21/2011 02:12 PM**
Client ID: Run ID: **HG1_111121A** SeqNo: **1828537** Prep Date: **11/21/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-37660-37660** Units: **mg/L** Analysis Date: **11/21/2011 02:14 PM**
Client ID: Run ID: **HG1_111121A** SeqNo: **1828539** Prep Date: **11/21/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001876	0.00020	0.002	0	93.8	80-120	0			

LCSD Sample ID: **LCSD-37660-37660** Units: **mg/L** Analysis Date: **11/21/2011 02:16 PM**
Client ID: Run ID: **HG1_111121A** SeqNo: **1828541** Prep Date: **11/21/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001727	0.00020	0.002	0	86.4	80-120	0.001876	8.27	20	

MS Sample ID: **1111690-03CMS** Units: **mg/L** Analysis Date: **11/21/2011 02:36 PM**
Client ID: Run ID: **HG1_111121A** SeqNo: **1828667** Prep Date: **11/21/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001868	0.00020	0.002	-0.000014	94.1	75-125	0			

MSD Sample ID: **1111690-03CMSD** Units: **mg/L** Analysis Date: **11/21/2011 02:38 PM**
Client ID: Run ID: **HG1_111121A** SeqNo: **1828668** Prep Date: **11/21/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001746	0.00020	0.002	-0.000014	88	75-125	0.001868	6.75	20	

The following samples were analyzed in this batch: 1111664-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **37641** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-37641-37641** Units: **mg/L** Analysis Date: **11/21/2011 08:22 PM**
Client ID: Run ID: **ICPMS2_111121A** SeqNo: **1829149** Prep Date: **11/21/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Lead	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								

LCS Sample ID: **LCS-37641-37641** Units: **mg/L** Analysis Date: **11/21/2011 08:27 PM**
Client ID: Run ID: **ICPMS2_111121A** SeqNo: **1829150** Prep Date: **11/21/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1081	0.0050	0.1	0	108	80-120	0			
Barium	0.1038	0.0050	0.1	0	104	80-120	0			
Cadmium	0.1055	0.0020	0.1	0	106	80-120	0			
Chromium	0.1049	0.0050	0.1	0	105	80-120	0			
Lead	0.1025	0.0050	0.1	0	102	80-120	0			
Selenium	0.1001	0.0050	0.1	0	100	80-120	0			
Silver	0.08927	0.0050	0.1	0	89.3	80-120	0			

LCSD Sample ID: **LCSD-37641-37641** Units: **mg/L** Analysis Date: **11/21/2011 08:32 PM**
Client ID: Run ID: **ICPMS2_111121A** SeqNo: **1829151** Prep Date: **11/21/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1074	0.0050	0.1	0	107	80-120	0.1081	0.65	20	
Barium	0.1063	0.0050	0.1	0	106	80-120	0.1038	2.38	20	
Cadmium	0.1087	0.0020	0.1	0	109	80-120	0.1055	2.99	20	
Chromium	0.1046	0.0050	0.1	0	105	80-120	0.1049	0.286	20	
Lead	0.1042	0.0050	0.1	0	104	80-120	0.1025	1.64	20	
Selenium	0.1028	0.0050	0.1	0	103	80-120	0.1001	2.66	20	
Silver	0.08866	0.0050	0.1	0	88.7	80-120	0.08927	0.686	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **37641** Instrument ID **ICPMS2** Method: **SW6020A**

MS Sample ID: **1111702-01CMS** Units: **mg/L** Analysis Date: **11/22/2011 09:53 AM**
Client ID: Run ID: **ICPMS2_111122A** SeqNo: **1830074** Prep Date: **11/21/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1068	0.0050	0.1	0.006508	100	80-120	0			
Barium	0.201	0.0050	0.1	0.09994	101	80-120	0			
Cadmium	0.1106	0.0020	0.1	0.0000556	111	80-120	0			
Chromium	0.09948	0.0050	0.1	0.0002275	99.3	80-120	0			
Lead	0.1065	0.0050	0.1	0.000356	106	80-120	0			
Selenium	0.1036	0.0050	0.1	0.0001837	103	80-120	0			
Silver	0.09072	0.0050	0.1	0.000005035	90.7	80-120	0			

MSD Sample ID: **1111702-01CMSD** Units: **mg/L** Analysis Date: **11/22/2011 09:57 AM**
Client ID: Run ID: **ICPMS2_111122A** SeqNo: **1830075** Prep Date: **11/21/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1156	0.0050	0.1	0.006508	109	80-120	0.1068	7.91	20	
Barium	0.1989	0.0050	0.1	0.09994	99	80-120	0.201	1.05	20	
Cadmium	0.1076	0.0020	0.1	0.0000556	108	80-120	0.1106	2.75	20	
Chromium	0.106	0.0050	0.1	0.0002275	106	80-120	0.09948	6.35	20	
Lead	0.1028	0.0050	0.1	0.000356	102	80-120	0.1065	3.54	20	
Selenium	0.09988	0.0050	0.1	0.0001837	99.7	80-120	0.1036	3.66	20	
Silver	0.09631	0.0050	0.1	0.000005035	96.3	80-120	0.09072	5.98	20	

The following samples were analyzed in this batch: 1111664-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **37717** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKW1-37717-37717** Units: **µg/L** Analysis Date: **11/23/2011 07:46 PM**
Client ID: Run ID: **SVMS7_111123A** SeqNo: **1832712** Prep Date: **11/23/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
Hexachloro-1,3-butadiene	ND	5.0								
Hexachlorobenzene	ND	5.0								
Hexachloroethane	ND	5.0								
m-Cresol	ND	5.0								
Nitrobenzene	ND	5.0								
o-Cresol	ND	5.0								
p-Cresol	ND	5.0								
Pentachlorophenol	ND	20								
Pyridine	ND	20								
Surr: 2,4,6-Tribromophenol	*36.35*	0	*50*	0	*72.7*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*30.72*	0	*50*	0	*61.4*	*36-94*	0			
Surr: 2-Fluorophenol	*24.37*	0	*50*	0	*48.7*	*10-75*	0			
Surr: 4-Terphenyl-d14	*36.29*	0	*50*	0	*72.6*	*26-119*	0			
Surr: Nitrobenzene-d5	*33.08*	0	*50*	0	*66.2*	*41-104*	0			
Surr: Phenol-d6	*15.73*	0	*50*	0	*31.5*	*11-50*	0			

MBLK Sample ID: **SBLKW1-37717-37717** Units: **µg/L** Analysis Date: **11/23/2011 07:46 PM**
Client ID: Run ID: **SVMS7_111123A** SeqNo: **1832726** Prep Date: **11/23/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
Hexachlorobenzene	ND	5.0								
Hexachloroethane	ND	5.0								
m-Cresol	ND	5.0								
Nitrobenzene	ND	5.0								
o-Cresol	ND	5.0								
p-Cresol	ND	5.0								
Pentachlorophenol	ND	20								
Pyridine	ND	20								
Surr: 2,4,6-Tribromophenol	*36.35*	0	*50*	0	*72.7*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*30.72*	0	*50*	0	*61.4*	*36-94*	0			
Surr: 2-Fluorophenol	*24.37*	0	*50*	0	*48.7*	*10-75*	0			
Surr: 4-Terphenyl-d14	*36.29*	0	*50*	0	*72.6*	*26-119*	0			
Surr: Nitrobenzene-d5	*33.08*	0	*50*	0	*66.2*	*41-104*	0			
Surr: Phenol-d6	*15.73*	0	*50*	0	*31.5*	*11-50*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **37717** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKW1-37717-37717** Units: **µg/L** Analysis Date: **11/23/2011 07:46 PM**
Client ID: Run ID: **SVMS7_111123A** SeqNo: **1832740** Prep Date: **11/23/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
Hexachloro-1,3-butadiene	ND	5.0								
Hexachlorobenzene	ND	5.0								
Hexachloroethane	ND	5.0								
m-Cresol	ND	5.0								
Nitrobenzene	ND	5.0								
o-Cresol	ND	5.0								
p-Cresol	ND	5.0								
Pentachlorophenol	ND	20								
Pyridine	ND	20								
Surr: 2,4,6-Tribromophenol	*36.35*	0	*50*	0	*72.7*	*21-125*		0		
Surr: 2-Fluorobiphenyl	*30.72*	0	*50*	0	*61.4*	*36-94*		0		
Surr: 2-Fluorophenol	*24.37*	0	*50*	0	*48.7*	*10-75*		0		
Surr: 4-Terphenyl-d14	*36.29*	0	*50*	0	*72.6*	*26-119*		0		
Surr: Nitrobenzene-d5	*33.08*	0	*50*	0	*66.2*	*41-104*		0		
Surr: Phenol-d6	*15.73*	0	*50*	0	*31.5*	*11-50*		0		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **37717** Instrument ID **SVMS7** Method: **SW8270**

LCS Sample ID: **SLCSW1-37717-37717** Units: **µg/L** Analysis Date: **11/23/2011 06:47 PM**
Client ID: Run ID: **SVMS7_111123A** SeqNo: **1832710** Prep Date: **11/23/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	25.91	5.0	40	0	64.8	30-110	0			
2,4,5-Trichlorophenol	29.48	5.0	40	0	73.7	50-110	0			
2,4,6-Trichlorophenol	28.3	5.0	40	0	70.8	50-115	0			
2,4-Dinitrotoluene	32.68	5.0	40	0	81.7	50-120	0			
Hexachloro-1,3-butadiene	27.16	5.0	40	0	67.9	25-105	0			
Hexachlorobenzene	31.92	5.0	40	0	79.8	50-110	0			
Hexachloroethane	26.69	5.0	40	0	66.7	30-95	0			
m-Cresol	22.17	5.0	40	0	55.4	30-110	0			
Nitrobenzene	27.83	5.0	40	0	69.6	45-110	0			
o-Cresol	26.21	5.0	40	0	65.5	40-110	0			
p-Cresol	22.17	5.0	40	0	55.4	30-110	0			
Pentachlorophenol	31.19	20	40	0	78	40-115	0			
Pyridine	3.95	20	40	0	9.88	10-71	0			JS
Surr: 2,4,6-Tribromophenol	*36.54*	0	*50*	0	*73.1*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*29.96*	0	*50*	0	*59.9*	*36-94*	0			
Surr: 2-Fluorophenol	*22.14*	0	*50*	0	*44.3*	*10-75*	0			
Surr: 4-Terphenyl-d14	*38.71*	0	*50*	0	*77.4*	*26-119*	0			
Surr: Nitrobenzene-d5	*31.29*	0	*50*	0	*62.6*	*41-104*	0			
Surr: Phenol-d6	*13.98*	0	*50*	0	*28*	*11-50*	0			

LCS Sample ID: **SLCSW1-37717-37717** Units: **µg/L** Analysis Date: **11/23/2011 06:47 PM**
Client ID: Run ID: **SVMS7_111123A** SeqNo: **1832724** Prep Date: **11/23/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	25.91	5.0	40	0	64.8	30-100	0			
2,4,5-Trichlorophenol	29.48	5.0	40	0	73.7	50-110	0			
2,4,6-Trichlorophenol	28.3	5.0	40	0	70.8	50-115	0			
2,4-Dinitrotoluene	32.68	5.0	40	0	81.7	50-120	0			
Hexachlorobenzene	31.92	5.0	40	0	79.8	50-110	0			
Hexachloroethane	26.69	5.0	40	0	66.7	30-95	0			
m-Cresol	22.17	5.0	40	0	55.4	30-110	0			
Nitrobenzene	27.83	5.0	40	0	69.6	45-110	0			
Pentachlorophenol	31.19	20	40	0	78	40-115	0			
Surr: 2,4,6-Tribromophenol	*36.54*	0	*50*	0	*73.1*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*29.96*	0	*50*	0	*59.9*	*36-94*	0			
Surr: 2-Fluorophenol	*22.14*	0	*50*	0	*44.3*	*10-75*	0			
Surr: 4-Terphenyl-d14	*38.71*	0	*50*	0	*77.4*	*26-119*	0			
Surr: Nitrobenzene-d5	*31.29*	0	*50*	0	*62.6*	*41-104*	0			
Surr: Phenol-d6	*13.98*	0	*50*	0	*28*	*11-50*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **37717** Instrument ID **SVMS7** Method: **SW8270**

LCS Sample ID: **SLCSW1-37717-37717** Units: **µg/L** Analysis Date: **11/23/2011 06:47 PM**
Client ID: Run ID: **SVMS7_111123A** SeqNo: **1832738** Prep Date: **11/23/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	25.91	5.0	40	0	64.8	30-100	0			
2,4,5-Trichlorophenol	29.48	5.0	40	0	73.7	50-110	0			
2,4,6-Trichlorophenol	28.3	5.0	40	0	70.8	50-115	0			
2,4-Dinitrotoluene	32.68	5.0	40	0	81.7	50-120	0			
Hexachlorobenzene	31.92	5.0	40	0	79.8	50-110	0			
Hexachloroethane	26.69	5.0	40	0	66.7	30-95	0			
m-Cresol	22.17	5.0	40	0	55.4	30-110	0			
Nitrobenzene	27.83	5.0	40	0	69.6	45-110	0			
o-Cresol	26.21	5.0	40	0	65.5	30-110	0			
p-Cresol	22.17	5.0	40	0	55.4	30-110	0			
Pentachlorophenol	31.19	20	40	0	78	40-115	0			
Surr: 2,4,6-Tribromophenol	*36.54*	0	*50*	0	*73.1*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*29.96*	0	*50*	0	*59.9*	*36-94*	0			
Surr: 2-Fluorophenol	*22.14*	0	*50*	0	*44.3*	*10-75*	0			
Surr: 4-Terphenyl-d14	*38.71*	0	*50*	0	*77.4*	*26-119*	0			
Surr: Nitrobenzene-d5	*31.29*	0	*50*	0	*62.6*	*41-104*	0			
Surr: Phenol-d6	*13.98*	0	*50*	0	*28*	*11-50*	0			

LCSD Sample ID: **SLCSDW1-37717-37717** Units: **µg/L** Analysis Date: **11/23/2011 07:16 PM**
Client ID: Run ID: **SVMS7_111123A** SeqNo: **1832711** Prep Date: **11/23/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	25.51	5.0	40	0	63.8	30-110	25.91	1.56	25	
2,4,5-Trichlorophenol	29.01	5.0	40	0	72.5	50-110	29.48	1.61	25	
2,4,6-Trichlorophenol	27.97	5.0	40	0	69.9	50-115	28.3	1.17	25	
2,4-Dinitrotoluene	31.89	5.0	40	0	79.7	50-120	32.68	2.45	25	
Hexachloro-1,3-butadiene	26.65	5.0	40	0	66.6	25-105	27.16	1.9	25	
Hexachlorobenzene	31.35	5.0	40	0	78.4	50-110	31.92	1.8	25	
Hexachloroethane	26.21	5.0	40	0	65.5	30-95	26.69	1.81	25	
m-Cresol	21.67	5.0	40	0	54.2	30-110	22.17	2.28	25	
Nitrobenzene	27.37	5.0	40	0	68.4	45-110	27.83	1.67	25	
o-Cresol	25.78	5.0	40	0	64.4	40-110	26.21	1.65	25	
p-Cresol	21.67	5.0	40	0	54.2	30-110	22.17	2.28	25	
Pentachlorophenol	30.87	20	40	0	77.2	40-115	31.19	1.03	25	
Pyridine	3.46	20	40	0	8.65	10-71	3.95	0	25	JS
Surr: 2,4,6-Tribromophenol	*35.72*	0	*50*	0	*71.4*	*21-125*	36.54	*2.27*	*0*	
Surr: 2-Fluorobiphenyl	*29.27*	0	*50*	0	*58.5*	*36-94*	29.96	*2.33*	*0*	
Surr: 2-Fluorophenol	*21.09*	0	*50*	0	*42.2*	*10-75*	22.14	*4.86*	*0*	
Surr: 4-Terphenyl-d14	*37.25*	0	*50*	0	*74.5*	*26-119*	38.71	*3.84*	*0*	
Surr: Nitrobenzene-d5	*30.97*	0	*50*	0	*61.9*	*41-104*	31.29	*1.03*	*0*	
Surr: Phenol-d6	*12.89*	0	*50*	0	*25.8*	*11-50*	13.98	*8.11*	*0*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **37717** Instrument ID **SVMS7** Method: **SW8270**

LCSD Sample ID: **SLCSDW1-37717-37717** Units: **µg/L** Analysis Date: **11/23/2011 07:16 PM**
Client ID: Run ID: **SVMS7_111123A** SeqNo: **1832725** Prep Date: **11/23/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	25.51	5.0	40	0	63.8	30-100	25.91	1.56	30	
2,4,5-Trichlorophenol	29.01	5.0	40	0	72.5	50-110	29.48	1.61	30	
2,4,6-Trichlorophenol	27.97	5.0	40	0	69.9	50-115	28.3	1.17	30	
2,4-Dinitrotoluene	31.89	5.0	40	0	79.7	50-120	32.68	2.45	30	
Hexachlorobenzene	31.35	5.0	40	0	78.4	50-110	31.92	1.8	30	
Hexachloroethane	26.21	5.0	40	0	65.5	30-95	26.69	1.81	30	
m-Cresol	21.67	5.0	40	0	54.2	30-110	22.17	2.28	30	
Nitrobenzene	27.37	5.0	40	0	68.4	45-110	27.83	1.67	30	
Pentachlorophenol	30.87	20	40	0	77.2	40-115	31.19	1.03	30	
Surr: 2,4,6-Tribromophenol	*35.72*	0	*50*	0	*71.4*	*21-125*	36.54	*2.27*	*40*	
Surr: 2-Fluorobiphenyl	*29.27*	0	*50*	0	*58.5*	*36-94*	29.96	*2.33*	*40*	
Surr: 2-Fluorophenol	*21.09*	0	*50*	0	*42.2*	*10-75*	22.14	*4.86*	*40*	
Surr: 4-Terphenyl-d14	*37.25*	0	*50*	0	*74.5*	*26-119*	38.71	*3.84*	*40*	
Surr: Nitrobenzene-d5	*30.97*	0	*50*	0	*61.9*	*41-104*	31.29	*1.03*	*40*	
Surr: Phenol-d6	*12.89*	0	*50*	0	*25.8*	*11-50*	13.98	*8.11*	*40*	

LCSD Sample ID: **SLCSDW1-37717-37717** Units: **µg/L** Analysis Date: **11/23/2011 07:16 PM**
Client ID: Run ID: **SVMS7_111123A** SeqNo: **1832739** Prep Date: **11/23/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	25.51	5.0	40	0	63.8	30-100	25.91	1.56	30	
2,4,5-Trichlorophenol	29.01	5.0	40	0	72.5	50-110	29.48	1.61	30	
2,4,6-Trichlorophenol	27.97	5.0	40	0	69.9	50-115	28.3	1.17	30	
2,4-Dinitrotoluene	31.89	5.0	40	0	79.7	50-120	32.68	2.45	30	
Hexachlorobenzene	31.35	5.0	40	0	78.4	50-110	31.92	1.8	30	
Hexachloroethane	26.21	5.0	40	0	65.5	30-95	26.69	1.81	30	
m-Cresol	21.67	5.0	40	0	54.2	30-110	22.17	2.28	30	
Nitrobenzene	27.37	5.0	40	0	68.4	45-110	27.83	1.67	30	
o-Cresol	25.78	5.0	40	0	64.4	30-110	26.21	1.65	30	
p-Cresol	21.67	5.0	40	0	54.2	30-110	22.17	2.28	30	
Pentachlorophenol	30.87	20	40	0	77.2	40-115	31.19	1.03	30	
Surr: 2,4,6-Tribromophenol	*35.72*	0	*50*	0	*71.4*	*21-125*	36.54	*2.27*	*40*	
Surr: 2-Fluorobiphenyl	*29.27*	0	*50*	0	*58.5*	*36-94*	29.96	*2.33*	*40*	
Surr: 2-Fluorophenol	*21.09*	0	*50*	0	*42.2*	*10-75*	22.14	*4.86*	*40*	
Surr: 4-Terphenyl-d14	*37.25*	0	*50*	0	*74.5*	*26-119*	38.71	*3.84*	*40*	
Surr: Nitrobenzene-d5	*30.97*	0	*50*	0	*61.9*	*41-104*	31.29	*1.03*	*40*	
Surr: Phenol-d6	*12.89*	0	*50*	0	*25.8*	*11-50*	13.98	*8.11*	*40*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **37717** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **1111716-01B MS** Units: **µg/L** Analysis Date: **11/23/2011 09:43 PM**
Client ID: Run ID: **SVMS7_111123A** SeqNo: **1832713** Prep Date: **11/23/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	247.4	50	400	0	61.8	30-110	0			
2,4,5-Trichlorophenol	289.1	50	400	0	72.3	50-110	0			
2,4,6-Trichlorophenol	278.5	50	400	0	69.6	50-115	0			
2,4-Dinitrotoluene	315	50	400	0	78.8	50-120	0			
Hexachloro-1,3-butadiene	259.8	50	400	0	65	25-105	0			
Hexachlorobenzene	310.3	50	400	0	77.6	50-110	0			
Hexachloroethane	253.1	50	400	0	63.3	30-95	0			
m-Cresol	208.9	50	400	0	52.2	30-110	0			
Nitrobenzene	273.3	50	400	0	68.3	45-110	0			
o-Cresol	256.2	50	400	0	64	40-110	0			
p-Cresol	208.9	50	400	0	52.2	30-110	0			
Pentachlorophenol	298.3	200	400	0	74.6	40-115	0			
Pyridine	26.6	200	400	0	6.65	10-80	0			JS
Surr: 2,4,6-Tribromophenol	*357.3*	0	*500*	0	*71.5*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*294.8*	0	*500*	0	*59*	*36-94*	0			
Surr: 2-Fluorophenol	*194.3*	0	*500*	0	*38.9*	*10-75*	0			
Surr: 4-Terphenyl-d14	*376.7*	0	*500*	0	*75.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*308.5*	0	*500*	0	*61.7*	*41-104*	0			
Surr: Phenol-d6	*115*	0	*500*	0	*23*	*11-50*	0			

MS Sample ID: **1111716-01B MS** Units: **µg/L** Analysis Date: **11/23/2011 09:43 PM**
Client ID: Run ID: **SVMS7_111123A** SeqNo: **1832727** Prep Date: **11/23/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	247.4	50	400	0	61.8	30-100	0			
2,4,5-Trichlorophenol	289.1	50	400	0	72.3	50-110	0			
2,4,6-Trichlorophenol	278.5	50	400	0	69.6	50-115	0			
2,4-Dinitrotoluene	315	50	400	0	78.8	50-120	0			
Hexachlorobenzene	310.3	50	400	0	77.6	50-110	0			
Hexachloroethane	253.1	50	400	0	63.3	30-95	0			
m-Cresol	208.9	50	400	0	52.2	30-110	0			
Nitrobenzene	273.3	50	400	0	68.3	45-110	0			
Pentachlorophenol	298.3	200	400	0	74.6	40-115	0			
Surr: 2,4,6-Tribromophenol	*357.3*	0	*500*	0	*71.5*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*294.8*	0	*500*	0	*59*	*36-94*	0			
Surr: 2-Fluorophenol	*194.3*	0	*500*	0	*38.9*	*10-75*	0			
Surr: 4-Terphenyl-d14	*376.7*	0	*500*	0	*75.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*308.5*	0	*500*	0	*61.7*	*41-104*	0			
Surr: Phenol-d6	*115*	0	*500*	0	*23*	*11-50*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **37717** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **1111716-01B MS** Units: **µg/L** Analysis Date: **11/23/2011 09:43 PM**
Client ID: Run ID: **SVMS7_111123A** SeqNo: **1832741** Prep Date: **11/23/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	247.4	50	400	0	61.8	30-100	0			
2,4,5-Trichlorophenol	289.1	50	400	0	72.3	50-110	0			
2,4,6-Trichlorophenol	278.5	50	400	0	69.6	50-115	0			
2,4-Dinitrotoluene	315	50	400	0	78.8	50-120	0			
Hexachlorobenzene	310.3	50	400	0	77.6	50-110	0			
Hexachloroethane	253.1	50	400	0	63.3	30-95	0			
Nitrobenzene	273.3	50	400	0	68.3	45-110	0			
Pentachlorophenol	298.3	200	400	0	74.6	40-115	0			
Surr: 2,4,6-Tribromophenol	*357.3*	0	*500*	0	*71.5*	*21-125*	0			
Surr: 2-Fluorobiphenyl	*294.8*	0	*500*	0	*59*	*36-94*	0			
Surr: 2-Fluorophenol	*194.3*	0	*500*	0	*38.9*	*10-75*	0			
Surr: 4-Terphenyl-d14	*376.7*	0	*500*	0	*75.3*	*26-119*	0			
Surr: Nitrobenzene-d5	*308.5*	0	*500*	0	*61.7*	*41-104*	0			
Surr: Phenol-d6	*115*	0	*500*	0	*23*	*11-50*	0			

MSD Sample ID: **1111716-01B MSD** Units: **µg/L** Analysis Date: **11/23/2011 10:12 PM**
Client ID: Run ID: **SVMS7_111123A** SeqNo: **1832714** Prep Date: **11/23/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	244.5	50	400	0	61.1	30-110	247.4	1.18	30	
2,4,5-Trichlorophenol	277.5	50	400	0	69.4	50-110	289.1	4.09	30	
2,4,6-Trichlorophenol	266.3	50	400	0	66.6	50-115	278.5	4.48	30	
2,4-Dinitrotoluene	309.3	50	400	0	77.3	50-120	315	1.83	30	
Hexachloro-1,3-butadiene	262.6	50	400	0	65.6	25-105	259.8	1.07	30	
Hexachlorobenzene	301.7	50	400	0	75.4	50-110	310.3	2.81	30	
Hexachloroethane	254.9	50	400	0	63.7	30-95	253.1	0.709	30	
m-Cresol	218.4	50	400	0	54.6	30-110	208.9	4.45	30	
Nitrobenzene	263	50	400	0	65.8	45-110	273.3	3.84	30	
o-Cresol	254.3	50	400	0	63.6	40-110	256.2	0.744	30	
p-Cresol	218.4	50	400	0	54.6	30-110	208.9	4.45	30	
Pentachlorophenol	294.8	200	400	0	73.7	40-115	298.3	1.18	30	
Pyridine	58.2	200	400	0	14.6	10-80	26.6	0	30	J
Surr: 2,4,6-Tribromophenol	*342.5*	0	*500*	0	*68.5*	*21-125*	357.3	*4.23*	*0*	
Surr: 2-Fluorobiphenyl	*284.7*	0	*500*	0	*56.9*	*36-94*	294.8	*3.49*	*0*	
Surr: 2-Fluorophenol	*221.3*	0	*500*	0	*44.3*	*10-75*	194.3	*13*	*0*	
Surr: 4-Terphenyl-d14	*361.5*	0	*500*	0	*72.3*	*26-119*	376.7	*4.12*	*0*	
Surr: Nitrobenzene-d5	*297.7*	0	*500*	0	*59.5*	*41-104*	308.5	*3.56*	*0*	
Surr: Phenol-d6	*144.9*	0	*500*	0	*29*	*11-50*	115	*23*	*0*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **37717** Instrument ID **SVMS7** Method: **SW8270**

MSD Sample ID: **1111716-01B MSD** Units: **µg/L** Analysis Date: **11/23/2011 10:12 PM**
Client ID: Run ID: **SVMS7_111123A** SeqNo: **1832728** Prep Date: **11/23/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	244.5	50	400	0	61.1	30-100	247.4	1.18	30	
2,4,5-Trichlorophenol	277.5	50	400	0	69.4	50-110	289.1	4.09	30	
2,4,6-Trichlorophenol	266.3	50	400	0	66.6	50-115	278.5	4.48	30	
2,4-Dinitrotoluene	309.3	50	400	0	77.3	50-120	315	1.83	30	
Hexachlorobenzene	301.7	50	400	0	75.4	50-110	310.3	2.81	30	
Hexachloroethane	254.9	50	400	0	63.7	30-95	253.1	0.709	30	
m-Cresol	218.4	50	400	0	54.6	30-110	208.9	4.45	30	
Nitrobenzene	263	50	400	0	65.8	45-110	273.3	3.84	30	
Pentachlorophenol	294.8	200	400	0	73.7	40-115	298.3	1.18	30	
Surr: 2,4,6-Tribromophenol	*342.5*	0	*500*	0	*68.5*	*21-125*	357.3	*4.23*	*40*	
Surr: 2-Fluorobiphenyl	*284.7*	0	*500*	0	*56.9*	*36-94*	294.8	*3.49*	*40*	
Surr: 2-Fluorophenol	*221.3*	0	*500*	0	*44.3*	*10-75*	194.3	*13*	*40*	
Surr: 4-Terphenyl-d14	*361.5*	0	*500*	0	*72.3*	*26-119*	376.7	*4.12*	*40*	
Surr: Nitrobenzene-d5	*297.7*	0	*500*	0	*59.5*	*41-104*	308.5	*3.56*	*40*	
Surr: Phenol-d6	*144.9*	0	*500*	0	*29*	*11-50*	115	*23*	*40*	

MSD Sample ID: **1111716-01B MSD** Units: **µg/L** Analysis Date: **11/23/2011 10:12 PM**
Client ID: Run ID: **SVMS7_111123A** SeqNo: **1832742** Prep Date: **11/23/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	244.5	50	400	0	61.1	30-100	247.4	1.18	30	
2,4,5-Trichlorophenol	277.5	50	400	0	69.4	50-110	289.1	4.09	30	
2,4,6-Trichlorophenol	266.3	50	400	0	66.6	50-115	278.5	4.48	30	
2,4-Dinitrotoluene	309.3	50	400	0	77.3	50-120	315	1.83	30	
Hexachlorobenzene	301.7	50	400	0	75.4	50-110	310.3	2.81	30	
Hexachloroethane	254.9	50	400	0	63.7	30-95	253.1	0.709	30	
Nitrobenzene	263	50	400	0	65.8	45-110	273.3	3.84	30	
Pentachlorophenol	294.8	200	400	0	73.7	40-115	298.3	1.18	30	
Surr: 2,4,6-Tribromophenol	*342.5*	0	*500*	0	*68.5*	*21-125*	357.3	*4.23*	*40*	
Surr: 2-Fluorobiphenyl	*284.7*	0	*500*	0	*56.9*	*36-94*	294.8	*3.49*	*40*	
Surr: 2-Fluorophenol	*221.3*	0	*500*	0	*44.3*	*10-75*	194.3	*13*	*40*	
Surr: 4-Terphenyl-d14	*361.5*	0	*500*	0	*72.3*	*26-119*	376.7	*4.12*	*40*	
Surr: Nitrobenzene-d5	*297.7*	0	*500*	0	*59.5*	*41-104*	308.5	*3.56*	*40*	
Surr: Phenol-d6	*144.9*	0	*500*	0	*29*	*11-50*	115	*23*	*40*	

The following samples were analyzed in this batch: 1111664-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **R98276** Instrument ID **VMS6** Method: **SW8260**

MBLK Sample ID: **VBLKW1-111128-R98276** Units: **µg/L** Analysis Date: **11/28/2011 12:08 PM**
Client ID: Run ID: **VMS6_111128A** SeqNo: **1834923** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
Benzene	ND	1.0								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroform	ND	1.0								
Tetrachloroethene	ND	2.0								
Trichloroethene	ND	1.0								
Vinyl chloride	ND	1.0								
Surr: 1,2-Dichloroethane-d4	*103*	0	*100*	0	*103*	*70-120*	0			
Surr: 4-Bromofluorobenzene	*96.81*	0	*100*	0	*96.8*	*75-120*	0			
Surr: Dibromofluoromethane	*100.4*	0	*100*	0	*100*	*85-115*	0			
Surr: Toluene-d8	*96.42*	0	*100*	0	*96.4*	*85-120*	0			

LCS Sample ID: **VLCSW1-111128-R98276** Units: **µg/L** Analysis Date: **11/28/2011 10:54 AM**
Client ID: Run ID: **VMS6_111128A** SeqNo: **1834094** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	22.63	1.0	20	0	113	70-130	0			
1,2-Dichloroethane	20.49	1.0	20	0	102	70-130	0			
Benzene	20.88	1.0	20	0	104	80-120	0			
Carbon tetrachloride	21.2	1.0	20	0	106	65-140	0			
Chlorobenzene	20.33	1.0	20	0	102	80-120	0			
Chloroform	20.95	1.0	20	0	105	65-135	0			
Tetrachloroethene	20.56	2.0	20	0	103	45-150	0			
Trichloroethene	21.49	1.0	20	0	107	70-125	0			
Vinyl chloride	20.77	1.0	20	0	104	50-145	0			
Surr: 1,2-Dichloroethane-d4	*101.2*	0	*100*	0	*101*	*70-120*	0			
Surr: 4-Bromofluorobenzene	*98.92*	0	*100*	0	*98.9*	*75-120*	0			
Surr: Dibromofluoromethane	*101.6*	0	*100*	0	*102*	*85-115*	0			
Surr: Toluene-d8	*97.65*	0	*100*	0	*97.6*	*85-120*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **R98276** Instrument ID **VMS6** Method: **SW8260**

LCSD Sample ID: **VLCSDW1-111128-R98276** Units: **µg/L** Analysis Date: **11/28/2011 11:18 AM**
Client ID: Run ID: **VMS6_111128A** SeqNo: **1834095** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	22.74	1.0	20	0	114	70-130	22.63	0.485	30	
1,2-Dichloroethane	21.07	1.0	20	0	105	70-130	20.49	2.79	30	
Benzene	20.74	1.0	20	0	104	80-120	20.88	0.673	30	
Carbon tetrachloride	20.97	1.0	20	0	105	65-140	21.2	1.09	30	
Chlorobenzene	20.22	1.0	20	0	101	80-120	20.33	0.543	30	
Chloroform	20.75	1.0	20	0	104	65-135	20.95	0.959	30	
Tetrachloroethene	20.5	2.0	20	0	102	45-150	20.56	0.292	30	
Trichloroethene	21.31	1.0	20	0	107	70-125	21.49	0.841	30	
Vinyl chloride	20.33	1.0	20	0	102	50-145	20.77	2.14	30	
Surr: 1,2-Dichloroethane-d4	*101.5*	0	*100*	0	*102*	*70-120*	101.2	*0.365*	*30*	
Surr: 4-Bromofluorobenzene	*99.4*	0	*100*	0	*99.4*	*75-120*	98.92	*0.484*	*30*	
Surr: Dibromofluoromethane	*103.3*	0	*100*	0	*103*	*85-115*	101.6	*1.64*	*30*	
Surr: Toluene-d8	*98*	0	*100*	0	*98*	*85-120*	97.65	*0.358*	*30*	

MS Sample ID: **1111717-09A MS** Units: **µg/L** Analysis Date: **11/28/2011 08:57 PM**
Client ID: Run ID: **VMS6_111128A** SeqNo: **1834978** Prep Date: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	99.9	5.0	100	0	99.9	70-130	0			
1,2-Dichloroethane	104.2	5.0	100	0	104	70-130	0			
Benzene	99.05	5.0	100	0	99	80-120	0			
Carbon tetrachloride	96.85	5.0	100	0	96.8	65-140	0			
Chlorobenzene	95.75	5.0	100	0	95.8	80-120	0			
Chloroform	99.85	5.0	100	0	99.8	65-135	0			
Tetrachloroethene	171	10	100	92	79	45-150	0			
Trichloroethene	100.8	5.0	100	0	101	70-125	0			
Vinyl chloride	89.45	5.0	100	0	89.4	50-145	0			
Surr: 1,2-Dichloroethane-d4	*529.3*	0	*500*	0	*106*	*70-120*	0			
Surr: 4-Bromofluorobenzene	*504*	0	*500*	0	*101*	*75-120*	0			
Surr: Dibromofluoromethane	*511.4*	0	*500*	0	*102*	*85-115*	0			
Surr: Toluene-d8	*483.7*	0	*500*	0	*96.7*	*85-120*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **R98276** Instrument ID **VMS6** Method: **SW8260**

MSD Sample ID: **1111717-09A MSD** Units: **µg/L** Analysis Date: **11/28/2011 09:22 PM**
Client ID: Run ID: **VMS6_111128A** SeqNo: **1834982** Prep Date: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	99.15	5.0	100	0	99.2	70-130	99.9	0.754	30	
1,2-Dichloroethane	97.9	5.0	100	0	97.9	70-130	104.2	6.23	30	
Benzene	92.8	5.0	100	0	92.8	80-120	99.05	6.52	30	
Carbon tetrachloride	92.85	5.0	100	0	92.8	65-140	96.85	4.22	30	
Chlorobenzene	90.9	5.0	100	0	90.9	80-120	95.75	5.2	30	
Chloroform	94.7	5.0	100	0	94.7	65-135	99.85	5.29	30	
Tetrachloroethene	162.8	10	100	92	70.8	45-150	171	4.88	30	
Trichloroethene	94.2	5.0	100	0	94.2	70-125	100.8	6.72	30	
Vinyl chloride	89.8	5.0	100	0	89.8	50-145	89.45	0.391	30	
Surr: 1,2-Dichloroethane-d4	*526.1*	0	*500*	0	*105*	*70-120*	529.3	*0.606*	*30*	
Surr: 4-Bromofluorobenzene	*498.6*	0	*500*	0	*99.7*	*75-120*	504	*1.1*	*30*	
Surr: Dibromofluoromethane	*505*	0	*500*	0	*101*	*85-115*	511.4	*1.26*	*30*	
Surr: Toluene-d8	*487.2*	0	*500*	0	*97.4*	*85-120*	483.7	*0.731*	*30*	

The following samples were analyzed in this batch: 1111664-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **R98330** Instrument ID **VMS6** Method: **SW8260**

MBLK Sample ID: **VBLKW1-111129-R98330** Units: **µg/L** Analysis Date: **11/29/2011 11:54 AM**
Client ID: Run ID: **VMS6_111129A** SeqNo: **1835766** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Butanone	ND	5.0								
Surr: 1,2-Dichloroethane-d4	*104.7*	0	*100*	0	*105*	*70-120*	0			
Surr: 4-Bromofluorobenzene	*97.04*	0	*100*	0	*97*	*75-120*	0			
Surr: Dibromofluoromethane	*101.9*	0	*100*	0	*102*	*85-115*	0			
Surr: Toluene-d8	*97.23*	0	*100*	0	*97.2*	*85-120*	0			

LCS Sample ID: **VLCSW1-111129-R98330** Units: **µg/L** Analysis Date: **11/29/2011 10:39 AM**
Client ID: Run ID: **VMS6_111129A** SeqNo: **1835245** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Butanone	14.94	5.0	20	0	74.7	30-150	0			
Surr: 1,2-Dichloroethane-d4	*103.3*	0	*100*	0	*103*	*70-120*	0			
Surr: 4-Bromofluorobenzene	*99.11*	0	*100*	0	*99.1*	*75-120*	0			
Surr: Dibromofluoromethane	*102.6*	0	*100*	0	*103*	*85-115*	0			
Surr: Toluene-d8	*97.71*	0	*100*	0	*97.7*	*85-120*	0			

LCSD Sample ID: **VLCSDW1-111129-R98330** Units: **µg/L** Analysis Date: **11/29/2011 11:04 AM**
Client ID: Run ID: **VMS6_111129A** SeqNo: **1835329** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Butanone	14.09	5.0	20	0	70.4	30-150	14.94	5.86	30	
Surr: 1,2-Dichloroethane-d4	*102.1*	0	*100*	0	*102*	*70-120*	103.3	*1.15*	*30*	
Surr: 4-Bromofluorobenzene	*98.9*	0	*100*	0	*98.9*	*75-120*	99.11	*0.212*	*30*	
Surr: Dibromofluoromethane	*102.8*	0	*100*	0	*103*	*85-115*	102.6	*0.136*	*30*	
Surr: Toluene-d8	*97.39*	0	*100*	0	*97.4*	*85-120*	97.71	*0.328*	*30*	

The following samples were analyzed in this batch: 1111664-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: City of Grand Rapids WWTP
Work Order: 1111664
Project: 1104654

QC BATCH REPORT

Batch ID: **R98102** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS1-R98102** Units: **% of sample** Analysis Date: **11/21/2011 02:50 PM**
Client ID: Run ID: **MOIST_111121C** SeqNo: **1830089** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R98102** Units: **% of sample** Analysis Date: **11/21/2011 02:50 PM**
Client ID: Run ID: **MOIST_111121C** SeqNo: **1830088** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1111632-15ADUP** Units: **% of sample** Analysis Date: **11/21/2011 02:50 PM**
Client ID: Run ID: **MOIST_111121C** SeqNo: **1830084** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	98.17	0.050	0	0	0	0-0	98.11	0.0611	20	H

The following samples were analyzed in this batch: 1111664-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1111664

Analysis Request / Chain of Custody Form

Client: City of Grand Rapids
1300 Market SW
Grand Rapids, MI 49503
Attn:Tom Schaub
616 456-3631 fax: 616 456-3711
tschaub@ci.grand-rapids.mi.us

Lab: ALS Laboratory Group
Environmental Division
3352 128th Avenue
Holland, MI 49424
616 399-6070

Sales Rep: Joe Ribar
616 738-7313 fax: 616 399-6185
616 399-6070 x.526
cell 616 218-7990
joe.ribar@alsenviro.com

	Sample Information				Containers			Parameters				
#	Client's Sample Identification	Date	Time	Type	Type	Size	#	TCLP: metals	TCLP: VOC's	TCLP: SVOC's	PCB's	Past Filter
	1104654	11/17	13:00		Glass	1000	2	X	X	X	X	X

Relinquished by: _____ Received by: _____ Date/Time 11/18/11 09:15

Relinquished by: _____ Received by: _____ Date/Time 11/18/11 1020

Relinquished by: _____ Received by: _____ Date/Time _____

Comments/Special Requirements: _____

9.8 ;

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **GR-WWTP** Date/Time Received: **18-Nov-11 10:20**

Work Order: **1111664** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 18-Nov-11 (Date) Reviewed by: Joseph Rebar (eSignature) 20-Nov-11 (Date)

Matrices: Solid
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☐	No ☑	
Temperature(s)/Thermometer(s):	9.8 c		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Laboratory Report

Client GVRBA

From
City of Grand Rapids
Environmental Protection Services Dept. Lab
1300 Market, SW
Grand Rapids, Michigan 49503
616 456-3631

Sample Information

Lab Number	201104654		
Sample Name	GV Cake Silo #1		
Date Collected	11/17/2011	**Date logged in**	11/17/2011
Time Collected	1:00:00 PM	**Time logged in**	1:44:57 PM
Collected by	John Schweizer	**Logged in by**	Tom Schaub

Remarks From Truck. TCLP: metals, VOC's, SVOC's, PCB's, Paint Filter.

Results

Parameter	*Result*	*Units*	*Method*	*Detection Limit*
1,1-dichloroethylene	<20	ug/L	SW8260	20ug/L
1,2-Dichloroethane	<20	ug/L	SW8260	20ug/L
1,4-Dichlorobenzene	<100	ug/L	SW8270	100ug/L
2,4,5-Trichlorophenol	<100	ug/L	SW8270	100ug/L
2,4,6-Trichlorophenol	<100	ug/L	SW8270	100ug/L
2,4-Dinitrotoluene	<100	ug/L	SW8270	100ug/L
2-Butanone	2100	ug/L	SW8260	500ug/L
Silver	<0.005	mg/L	SW6020A	0.0050mg/L
Aroclor 1016	<200	ug/Kg	SW8082	160ug/Kg
Aroclor 1221	<200	ug/Kg	SW8082	160ug/Kg
Aroclor 1232	<200	ug/Kg	SW8082	160ug/Kg
Aroclor 1242	<200	ug/Kg	SW8082	160ug/Kg
Aroclor 1248	<200	ug/Kg	SW8082	160ug/Kg
Aroclor 1254	<200	ug/Kg	SW8082	160ug/Kg
Aroclor 1260	<200	ug/Kg	SW8082	160ug/Kg

Laboratory Report

Arsenic	<0.01	mg/L	SW6020A	0.010mg/L
Barium	0.58	mg/L	SW6020A	0.050mg/L
Benzene	<20	ug/L	SW8260	20ug/L
Carbon tetrachloride	<20	ug/L	SW8260	20ug/L
Cadmium	<0.002	mg/L	SW6020A	0.0020mg/L
Chlorobenzene	<20	ug/L	SW8260	20ug/L
Chloroform	<20	ug/L	SW8260	20ug/L
Chromium	0.06	mg/L	SW6020A	0.020mg/L
Free Liquids	0	none	SW9095	
Hexachloro-1,3-butadiene	<100	ug/L	SW8270	100ug/L
Hexachlorobenzene	<100	ug/L	SW8270	100ug/L
Hexachloroethane	<100	ug/L	SW8270	100ug/L
Mercury	<0.002	mg/L	SW7470A	0.0020mg/L
m-Cresol	1800	ug/L	SW8270	500ug/L
Nitrobenzene	<100	ug/L	SW8270	100ug/L
o-Cresol	<100	ug/L	SW8270	100ug/L
Lead	<0.01	mg/L	SW6020A	0.010mg/L
PCBs, Total	<200	ug/Kg	SW8082	160ug/Kg
p-Cresol	1800	ug/L	SW8270	500ug/L
Pentachlorophenol	<400	ug/L	SW8270	400ug/L
Pyridine	<400	ug/L	SW8270	400ug/L
Selenium	<0.02	mg/L	SW6020A	0.020mg/L
tetrachloroethylene	<20	ug/L	SW8260	20ug/L
trichloroethylene	<20	ug/L	SW8260	20ug/L
Vinyl chloride	<20	ug/L	SW8260	20ug/L

Printed: Wednesday, November 30, 2011 2:32:26 PM # 201104654

APPENDIX I

PATHOGEN / VECTOR ATTRACTION REDUCTION DOCUMENTATION

City of Wyoming Clean Water Plant
Monthly 24 Hour Biosolids pH Check

Month and Year	August 2012

Tank Used	West

Feet of Lime in Tank		Gallons per Foot		Gallons of Lime in Tank
3.5	x	3,684	=	12,894

Total Gallons in Holding Tank		Gallons of Lime in Tank		Gallons of Sludge
135000	-	12894	=	122106

Initial Check			
			pH Reading (12.5 max)
Day	Time	Operator	12.0 minimum
8/21/12	8:30pm	JS	12.1

2 Hour Check			
			pH Reading (12.5 max)
Day	Time	Operator	12.0 minimum
8/21/12	10:30pm	JS	12.1

24 Hour Check			
			pH Reading (12.5 max)
Day	Time	Operator	11.5 minimum
8/22/12	8:30pm	JS	12.1

WYOMING CLEAN WATER PLANT — 8/1/2012

SLUDGE IN

WEST SLUDGE TANK	TIME	GALLONS
STOP	11PM	190K
START	over	MT
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL		121K

EAST SLUDGE TANK	TIME	GALLONS
STOP		
START		
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL		

TOTAL GALLONS OF SLUDGE IN

SLUDGE OUT

WEST SLUDGE TANK	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE

EAST SLUDGE TANK	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS — 621 GALLONS PER INCH	WEST	EAST
PREVIOUS	MT	MT
MIDNIGHT	100K	MT

LIME STORAGE TANKS — 307 GALLONS PER INCH	WEST	EAST
PREVIOUS	18.2	7.6
MIDNIGHT	18.2	7.4

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY W - 0.6

CARRYOVER LOADS FOR THE MONTH

LOADS OF LIME DELIVERED

LIME TANK USED	1 (2)	1 (2)	1 2	1 2	1 2
HOLDING TANK	W	W			
START SOUNDING	7.6	8.6			
STOP SOUNDING	6.5	7.4			
DIFFERENCE	1.1	1.2			

TOTAL LIME USED FOR THE DAY 2.3

125/18 @ 3.6'
120/23 @ 3.6

OPERATOR

12-8 SHIFT	JJ	8-4 SHIFT	[signature]	4-12 SHIFT	[signature]

WYOMING CLEAN WATER PLANT

8/2/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP	8A	136K
START	prev	100K
TOTAL		36K
STOP		
START		
TOTAL		
CONE		
TOTAL		

100K pH 12.0 adj
① 12.00 @ 11A
② 12.00 @ 1:30P

EAST SLUDGE TANK

	TIME	GALLONS
STOP	11pm	25,000
START	8A	MT
TOTAL		46,000
STOP		
START		
TOTAL		
CONE		
TOTAL		

TOTAL GALLONS OF SLUDGE IN 82,000

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	5:30p	① 2, 3, 4, L	135,000
STOP			MT
CONE			21,000
TOTAL			156,000
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE 156,000

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	100K	MT
MIDNIGHT	MT	25,000

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	18.2	7.4
MIDNIGHT	18.2	9.6

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY W-2.9

CARRYOVER LOADS FOR THE MONTH 1

LOADS OF LIME DELIVERED 1

LIME TANK USED	1 ②	1 ②	1 ①	1 2	1 2
HOLDING TANK	W	W	E		
START SOUNDING	7.4	8.2	8.8		
STOP SOUNDING	6.8	X	8.0		
DIFFERENCE	.6	.2	.8		
TOTAL LIME USED FOR THE DAY	1.4				

120/23 @ 3.6
120/22 @ 3.6
120/20 @ 3.8 New

OPERATOR

12-8 SHIFT	JJ	8-4 SHIFT	[illegible]	4-12 SHIFT	SC

WYOMING CLEAN WATER PLANT — 8/3/2012

SLUDGE IN

WEST SLUDGE TANK	TIME	GALLONS
STOP		
START		
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL		

EAST SLUDGE TANK	TIME	GALLONS
STOP	11 pm	119K
START	2:20 PM	25K
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL	94000	

12.1 pH adj @ 98K

TOTAL GALLONS OF SLUDGE IN 94000

SLUDGE OUT

WEST SLUDGE TANK	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

EAST SLUDGE TANK	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS	WEST	EAST
621 GALLONS PER INCH		
PREVIOUS	MT	25K
MIDNIGHT	MT	119K

LIME STORAGE TANKS	WEST	EAST
307 GALLONS PER INCH		
PREVIOUS	18.2	9.6
MIDNIGHT	18.2	13.4

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY E 0.8

CARRYOVER LOADS FOR THE MONTH 2

LOADS OF LIME DELIVERED

LIME TANK USED	1 (2)	1 2	1 2	1 2	1 2
HOLDING TANK	E				
START SOUNDING	15				
STOP SOUNDING	13.4				
DIFFERENCE	1.6				

TOTAL LIME USED FOR THE DAY 1.6

120/20 @ 3.8'
143/22 @ 3.4'
121/21 @ 3.8'

OPERATOR

12-8 SHIFT	TJ	8-4 SHIFT		4-12 SHIFT	

WYOMING CLEAN WATER PLANT — 8/4/2012

SLUDGE IN

WEST SLUDGE TANK	TIME	GALLONS
STOP	11pm	42K
START	3AM	MT
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL	63000	

EAST SLUDGE TANK	TIME	GALLONS
STOP	3AM	138K
START	prev	119K
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL	19000	

3am pH 12.2 adj JJ
5am pH 12.2 adj JJ

TOTAL GALLONS OF SLUDGE IN 82000

SLUDGE OUT

WEST SLUDGE TANK	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

EAST SLUDGE TANK	TIME	LOCATION	GALLONS
START	5AM	1, 2, 3, 4, L	138K
STOP	9 29AM		21
CONE			159,000
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE 159000

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS — 621 GALLONS PER INCH	WEST	EAST
PREVIOUS	MT	119K
MIDNIGHT	42K	MT

LIME STORAGE TANKS — 307 GALLONS PER INCH	WEST	EAST
PREVIOUS	18.2	13.4
MIDNIGHT	18.2	10.0

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY E-2.4

CARRYOVER LOADS FOR THE MONTH 2

LOADS OF LIME DELIVERED

LIME TANK USED	1 ②	1 ②	1 ②	1 2	1 2
HOLDING TANK	E	~~E~~ E	W		
START SOUNDING	13.4	12.0	11.7		
STOP SOUNDING	12.0	11.7	10.0		
DIFFERENCE	1.4	0.3	1.7		

TOTAL LIME USED FOR THE DAY 3.4

12/12 1 @ 3.8'
12 1/31 @ 3.8
12 0/35 @ 3.8'

OPERATOR

12-8 SHIFT	JJ	8-4 SHIFT	DL	4-12 SHIFT	

WYOMING CLEAN WATER PLANT

8/5/2012

SLUDGE IN

WEST SLUDGE TANK				EAST SLUDGE TANK		
	TIME	GALLONS	12.1 pH adj @ 104K B		TIME	GALLONS
STOP	11pm	111K		STOP		
START	P[illegible]	42K		START		
TOTAL				TOTAL		
STOP				STOP		
START				START		
TOTAL				TOTAL		
CONE				CONE		
TOTAL	69000			TOTAL		

TOTAL GALLONS OF SLUDGE IN 69000

SLUDGE OUT

WEST SLUDGE TANK				EAST SLUDGE TANK			
	TIME	LOCATION	GALLONS		TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L		START		1, 2, 3, 4, L	
STOP				STOP			
CONE				CONE			
TOTAL				TOTAL			
START		1, 2, 3, 4, L		START		1, 2, 3, 4, L	
STOP				STOP			
CONE				CONE			
TOTAL				TOTAL			

TOTAL GALLONS TO STORAGE | TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS			LIME STORAGE TANKS		
621 GALLONS PER INCH	WEST	EAST	307 GALLONS PER INCH	WEST	EAST
PREVIOUS	42K	MT	PREVIOUS	18.2	10.0
MIDNIGHT	111K	MT	MIDNIGHT	18.2	8.2

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY 6-1.7

CARRYOVER LOADS FOR THE MONTH 2

LOADS OF LIME DELIVERED

LIME TANK USED	1 (2)	1 2	1 2	1 2	1 2
HOLDING TANK	W				
START SOUNDING	10.0				
STOP SOUNDING	8.2				
DIFFERENCE	1.8				

TOTAL LIME USED FOR THE DAY 1.8

120/55@3.8
~~12#/24@~~
12/21 @3.8'
120/42@3.8'

OPERATOR

12-8 SHIFT	BJ	8-4 SHIFT	[illegible]	4-12 SHIFT	B

WYOMING CLEAN WATER PLANT

8/6/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP	6 AM	137K
START	Prev	111K
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL	26000	

7:30 AM ① RJ
12.1 pH @ 137K

12.1 pH @ 945 PM

EAST SLUDGE TANK

	TIME	GALLONS
STOP	11pm	45K
START	6AM	MT
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL	106000	

TOTAL GALLONS OF SLUDGE IN 92000

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	6:05pm	(1), 2, 3, 4, L	137K
STOP	11:05pm		MT
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			158000

TOTAL GALLONS TO STORAGE 158000

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	111K	MT
MIDNIGHT	MT	45K

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	18.2	8.2
MIDNIGHT	18.2	6.4

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY W-3.5

CARRYOVER LOADS FOR THE MONTH 2

LOADS OF LIME DELIVERED

LIME TANK USED	1 (2)	1 (2)	1 2	1 2	1 2
HOLDING TANK	W	E			
START SOUNDING	8.2	7.6			
STOP SOUNDING	7.6	6.4			
DIFFERENCE	.6	1.2			

TOTAL LIME USED FOR THE DAY 1.8

120/42 @3.8
126/17 @3.8
124/15 @3.7

OPERATOR

12-8 SHIFT	BS	8-4 SHIFT	ML	4-12 SHIFT	D

WYOMING CLEAN WATER PLANT — 8/7/2012

SLUDGE IN

WEST SLUDGE TANK			EAST SLUDGE TANK		
	TIME	GALLONS		TIME	GALLONS
STOP	11pm	MT	STOP	10 pm	135K
START	10pm	MT	START	Rec	45K
TOTAL			TOTAL		
STOP			STOP		
START			START		
TOTAL			TOTAL		
CONE			CONE		
TOTAL			TOTAL	90000	

Adj pH = 11.7 @ 100K
① 12.0 pH adj @ 10:05pm JS

TOTAL GALLONS OF SLUDGE IN 90000

SLUDGE OUT

WEST SLUDGE TANK				EAST SLUDGE TANK			
	TIME	LOCATION	GALLONS		TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L		START		1, 2, 3, 4, L	
STOP				STOP			
CONE				CONE			
TOTAL				TOTAL			
START		1, 2, 3, 4, L		START		1, 2, 3, 4, L	
STOP				STOP			
CONE				CONE			
TOTAL				TOTAL			
TOTAL GALLONS TO STORAGE				TOTAL GALLONS TO LAND			

DAILY SOUNDINGS

SLUDGE HOLDING TANKS			LIME STORAGE TANKS		
621 GALLONS PER INCH	WEST	EAST	307 GALLONS PER INCH	WEST	EAST
PREVIOUS	MT	45K	PREVIOUS	18.2	6.4
MIDNIGHT	MT	135K	MIDNIGHT	18.2	5.9

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY E - 1.2

CARRYOVER LOADS FOR THE MONTH 2

LOADS OF LIME DELIVERED 1

LIME TANK USED	1 (2)	1 (2)	1 (2)	1 2	1 2
HOLDING TANK	E	E	W		
START SOUNDING	6.4	7.6	6.0		
STOP SOUNDING	5.6	6.0	5.9		
DIFFERENCE	0.8	1.6	0.1		

TOTAL LIME USED FOR THE DAY 2.5

124/15@3.7'
121/13@3.7' (5 AM)
122/12@3.8'
127/15@3.8
~~120/23@3.6' new tank~~ JS
121/22@3.8' " "

OPERATOR

12-8 SHIFT	BJ	8-4 SHIFT	JK	4-12 SHIFT	

WYOMING CLEAN WATER PLANT — 8/8/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP	1 pm	70,000
START	Prev	MT
TOTAL		91,000
STOP		
START		
TOTAL		
CONE		
TOTAL		

EAST SLUDGE TANK

	TIME	GALLONS
STOP	—	135K
START		
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL		

12:05 AM 2nd pH
12.05 adj (RJ)
Ready to ship!

TOTAL GALLONS OF SLUDGE IN 91,000

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			45,000

TOTAL GALLONS TO STORAGE 45,000

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	11 05pm	1, 2, 3, 4, (L)	135 000
STOP			24,000
CONE			—
TOTAL			111,000
START	7 30pm	(1), 2, 3, 4, L	24,000
STOP			MT
CONE			21,000
TOTAL			45,000

TOTAL GALLONS TO LAND 111,000

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	MT	135K
MIDNIGHT	70,000	MT

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	18.2	5.9
MIDNIGHT	18.2	12.9

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY (W) - 0.1

CARRYOVER LOADS FOR THE MONTH 3

LOADS OF LIME DELIVERED 1

LIME TANK USED	1 (2)	1 (2)	1 2	1 2	1 2
HOLDING TANK	W	W			
START SOUNDING	5.9	7.2			
STOP SOUNDING	5.2	6.4			
DIFFERENCE	.7	.8			
TOTAL LIME USED FOR THE DAY	1.5				

12/1/22 @ 3.8'
12/9/16 @ 3.8

OPERATOR

12-8 SHIFT		8-4 SHIFT		4-12 SHIFT	

WYOMING CLEAN WATER PLANT — 8/9/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP	2:30p	137K
START	Prev	70K
TOTAL		67K
STOP		
START		
TOTAL		
CONE		
TOTAL		

10 ek pH 9.08 ads
① 12.1 @ 2:30p
② 12.1 @ 4:30p

EAST SLUDGE TANK

	TIME	GALLONS
STOP	11pm	9K
START	2:30p	MT
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL		

TOTAL GALLONS OF SLUDGE IN

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	6:30.	1, ② 3, 4, L	137K
STOP	11 pm		MT
CONE			
TOTAL			
START		1, 2, 3, 4, L	159
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE 158K

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	70000	MT
MIDNIGHT	MT	9K

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	18.2	12.9
MIDNIGHT	18.2	13.2

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY W-1.6

CARRYOVER LOADS FOR THE MONTH 4

LOADS OF LIME DELIVERED 1

LIME TANK USED	1 ②	1 ②	1 ②	1 2	1 2
HOLDING TANK	W	W	E		
START SOUNDING	14.9	16.3	13.8		
STOP SOUNDING	JJ	13.8	13.2		
DIFFERENCE		2.5	0.6		

TOTAL LIME USED FOR THE DAY 3.1

12/7/12 @ 3.8'
~~JJ~~ 16/2/24 @ 4.0' NEW TANK

OPERATOR

12-8 SHIFT	JJ	8-4 SHIFT		4-12 SHIFT	JJ

WYOMING CLEAN WATER PLANT — 8/10/2012

SLUDGE IN

WEST SLUDGE TANK			100K, pH 12.1 adj	EAST SLUDGE TANK		
	TIME	GALLONS			TIME	GALLONS
STOP	11P	99K		STOP		
START		9K		START		
TOTAL		90K		TOTAL		
STOP				STOP		
START				START		
TOTAL				TOTAL		
CONE				CONE		
TOTAL				TOTAL		

TOTAL GALLONS OF SLUDGE IN

SLUDGE OUT

WEST SLUDGE TANK				EAST SLUDGE TANK			
	TIME	LOCATION	GALLONS		TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L		START		1, 2, 3, 4, L	
STOP				STOP			
CONE				CONE			
TOTAL				TOTAL			
START		1, 2, 3, 4, L		START		1, 2, 3, 4, L	
STOP				STOP			
CONE				CONE			
TOTAL				TOTAL			
TOTAL GALLONS TO STORAGE				TOTAL GALLONS TO LAND			

DAILY SOUNDINGS

SLUDGE HOLDING TANKS			LIME STORAGE TANKS		
621 GALLONS PER INCH	WEST	EAST	307 GALLONS PER INCH	WEST	EAST
PREVIOUS	mT	9K	PREVIOUS	18.2	13.2
MIDNIGHT	mT	99K	MIDNIGHT	18.3	10.9

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY E - 0.6

CARRYOVER LOADS FOR THE MONTH 5

LOADS OF LIME DELIVERED

LIME TANK USED	1 (2)	1 2	1 2	1 2	1 2
HOLDING TANK	E				
START SOUNDING	13.2				
STOP SOUNDING	10.9				
DIFFERENCE	2.3				

TOTAL LIME USED FOR THE DAY 2.3

162/124 @ 4.0'
120/11 @ 4.0

OPERATOR

12-8 SHIFT	JJ	8-4 SHIFT		4-12 SHIFT	

WYOMING CLEAN WATER PLANT — 8/11/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP	1030	49K
START	7Am	MT
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL		70 000

TOTAL GALLONS OF SLUDGE IN

EAST SLUDGE TANK

	TIME	GALLONS
STOP	7Am	137K
START	New	0Gal
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL		

11:05Am (1) BJ
12.05pH adj

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	9:15Am	(1) 2, 3, 4, L	137K
STOP			MT
CONE	1:30pm		21K
TOTAL			158.000
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	MT	99K
MIDNIGHT	49	MT

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	18.3	10.9
MIDNIGHT	18.3	8.1

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY 2.9 - E

CARRYOVER LOADS FOR THE MONTH 5

LOADS OF LIME DELIVERED

LIME TANK USED	1 (2)	1 (2)	1 2	1 2	1 2
HOLDING TANK	E	W			
START SOUNDING	10.9	9.8			
STOP SOUNDING	9.8	8.1			
DIFFERENCE	1.1	1.7			

TOTAL LIME USED FOR THE DAY

12 0/11 @ 4.0
157/15 @ 4.0' (New)

OPERATOR

12-8 SHIFT		8-4 SHIFT		4-12 SHIFT	
	BJ		BJ (OT)		DT

WYOMING CLEAN WATER PLANT

8/12/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP	5:30pm	135K
START	Prev	49K
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL	86000	

12.0 pH adj @ 101K
① 12.0 pH adj @ 5:30pm
② 12.0 pH adj @ 7:45pm

EAST SLUDGE TANK

	TIME	GALLONS
STOP	11pm	MT
START	5:30pm	MT
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL		

TOTAL GALLONS OF SLUDGE IN 86000

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	7:50pm	① 2, 3, 4, L	135K
STOP	11:50pm		MT
CONE			21K
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			156000

TOTAL GALLONS TO STORAGE 156000

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	4.9	MT
MIDNIGHT	MT	MT

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	18.3	8.1
MIDNIGHT	18.3	5.7

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY W - 1.7

CARRYOVER LOADS FOR THE MONTH 5

LOADS OF LIME DELIVERED

LIME TANK USED	1 (2)	1 (2)	1 2	1 2	1 2
HOLDING TANK	W	E			
START SOUNDING	8.1	6.1			
STOP SOUNDING	6.1	5.7			
DIFFERENCE	2.0	0.4			

TOTAL LIME USED FOR THE DAY 2.4

15 7/18 @ 4.9'
12 2/17 @ 4.0'
1 21/20 @ 38' new tank

OPERATOR

12-8 SHIFT	JJ	8-4 SHIFT	OT	4-12 SHIFT	

WYOMING CLEAN WATER PLANT

8/13/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP		
START		
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL		

EAST SLUDGE TANK

	TIME	GALLONS
STOP	11pm	135 K
START	prev	MT
TOTAL		
STOP		
START		
TOTAL		
CONE		21K
TOTAL	~~156000~~	~~157000~~

11.8 plt adj @ 98K 8

TOTAL GALLONS OF SLUDGE IN ~~156000~~ ~~157000~~

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	MT	MT
MIDNIGHT	MT	135 K

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	18.3	5.7
MIDNIGHT	16.6	4.0

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY E - 9.4

CARRYOVER LOADS FOR THE MONTH 5

LOADS OF LIME DELIVERED

LIME TANK USED	1 (2)	(1) 2	1 2	1 2	1 2
HOLDING TANK	E	E			
START SOUNDING	5.7	18.3			
STOP SOUNDING	4.0	16.6			
DIFFERENCE	1.7	1.7			

TOTAL LIME USED FOR THE DAY 3.4

12/1/20 @ 3.8'
12/0/12 @ 3.8
13/0/7 @ 3.8'

OPERATOR

12-8 SHIFT	JJ	8-4 SHIFT		4-12 SHIFT	

WYOMING CLEAN WATER PLANT

8/14/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP	11 PM	105K
START	11PM 8/13	MT
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL	126000	

12.0 pH adj @ 101K

EAST SLUDGE TANK

	TIME	GALLONS
STOP	8 PM	136K
START		
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL		

12.05 pH @ 136K (D 85 11:15 PM 8/13

TOTAL GALLONS OF SLUDGE IN 126000

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	~~1:25AM~~	(1) 2, 3, 4, L	
STOP	BJ		
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE 157000

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	1:25AM	(1) 2, 3, 4, L	136K
STOP	5:30AM		MT
CONE			21K
TOTAL			157,000
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	MT	136K
MIDNIGHT	105K	MT

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	16.6	4.0
MIDNIGHT	15.3	4.0

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY W-O

CARRYOVER LOADS FOR THE MONTH 5

LOADS OF LIME DELIVERED 1

LIME TANK USED	(1) 2	(1) 2	1 2	1 2	1 2
HOLDING TANK	W	W			
START SOUNDING	16.6	12.1			
STOP SOUNDING	15.0	15.3			
DIFFERENCE	1.6	1.8			

TOTAL LIME USED FOR THE DAY 3.4

126/13@3.8'
121/16@3.8'
125/16@3.8
122/22@3.8'

OPERATOR

12-8 SHIFT	BJS	8-4 SHIFT	PR	4-12 SHIFT	

WYOMING CLEAN WATER PLANT

8/15/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP	6:15Am	134K
START	Prev	105K
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL	29000	

7:30Am @ BT
12.1 pH adj
12.1 Adj @ 1000 AA

EAST SLUDGE TANK

	TIME	GALLONS
STOP	11pm	51K
START	6:15Am	MT
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL	72000	

TOTAL GALLONS OF SLUDGE IN 101000

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	5:45pm	(1) 2, 3, 4, L	134K
STOP	9:50pm		MT
CONE			21K
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			155000

TOTAL GALLONS TO STORAGE 155000

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	105K	MT
MIDNIGHT	MT	51K

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	15.3	4.0
MIDNIGHT	17.6	11.1

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY (2) - 3.4

CARRYOVER LOADS FOR THE MONTH 6

LOADS OF LIME DELIVERED 1 1

LIME TANK USED	(1) 2	(1) 2	(1) 2	1 2	1 2	
HOLDING TANK	W	~~W~~ E	E			
START SOUNDING	15.3	14.9	19.0			
STOP SOUNDING	14.9	14.5	17.6			
DIFFERENCE	0.4	.4	1.4			
TOTAL LIME USED FOR THE DAY	2.2					

12/22/12 @ 3.4
12/5/12 @ 3.4 EAST TANK
12/0/19 @ 3.4

OPERATOR

12-8 SHIFT	BJ	8-4 SHIFT		4-12 SHIFT	

WYOMING CLEAN WATER PLANT

8/16/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP	11p~	MT
START	6:45p~	MT
TOTAL		0
STOP		
START		
TOTAL		
CONE		
TOTAL	0	

TOTAL GALLONS OF SLUDGE IN 85,000

EAST SLUDGE TANK

	TIME	GALLONS
STOP	6:45p~	136,000
START	Prev	51K
TOTAL		85,000
STOP		
START		
TOTAL		
CONE		
TOTAL	85,000	

12.1 adj pH @ 103K (AL)

pH-12.1 @ 6:45p~/AL

pH-12.1 @ 2hrs/AL

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE 95,000

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	8:50pm	(1), 2, 3, 4, L	136,000
STOP			41,000
CONE			
TOTAL			95,000
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	MT	51K
MIDNIGHT	MT	41,000

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	17.6	11.1
MIDNIGHT	15.6	18.2

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY E -1.8

CARRYOVER LOADS FOR THE MONTH 7

LOADS OF LIME DELIVERED

LIME TANK USED	(1) 2	1 (2)	1 2	1 2	1 2
HOLDING TANK	E	E			
START SOUNDING	17.6	16.0			
STOP SOUNDING	16.0	15.6			
DIFFERENCE	1.6	.4			

TOTAL LIME USED FOR THE DAY 2.0

120/19 @3.4'

122/19 @3.4'

120/19 @3.4' (new)

OPERATOR

12-8 SHIFT	BJ	8-4 SHIFT		4-12 SHIFT	

WYOMING CLEAN WATER PLANT

8/17/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP	11pm	90,000
START	PREV	MT
TOTAL		111,000
STOP		
START		
TOTAL		
CONE		
TOTAL	111,000	

EAST SLUDGE TANK

	TIME	GALLONS
STOP		
START		
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL		

TOTAL GALLONS OF SLUDGE IN: 111,000

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE: 62,000

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	PREV	(1) 2, 3, 4, L	41,000
STOP	1AM		MT
CONE			21,000
TOTAL			62,000
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	MT	41,000
MIDNIGHT	90,000	MT

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	15.6	18.2
MIDNIGHT	13.1	18.2

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY: W - 0.4

CARRYOVER LOADS FOR THE MONTH: 8

LOADS OF LIME DELIVERED:

LIME TANK USED	(1) 2	1 2	1 2	1 2	1 2
HOLDING TANK	E	E			
START SOUNDING	15.6	14.7			
STOP SOUNDING	14.7	13.1			
DIFFERENCE	.9	1.6			

TOTAL LIME USED FOR THE DAY: 2.5

120/4 @ 3.4'

121/22 @ 3.4' (5:30AM)

121/23 @ 3.4

OPERATOR

12-8 SHIFT	BT	8-4 SHIFT	M	4-12 SHIFT	S

WYOMING CLEAN WATER PLANT — 8/18/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP	10 AM	133 K
START	prev	90 K
TOTAL		43,000
STOP		
START		
TOTAL		
CONE		
TOTAL	43,000	

190 K gal 12.1 adj

pH1 12.1 adj 12pm JJ

pH2 12.1 adj 2pm JJ

EAST SLUDGE TANK

	TIME	GALLONS
STOP	11pm	36,000
START	10 Am	MT
TOTAL		57,000
STOP		
START		
TOTAL		
CONE		
TOTAL	57,000	

TOTAL GALLONS OF SLUDGE IN 100,000

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	2pm	1, 2, 3, 4, L	133,000
STOP			MT
CONE			21,000
TOTAL			154,000
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE 154,000

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	90 K	MT
MIDNIGHT	MT	36,000

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	13.1	18.2
MIDNIGHT	10.5	18.2

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY ~~JSE = 2.5~~ 2.5

CARRYOVER LOADS FOR THE MONTH 8

LOADS OF LIME DELIVERED

LIME TANK USED	1 2	1 2	1 2	1 2	1 2
HOLDING TANK	EW	E			
START SOUNDING	13.1	12.1			
STOP SOUNDING	12.1	10.5			
DIFFERENCE	1.0	1.6			

TOTAL LIME USED FOR THE DAY 2.6

12 1/23 @ 3.4'

1 1/2 0/13 @ 3.4' new tank

OPERATOR

12-8 SHIFT	JJ	8-4 SHIFT	JJ	4-12 SHIFT	

WYOMING CLEAN WATER PLANT — 8/19/2012

SLUDGE IN

WEST SLUDGE TANK				EAST SLUDGE TANK			
	TIME	GALLONS			TIME	GALLONS	pH-12.2 @ 111K/L
STOP				STOP	1pm	131,000	
START				START	Prev	36,000	
TOTAL				TOTAL		95,000	
STOP				STOP			
START				START			
TOTAL				TOTAL			
CONE				CONE			
TOTAL				TOTAL			

TOTAL GALLONS OF SLUDGE IN 95,000

SLUDGE OUT

WEST SLUDGE TANK				EAST SLUDGE TANK			
	TIME	LOCATION	GALLONS		TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L		START		1, 2, 3, 4, L	
STOP				STOP			
CONE				CONE			
TOTAL				TOTAL			
START		1, 2, 3, 4, L		START		1, 2, 3, 4, L	
STOP				STOP			
CONE				CONE			
TOTAL				TOTAL			
TOTAL GALLONS TO STORAGE				TOTAL GALLONS TO LAND			

DAILY SOUNDINGS

SLUDGE HOLDING TANKS			LIME STORAGE TANKS		
621 GALLONS PER INCH	WEST	EAST	307 GALLONS PER INCH	WEST	EAST
PREVIOUS	MT	36K	PREVIOUS	10.5	18.2
MIDNIGHT	MT	131,000	MIDNIGHT	8.5	18.2

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY E-1.6

CARRYOVER LOADS FOR THE MONTH 8

LOADS OF LIME DELIVERED

LIME TANK USED	1 2	1 2	1 2	1 2	1 2
HOLDING TANK	E				
START SOUNDING	10.5				
STOP SOUNDING	8.5				
DIFFERENCE	2.0				

TOTAL LIME USED FOR THE DAY 2.0

14 1/13 @ 3.4'

OPERATOR

12-8 SHIFT	JJ	8-4 SHIFT	SC	4-12 SHIFT	SC

WYOMING CLEAN WATER PLANT — 8/20/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP	11pm	52,000
START	1A	MT
TOTAL		73,000
STOP		
START		
TOTAL		
CONE		
TOTAL		

EAST SLUDGE TANK

	TIME	GALLONS
STOP	1am	138K
START	PREV	131K
TOTAL		7,000
STOP		
START		
TOTAL		
CONE		
TOTAL		

pH 12 = 12.2 adj JJ 1AM

pH 12 = 12.2 adj JJ 3:30AM

TOTAL GALLONS OF SLUDGE IN 80,000

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE 159,000

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	5:50pm	(1) 2, 3, 4, L	138,000
STOP			MT
CONE			21,000
TOTAL			159,000
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	MT	131K
MIDNIGHT	52,000	MT

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	8.5	18.2
MIDNIGHT	6.9	18.2

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY

CARRYOVER LOADS FOR THE MONTH 8

LOADS OF LIME DELIVERED

LIME TANK USED	(1) 2	1 2	1 2	1 2	1 2
HOLDING TANK	JR W				
START SOUNDING	8.5				
STOP SOUNDING	6.9				
DIFFERENCE	1.6				

TOTAL LIME USED FOR THE DAY 1.6

~~JR~~ JJ

141/130 @ 3.4'

120/90 @ 3.4' NEW TANK

120/20 @ 3.4

OPERATOR

12-8 SHIFT	J J.	8-4 SHIFT		4-12 SHIFT	

WYOMING CLEAN WATER PLANT — 8/21/2012

SLUDGE IN

WEST SLUDGE TANK	TIME	GALLONS
STOP	8:30pm	135K
START	over	52K
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL	83000	

12.1 @ 102K
① 12.1 pH adj @ 8:30pm JS
② 12.1 pH adj @ 10:30pm JS

EAST SLUDGE TANK	TIME	GALLONS
STOP	11 pm	MT
START	8:30pm	MT
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL		

TOTAL GALLONS OF SLUDGE IN: 83000

SLUDGE OUT

WEST SLUDGE TANK	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE

EAST SLUDGE TANK	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS	621 GALLONS PER INCH	WEST	EAST
	PREVIOUS	52 000	MT
	MIDNIGHT	135K	MT

LIME STORAGE TANKS	307 GALLONS PER INCH	WEST	EAST
	PREVIOUS	6.9	18.2
	MIDNIGHT	7.1	18.2

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY: W – 1.6

CARRYOVER LOADS FOR THE MONTH: 8

LOADS OF LIME DELIVERED: 1

LIME TANK USED	① 2	① 2	(1) 2	1 2	1 2
HOLDING TANK	W	W	E		
START SOUNDING	6.9	8.4	7.2		
STOP SOUNDING	6.2	7.2	7.1		
DIFFERENCE	0.7	1.2	0.1		

TOTAL LIME USED FOR THE DAY: 2.0

120/20 @ 3.4'
120/19 @ 3.4
124/19 @ 3.4'
120/20 @ 3.4' new tank

OPERATOR

12-8 SHIFT	JJ	8-4 SHIFT	RM	4-12 SHIFT	

WYOMING CLEAN WATER PLANT — 8/22/2012

SLUDGE IN

WEST SLUDGE TANK	TIME	GALLONS
STOP		
START		
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL		

EAST SLUDGE TANK	TIME	GALLONS
STOP	11pm	94K
START	12hr	MT
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL	115000	

TOTAL GALLONS OF SLUDGE IN 115000

SLUDGE OUT

WEST SLUDGE TANK	TIME	LOCATION	GALLONS
START	8:45pm	① 2, 3, 4, L	135K
STOP	11pm		28K
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			107000

TOTAL GALLONS TO STORAGE 107000

EAST SLUDGE TANK	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS — 621 GALLONS PER INCH	WEST	EAST
PREVIOUS	135K	MT
MIDNIGHT	28K	94K

LIME STORAGE TANKS — 307 GALLONS PER INCH	WEST	EAST
PREVIOUS	7.1	18.2
MIDNIGHT	6.9	18.1

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY E − 0.1

CARRYOVER LOADS FOR THE MONTH 9

LOADS OF LIME DELIVERED

LIME TANK USED	① 2	① 2	1 2	1 2	1 2
HOLDING TANK	E	E			
START SOUNDING	7.1	8.6			
STOP SOUNDING	6.4	6.9			
DIFFERENCE	0.7	.7			
TOTAL LIME USED FOR THE DAY	2.4				

120/20@3.4
120/14@3.4
120/15@3.4'

OPERATOR

12-8 SHIFT	JJ	8-4 SHIFT		4-12 SHIFT	

WYOMING CLEAN WATER PLANT

8/23/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP	10m	42K
START	8:15A	MT
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL	63 000	

EAST SLUDGE TANK

	TIME	GALLONS
STOP	8:15	136K
START	new	94K
TOTAL		42K
STOP		
START		
TOTAL		
CONE		
TOTAL	42000	

100KpH 12.1 adj JJ
① 12.1 @ 9A DAN
② 12.1 @ 11A DAN

TOTAL GALLONS OF SLUDGE IN 105000

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	PREV	① 2, 3, 4, L	28K
STOP	12:45		MT
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			49000
TOTAL			↓

TOTAL GALLONS TO STORAGE 206000

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	6:20pm	(1) 2, 3, 4, L	136K
STOP	10:20pm		MT
CONE			21K
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			157000

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	28K	94K
MIDNIGHT	42K	MT

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	6.9	18.1
MIDNIGHT	6.8	18.2

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY E-2.5

CARRYOVER LOADS FOR THE MONTH 10

LOADS OF LIME DELIVERED 1

LIME TANK USED	① 2	(1) 2	1 2	1 2	1 2
HOLDING TANK	E	W			
START SOUNDING	6.9	8.2			
STOP SOUNDING	6.0	6.8			
DIFFERENCE	.9	1.4			

TOTAL LIME USED FOR THE DAY 2.3

12/15 3.4
12/18 @ 3.4 New

OPERATOR

12-8 SHIFT	JJ	8-4 SHIFT	DAN	4-12 SHIFT	

WYOMING CLEAN WATER PLANT — 8/24/2012

SLUDGE IN

WEST SLUDGE TANK	TIME	GALLONS
STOP	8 pm	135,000
START	8 AM	42K
TOTAL		93,000
STOP		
START		
TOTAL		
CONE		
TOTAL		

12.2 Alph @ 98K
pH-12.2 @ 8pm/K
pH-12.2 @ 10:05/K

EAST SLUDGE TANK	TIME	GALLONS
STOP	11Pm	MT
START	8pm	MT
TOTAL		0
STOP		
START		
TOTAL		
CONE		
TOTAL		

TOTAL GALLONS OF SLUDGE IN 93,000

SLUDGE OUT

WEST SLUDGE TANK	TIME	LOCATION	GALLONS
START	10:05pm	(1) 2, 3, 4, L	135,000
STOP			94,000
CONE			
TOTAL			41,000
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

EAST SLUDGE TANK	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE 41,000

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS — 621 GALLONS PER INCH	WEST	EAST
PREVIOUS	42K	MT
MIDNIGHT	94,000	MT

LIME STORAGE TANKS — 307 GALLONS PER INCH	WEST	EAST
PREVIOUS	6.8	18.2
MIDNIGHT	6.8	18.2

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY 1.2-1.4

CARRYOVER LOADS FOR THE MONTH 11

LOADS OF LIME DELIVERED 1

LIME TANK USED	(1) 2	(1) 2	(1) 2	1 2	1 2
HOLDING TANK	W	W	E		
START SOUNDING	6.8	8.0	6.9		
STOP SOUNDING	5.8	6.9	6.8		
DIFFERENCE	1.0	1.1	.1		

TOTAL LIME USED FOR THE DAY (2.2)

120/18 @3.4
134/20@3.4' (3.30Am)
131/20@3.4'
122/18 @ 3.4' (11Am)

OPERATOR

12-8 SHIFT	BJ	8-4 SHIFT	pk	4-12 SHIFT	SR

WYOMING CLEAN WATER PLANT

8/25/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP		
START		
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL		

EAST SLUDGE TANK

	TIME	GALLONS
STOP	11pm	92,000
START	Prev	MT
TOTAL		113,000
STOP		
START		
TOTAL		
CONE		
TOTAL		

TOTAL GALLONS OF SLUDGE IN 113,000

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	Prev	(1), 2, 3, 4, L	94,000
STOP	2AM		MT
CONE			21,000
TOTAL			115,000
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE 115,000

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	6.4K	MT
MIDNIGHT	MT	92,000

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	6.8	18.2
MIDNIGHT	4.7	18.2

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY E-0.1

CARRYOVER LOADS FOR THE MONTH 12

LOADS OF LIME DELIVERED

LIME TANK USED	(1) 2	1 2	1 2	1 2	1 2
HOLDING TANK	E				
START SOUNDING	6.8				
STOP SOUNDING	4.7				
DIFFERENCE	2.1				

TOTAL LIME USED FOR THE DAY 2.1

122/18 @ 3.4' (New)

133/17 @ 3.4'

OPERATOR

12-8 SHIFT	BJ	8-4 SHIFT	M	4-12 SHIFT	Sc

WYOMING CLEAN WATER PLANT

8/26/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP	11/a	21,000
START	905 AM	MT
TOTAL		42,000
STOP		
START		
TOTAL		
CONE		
TOTAL		

TOTAL GALLONS OF SLUDGE IN 87,000

EAST SLUDGE TANK

	TIME	GALLONS
STOP	905 AM	137000
START	Prev	92K
TOTAL		45,000
STOP		
START		
TOTAL		
CONE		
TOTAL		

12.2 pH adj @ 98K (BS)

12.2 adj ph @ 905 AM

12.1 adj ph @ 11 15 AM

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE 158,000

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	11 20 AM	(1) 2, 3, 4, L	137,000
STOP	320 PM		MT
CONE			15800
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	MT	92K
MIDNIGHT	21,000	MT

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	4.7	17.7
MIDNIGHT	4.0	16.9

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY E- 2.2

CARRYOVER LOADS FOR THE MONTH 12

LOADS OF LIME DELIVERED

LIME TANK USED	(1) 2	1 (2)	1 (2)	1 2	1 2
HOLDING TANK	E	E	W		
START SOUNDING	4.7	18.1	17.7		
STOP SOUNDING	4.0	17.7	16.9		
DIFFERENCE	0.7	0.4	.8		

TOTAL LIME USED FOR THE DAY (1.9)

133/M @3.4'

121/31 @3'

OPERATOR

12-8 SHIFT		8-4 SHIFT		4-12 SHIFT	

WYOMING CLEAN WATER PLANT

8/27/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP	1 pm	109,000
START	Rel	21K
TOTAL		88,000
STOP		
START		
TOTAL		
CONE		
TOTAL	88,000	

pH-12.0 e 10ak/k

TOTAL GALLONS OF SLUDGE IN 88,000

EAST SLUDGE TANK

	TIME	GALLONS
STOP		
START		
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL		

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	21K	MT
MIDNIGHT	109,000	MT

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	4.0	16.9
MIDNIGHT	4.0	15.1

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY W-0.8

CARRYOVER LOADS FOR THE MONTH 12

LOADS OF LIME DELIVERED

LIME TANK USED	1 (2)	1 2	1 2	1 2	1 2
HOLDING TANK	W				
START SOUNDING	16.9				
STOP SOUNDING	15.1				
DIFFERENCE	1.8				

TOTAL LIME USED FOR THE DAY 1.8

12/31 @ 30'
12/25 @ 30'
12/19 @ 3.2'

OPERATOR

12-8 SHIFT	BJ	8-4 SHIFT		4-12 SHIFT	

WYOMING CLEAN WATER PLANT

8/28/2012

SLUDGE IN

WEST SLUDGE TANK	TIME	GALLONS
STOP	5:30AM	135K
START	Prev	109,000
TOTAL		26K
STOP		
START		
TOTAL		
CONE		
TOTAL		

12.05 pH adj @ 6:10AM
① BJ
② 12.00 @ 9A JM

EAST SLUDGE TANK	TIME	GALLONS
STOP	11pm	45,000
START	5:30AM	MT
TOTAL		66,000
STOP		
START		
TOTAL		
CONE		
TOTAL		

TOTAL GALLONS OF SLUDGE IN 92,000

SLUDGE OUT

WEST SLUDGE TANK	TIME	LOCATION	GALLONS
START	11:15A	① 2, 3, 4, L	135K
STOP	3:10pm		MT
CONE			156 000
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

EAST SLUDGE TANK	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE 156,000

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS	621 GALLONS PER INCH	WEST	EAST
	PREVIOUS	109K	MT
	MIDNIGHT	MT	45,000

LIME STORAGE TANKS	307 GALLONS PER INCH	WEST	EAST
	PREVIOUS	4.0	15.1
	MIDNIGHT	7.6	15.2

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY 2.6-W

CARRYOVER LOADS FOR THE MONTH 12

LOADS OF LIME DELIVERED 1

LIME TANK USED	1 ②	1 ②	1 2	1 2	1 2
HOLDING TANK	W	~~W~~ E			
START SOUNDING	15.1	16.5			
STOP SOUNDING	14.5	15.2			
DIFFERENCE	0.6	1.3			

TOTAL LIME USED FOR THE DAY 1.9

125/19@3.2'
120/16@3.2' New

OPERATOR

12-8 SHIFT	J J/BJ	8-4 SHIFT	DSM/PR	4-12 SHIFT	SC

WYOMING CLEAN WATER PLANT

8/29/2012

SLUDGE IN

WEST SLUDGE TANK	TIME	GALLONS	EAST SLUDGE TANK	TIME	GALLONS
STOP	11pm	MT	STOP	9:45pm	135,000
START	9:45pm	MT	START	Prev	45 K
TOTAL		0	TOTAL		90,000
STOP			STOP		
START			START		
TOTAL			TOTAL		
CONE			CONE		
TOTAL			TOTAL		

105K 12.2 [initials]

pH 12.15 @ 9:45pm [initials]

TOTAL GALLONS OF SLUDGE IN 90,000

SLUDGE OUT

WEST SLUDGE TANK	TIME	LOCATION	GALLONS	EAST SLUDGE TANK	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L		START		1, 2, 3, 4, L	
STOP				STOP			
CONE				CONE			
TOTAL				TOTAL			
START		1, 2, 3, 4, L		START		1, 2, 3, 4, L	
STOP				STOP			
CONE				CONE			
TOTAL				TOTAL			
TOTAL GALLONS TO STORAGE				TOTAL GALLONS TO LAND			

DAILY SOUNDINGS

SLUDGE HOLDING TANKS			LIME STORAGE TANKS		
621 GALLONS PER INCH	WEST	EAST	307 GALLONS PER INCH	WEST	EAST
PREVIOUS	MT	45 K	PREVIOUS	7.6	15.2
MIDNIGHT	MT	135,000	MIDNIGHT	18.0	12.6

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY E-1.3

CARRYOVER LOADS FOR THE MONTH 13

LOADS OF LIME DELIVERED

LIME TANK USED	1 (2)	1 (2)	1 2	1 2	1 2
HOLDING TANK	E	W			
START SOUNDING	15.2	12.8			
STOP SOUNDING	12.8	12.6			
DIFFERENCE	2.4	.2			
TOTAL LIME USED FOR THE DAY	2.6				

120/16 @ 3.2'

120/10 @ 3.2

120/12 @ 3.6' (new)

OPERATOR

12-8 SHIFT	JJ	8-4 SHIFT	[signature]	4-12 SHIFT	[signature]

WYOMING CLEAN WATER PLANT — 8/30/2012

SLUDGE IN

WEST SLUDGE TANK	TIME	GALLONS
STOP	11pm	93,000
START	prev.	MT
TOTAL		114,000
STOP		
START		
TOTAL		
CONE		
TOTAL		

EAST SLUDGE TANK	TIME	GALLONS
STOP		
START		
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL		

MH ② = 12.1 @ 12AM
JJ

TOTAL GALLONS OF SLUDGE IN 114,000

SLUDGE OUT

WEST SLUDGE TANK	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE 156,000

EAST SLUDGE TANK	TIME	LOCATION	GALLONS
START	12:30	1, 2, 3, 4, L	135,000
STOP	5AM		MT
CONE			21,000
TOTAL			156,000
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS — 621 GALLONS PER INCH	WEST	EAST
PREVIOUS	MT	135K
MIDNIGHT	93,000	MT

LIME STORAGE TANKS — 307 GALLONS PER INCH	WEST	EAST
PREVIOUS	18.0	12.6
MIDNIGHT	18.0	11.6

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY W-0.2

CARRYOVER LOADS FOR THE MONTH 13

LOADS OF LIME DELIVERED 1

LIME TANK USED	1 ②	1 ②	1 2	1 2	1 2
HOLDING TANK	W	W			
START SOUNDING	12.6	13.3			
STOP SOUNDING	11.3	11.6			
DIFFERENCE	1.3	1.7			

TOTAL LIME USED FOR THE DAY 3.0

120/12 @ 3.6'
120/16 @ 3.6

OPERATOR

12-8 SHIFT	JJ	8-4 SHIFT	DAN	4-12 SHIFT	

WYOMING CLEAN WATER PLANT — 8/31/2012

SLUDGE IN

WEST SLUDGE TANK

	TIME	GALLONS
STOP	7:20	136K
START	prev	93K
TOTAL		43K
STOP		
START		
TOTAL		
CONE		
TOTAL	43000	

100K pH 12.1 adj JJ

@ pH 12.1 adj 7:30A

② 12.1 @ 9:30 JJ A

EAST SLUDGE TANK

	TIME	GALLONS
STOP	11pm	59K
START	7:30 A	MT
TOTAL		
STOP		
START		
TOTAL		
CONE		
TOTAL	80000	

TOTAL GALLONS OF SLUDGE IN 123000

SLUDGE OUT

WEST SLUDGE TANK

	TIME	LOCATION	GALLONS
START	10A	① 2, 3, 4, L	136K
STOP	2P		MT
CONE			
TOTAL			157K
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO STORAGE 157000

EAST SLUDGE TANK

	TIME	LOCATION	GALLONS
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			
START		1, 2, 3, 4, L	
STOP			
CONE			
TOTAL			

TOTAL GALLONS TO LAND

DAILY SOUNDINGS

SLUDGE HOLDING TANKS

621 GALLONS PER INCH	WEST	EAST
PREVIOUS	93K	MT
MIDNIGHT	MT	59K

LIME STORAGE TANKS

307 GALLONS PER INCH	WEST	EAST
PREVIOUS	18.0	11.6
MIDNIGHT	18.0	9.4

CARBIDE LIME USED

CARRYOVER FROM PREVIOUS DAY W — 3.2

CARRYOVER LOADS FOR THE MONTH 14

LOADS OF LIME DELIVERED

LIME TANK USED	1 ②	1 ②	1 2	1 2	1 2
HOLDING TANK	W	E			
START SOUNDING	11.6	11.0			
STOP SOUNDING	11.0	9.4			
DIFFERENCE	0.6	1.6			

TOTAL LIME USED FOR THE DAY 2.2

120/16 @ 3.6

124/14 @ 3.6 new tank

125/15 @ 3.6

OPERATOR

12-8 SHIFT	JJ	8-4 SHIFT		4-12 SHIFT	

APPENDIX J

SPILL RESPONSE PLANS FOR WYOMING, GRAND RAPIDS AND ASSOCIATED CONTRACTORS

Spill Response Plan for

Spills at the Wyoming Facility

bodies or are allowed to infiltrate through the soil to groundwater. Refer to the Figure 4A and Figure 4B located in Annex 1.

Due to the variety of spills that may occur under this category, the Emergency Coordinator shall be responsible for determining all clean-up and emergency coordination measures for spills that fall under this category.

BIOSOLIDS SPILL:

1. Immediately alert area occupants, supervisor and emergency coordinator, and evacuate the area, if necessary.
2. If fire or medical attention is needed, call 9-911 (land phone) or 911 (cell phone) and your supervisor.
3. Attend to any people who may be contaminated. Contaminated clothing must be removed immediately and laundered before reuse.
4. If safely possible to do so, control source of spill and ventilate the area. If the spill has occurred in the area west of the biosolids loading bay (Building J), the potential exists for biosolids to enter the storm drains nearby and discharge to Roys (Stonebrook) Creek. A keyed valve is located near the outfall of this drain (Refer to Figure 3A and Figure 4A in Annex 1). This valve should be immediately closed to prevent biosolids from entering Stonebrook Creek.
5. Confer with the Emergency Coordinator and determine appropriate spill clean-up response. The Emergency Coordinator is responsible for determining if outside assistance is necessary to clean-up the spill.
6. Don personal protective equipment (PPE) that is supplied in the Odor Control building, IPP suite and/or maintenance suite. In order to respond to Biosolids spills, responders must wear the following PPE: Tyvek, goggles, boots and eye protection. In addition, all responders must have been vaccinated with the hepatitis vaccine.
7. All free-flowing biosolids are to be collected (via vactor, for example) and disposed of through the headworks building and/or Grandville metering station. Secondary clean-up measures include washing down the impacted areas with water and flushing towards the nearest drain. As mentioned earlier, all drains at the facility (other than the ones to the east of the biosolids loading bay) discharge to the plant influent ahead of the influent wet well. It may be necessary to use sand or soil to build berms and/or drain plugs in areas that discharge to surface water or wetlands. Again, all spill mitigation measures shall be conducted under the supervision of the emergency coordinator.
8. Determine if any samples should be collected. If surface water samples should be collected, a minimum of three (3) samples must be taken from each sampling point. For releases to moving waterways, a minimum of three (3) samples must be collected from each of the following locations: upstream, point of impact, and downstream. For releases to non-flowing water bodies (e.g. lakes), a minimum of three (3) samples must be collected from each of the following locations: the point of impact, an area similar [geographically] to the impact point but where there is no released material, and a control area. The sampling frequency should

be determined and continue until the release has been delineated and/or resolved. The Lab Services Supervisor should be contacted to discuss appropriate parameters, containers, preservatives, hold times, drop-off locations, etc. before samples are collected. Samples should be collected by those with appropriate sampling training, such as personnel from the Environmental Services Department.

REPORTABLE QUANTITIES:

The following Tables 9a and 9b are to be used as to determine if the material spilled must be reported, and who the spill must be reported to:

Spill Response Plan for

Spills at the Grand Rapids and GVRBA Facility

CITY OF GRAND RAPIDS	City of Grand Rapids Environmental Services Department Policies and Procedures
Title: Release Containment Plan For WWTP	**Approved by:** Dave Hawn
Policy Number: 3114	**Effective:** 12/22/11

Purpose:

To provide Grand Rapids Operation Staff the tools necessary for containing debris from a release of wastewater, solids or Biosolids within the Grand Rapids Wastewater Treatment Plant (WWTP). Containing these releases and keeping them from catch basins within the plant will assure that the effluent leaving the plant will not be contaminated with wastewater or solids which could have a negative effect on our effluent quality and could violate our NPDES permit.

Role in Biosolids BMP:

Several of our CCP's (Critical Control Points) have a direct effect on our NPDES permit. A release within the plant could be associated with Septage Receiving, Solids Screening and Grit Collection, Scum, Primary Treatment, Secondary Treatment, Raw Solids Storage, Centrifuge Dewatering, Truck Loading, Truck Cover, Truck Washing and Transport to Landfill. It is essential to stop and contain these releases so that we do not contaminate the ground water at the plant or violate our NPDES permit by possibly contaminating our effluent before discharge to the Grand River.

Procedure:

1. In the event that wastewater, solids or Biosolids is released at the WWTP, determine if it is safe to take immediate action. If the site is safe, proceed with actions to slow or stop the release. This can be done by closing valves, shutting off pumping, plugging an opening or bypassing a break.

2. Notify a supervisor that a release has occurred and that help will be needed to safely stop the release.

3. Determine the location of stormwater catch basins that may be impacted by the release.

3. Take action to prevent released material from reaching catch basins. Use adsorbent products, booms or barriers to prevent the material from moving. A spill kit will be maintained in the Fisher Building at the WWTP. The kit will contain the items listed in Spill Kit below.

4. When all catch basins have been isolated from the release, take additional actions to contain the release.

5. If the release is too large to scoop up into a pail or drum, contact the Collection System Asset Manager and request a Vactor truck.

6. Direct the Vactor to suck up the released material and any contaminated soil. The captured material can be off loaded at the Vactor Dump Station.

7. Schedule permanent repairs to any assets which failed and contributed to the release.

8. Schedule a root cause investigation to determine what additional actions would be needed to prevent future releases.

Spill Kit

1. Absorbent boom, 5"X 10', 4 per container
2. Absorbent clay, All Purpose, 40# bag
3. Absorbent pads, 15"x19" Square
4. Plastic pail, 5 gallon
5. Sand bags, 14" X 26" White Woven Polypropylene
6. Scoop shovel, steel
7. Squeegee, long handle

Spill Response Plan for Current Biosolids Haulers

SYNAGRO CENTRAL, LLC

Spill Response Plan

Should a spill occur, ***stay at the scene*** *to ensure that the spill does not present a traffic hazard, i.e. park truck, place triangles or flares to block traffic from spill. Local police should be contacted to control traffic when spill is on public roads.*

Contact the Synagro Operations Manager immediately to direct spill clean-up.

In the event of a spill, Synagro will take the following actions immediately:

- **Halt Source of Spill if possible.** Discontinue use of leaking or damaged unit and repair unit before resuming use.
- **Contain Spill.** In the event of a large spill, use items such as straw bales to form a barrier and/or soak up biosolids.
- **Clean-up.** Items such as shovels, squeegees or brooms can be used for a small spills, while a front end loader or vac truck may be needed for a large spill. Biosolids removed from the spill site will be taken to an approved land application site and spread or deposited in a sanitary landfill after approval by the appropriate regulatory agency.
- **Final Clean-up.** Using water or sweepers, final clean-up should be completed to the satisfaction of the owner and/or regulatory agency.
- **Management of Clean-up Efforts.** Clean-up efforts are directed by the Ops Manager. Ops or TS should communicate with the public on scene, answering questions and advising clean-up activities.
- **Reporting.** Spills will be reported immediately to the appropriate Regulatory Agency, Generator and Synagro Personnel by Operations or Technical Services Managers.

IMPORTANT FACTS REGARDING BIOSOLIDS CLEANUP & HANDLING

- ***Biosolids are non-hazardous, clean up personnel should use standard hygienic practices. Keep biosolids from direct contact with eyes, mouth, or open wounds. Wash hands prior to eating or smoking.***
- ***Never wash biosolids to a storm drain. Take all possible steps to keep biosolids out of drains.***

Isolation Distance Requirements

Isolation Distances (feet) from existing:	Injection/Surface Application *Incorporated*		Surface Application *without Incorporation*	
	Biosolids	Industrial	Biosolids	Industrial
Municipal Well (type I, IIA)*	2000	2000	2000	2000
Noncommunity Public Well (type IIB, III)**	800	800	800	800
Domestic Well (single family homes)	100	150	150	150
Homes & Commercial Buildings	100	100	150	500
Surface Waters	50	50	150	150
Public Roads & Property Lines* **	0 - 15	25	0 - 15	150

Examples of Well Types:

*(type I & IIA wells) Apartments, Nursing Homes, Mobile Home Parks, Schools, Places of Employment

**type IIB & type III wells) Hotels & Restaurants, Campgrounds, Churches, Duplexes

***Property Lines without defined boundaries or field edges maintain 15 feet of isolation as a buffer. **Do not apply underneath overhead power lines!**

Synagro Telephone Contacts

Operations Managers:

Randy Fox (616) 318-4147

Perry Egeler (616) 291-7877

Ron Lutz (616) 291-7876

Operations Director:

Don Popma (616) 291-7878

Technical Services Managers:

Bill Goetsch (616) 299-3368

Emory Nelkie (989) 225-2077

Mike Sheridan (248) 305-0281

Technical Services Director:

Kari Stuart (616) 437-7356

IMPORTANT INFORMATION ABOUT USING BIOSOLIDS AS A FERTILIZER

Biosolids Generation

Biosolids are the treated solids that are separated from water during the wastewater treatment process. Biosolids are produced by public or private wastewater treatment plants (Generators). The Generator is responsible for supplying biosolids that are suitable for land application according to state and federal specifications.

Benefits of Biosolids

Biosolids provide nitrogen in a form that can be taken up by plants during their growth cycle. Biosolids also add phosphorus, potassium and other micronutrients. Biosolids provide organic matter which improves water and nutrient retention, reduces erosion potential and improves soil structure. If lime is added to biosolids, they have the added benefit of a liming agent.

The Permitting Process

Prior to permitting a site, a Synagro representative evaluates the farm for truck access and field conditions. If the farm is suitable and the Participation Agreement forms are signed, Synagro will collect soil samples for analysis.

Synagro will then apply for a land application permit with the State of Michigan. The permit is issued to the Generator.

Availability of biosolids may vary due to weather, contractual arrangements with our customers and other factors, therefore Synagro cannot guarantee biosolids application will occur.

Periodic visits to the land application site by regulatory staff and Synagro representatives may occur for the purpose of permitting the site, inspecting the site, applying biosolids and obtaining samples.

Agronomic Considerations

Soil compaction may occur on the travel areas used by the trucks and in areas where biosolids is unloaded for transfer to the applicator.

Since some biosolids contain lime, it is important to recognize an increase in soil pH where biosolids have been applied and modify agricultural practices accordingly.

While odor from biosolids applications are not usually significant, typically less than that from livestock manure, it is possible that an odor from the decomposition of organic matter may be noticed. If this occurs, it generally disappears in a short time.

Since biosolids provide nitrogen that will be released slowly throughout the growing season with diminishing carry-over in subsequent years, it is important to reduce the use of nitrogen and other fertilizers to appropriate levels.

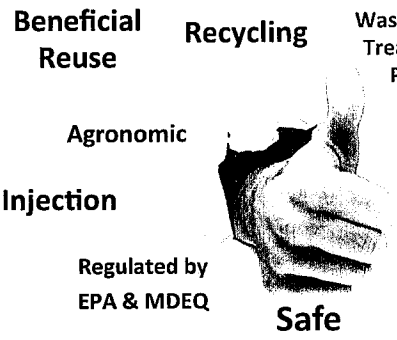
A field must ALWAYS be flagged prior to land application

Ditches and drains that convey water during certain times of the year, but are **dry at the time of application, should be isolated by 50 feet.**

WHEN IN DOUBT . . . STAY 100 FEET OUT!

You may be the first line of contact with a concerned citizen or interested farmer. Good communication and properly handling a situation can eliminate potential problems.

ACCEPTABLE BIOSOLIDS TERMS



TERMINOLOGY TO AVOID

Information to Communicate to Technical Services (TSM)

- Any time a **NEIGHBOR, CITIZEN** or **PUBLIC OFFICIAL** stops at the field, complains or has questions, or
- Any time a **FARMER** or **LANDOWNER** shows interest in receiving biosolids

Take down their **NAME, PHONE NUMBER, ADDRESS** and any other pertinent information. Always give them the TSMs card.

- Any time you adjust the rate, make sure it is pre-approved and communicated to TSM
- If the farmer has additional ground to be applied, special requests for the field you are on, or questions you can not answer, contact TSM
  - Any additional buffers that may not have been indicated on the map or properly flagged should be communicated & flagged before application

REMEMBER, *we are working on someone else's property*!

- **GOOD HOUSEKEEPING** means a field or ditch is not a waste bin for food wrappers or cigarette butts. ***Leave the site as you found it.***
- Be **COURTEOUS** of neighbors and adjacent landowners, whenever possible, i.e. load applicators away from houses, control dust, don't idle equipment unnecessarily, be conscientious of outdoor events, holidays and weekends.
- If you are temporarily leaving a site, notify the farmer directly or contact the TSM so they can inform the farmer of our intentions. **GOOD COMMUNICATION** builds **GOOD RELATIONSHIPS.**
- It is our **PRIVELEGE** not our **RIGHT** to have access to a land application site.

Cordes Trucking Inc. Policies and Procedures		
Title	Biosolids Spill Plan	
Policy Number	Spill Plan - 2009-1	
Issued	7/14/09	
Revision No	None	
Approved	Charlie Cordes	

Purpose:

To establish a procedure for the proper clean-up of spills and accidents

Procedure:

Drivers involved in spills should:

- Stay at the scene and immediately ensure that the spill does not present a hazard to traffic
- Park truck to block and prevent traffic from hitting or driving thru spill
- Set out flares and/or triangles to warn motorists of potential hazards
- Contacted the local police department ASAP when the spill is on a public road

Contact the Cordes Project Manager immediately to direct spill clean up.

IMPORTANT FACTS TO INFORM CLEAN UP PERSONNEL REGARDING BIOSOLIDS CLEAN UP

Never wash biosolids into a storm drain. Take all possible steps to keep biosolids out of drains. Biosolids are non-hazardous. Clean up personnel should use standard cleanliness practices. Keep biosolids from direct contact with eyes, mouth or open wounds. Wash hands prior to eating or smoking.

In the event of a spill, Cordes Trucking, Inc. will take the following action immediately:

1) Halt Source of Spill if possible. Use of any leaking or damaged unit, which is causing the spill, will cease immediately. The unit will be repaired before resuming use.

2) Contain Spill. In the event large quantities of biosolids have been spilled, straw bales will be used where available to either form a barrier or soak up biosolids.

3) Clean up. Depending on the type and amount of biosolids, a variety of equipment may be used to remove the biosolids: vacuum biosolids applicator, front-end loader, wet Vac truck, shovels, squeegees, and brooms. Any biosolids removed from the spill site will be taken to an approved sanitary landfill for disposal.

4) Final Clean up. Roadways will be flushed with water and/or swept as necessary to clean. Final clean-up should be completed immediately to the satisfaction of the owner.

5) Management of Clean-up Efforts. The Cordes Project Manager shall take immediate charge and initiate clean up activities. Cordes labor shall be used with additional labor secured as needed. The project manager shall communicate with the public on the scene to answer questions and advise of clean up activities.

6) Reporting. The Cordes Project Manager shall notify the City of Grand Rapids Wastewater Operations & Maintenance Supervisor immediately of any biosolids spills at 616.456.3639 (office) or 616.262.5510 (cellular). The biosolids generator will also be notified as soon as practical. Cordes Project manager shall relay any relevant information regarding the spill, including how it occurred and remedial action taken. All spills will be reported immediately to MDEQ and the Health Dept. A written report to these agencies will follow if required.

Cordes Trucking Contact Information

Project Manager:	Charlie Cordes (616) 877-9935

OTHER CONTACT INFORMATION:

Generator:	City of Grand Rapids WWTP – (616) 456-3639 Gary De Kock - Wastewater Plant Supervisor City of GR – WWTP Ops (24 hrs) (616) 456-3639 (Office) City of GR – WWTP Ops (24 hrs) (616) 262-5510 (Cell)
Regulatory Agency:	MDNR-E Hotline (800) 292-4706 (Michigan Department Of Natural Resources & Environment)

BIOSOLIDS SPILL PREVENTION PLAN

Truck drivers shall take the following steps:

a. Wash or scrape off any biosolids deposited on the outside of the truck/trailer during the loading process before leaving the wastewater treatment plant.

b. Ensure that end gates are closed and properly latched prior to leaving the wastewater treatment plant.

c. Ensure that tarps are properly positioned to cover the entire load during transport to the landfill prior to leaving the wastewater treatment plant.

d. Inspect all tailgate seals periodically and replace as necessary.

e. Check trailers prior to loading to ensure that tailgates are properly secured.

f. Check trailers for any leaks or damage that may jeopardize proper loading procedures. Do not load until repairs have been made to the satisfaction of the project manager.

g. Wash or scrape of any biosolids that may have been deposited on the outside of the trailer during loading.

GRAND RAPIDS, MICHIGAN
WASTEWATER TREATMENT PLANT
SPILL PREVETION PLAN

Biosolids are loaded directly into transport (dump trailers) vehicles. Biosolid loading is located such that, if spillage occurs, material is contained on a concrete pad. Should leachate or runoff occur it is contained in the facilities under drain system and returned to the head of the plant for treatment.

Biosolids will be transported to the appropriate landfills utilizing proper haul routes (Market Ave., I-196, U.S. 131, I-96, and local truck routes into the landfills). Other haul routes will be used only if special circumstance's dictate. In the event that special haul routes are necessary city officials will be notified.

Biosolids will be off loaded at each of the designated landfills and handled accordingly within each landfills operational procedures for disposal.

Cake Biosolids transport vehicles shall be maintained in accordance with all applicable Michigan Department of Transportation (MDOT) regulations.

All Biosolids transport vehicles shall carry a copy of the attached *Biosolids Spill Control Plan*, outlining the steps to be utilized for spill containment, cleanup, and reporting.

CORDES INCORPORATED VEHICLE INSPECTION FORM

DATE	TIME	DRIVER SIGNATURE	INSPECTED SEALS	INSPECTED TARPS	INSPECTED TRUCK	TRUCK NUMBER

APPENDIX K

LAND APPLICATION SITE IDENTIFICATION FORMS AND ASSOCIATED OVERSIGHT AND REPORTING MATERIALS

SYNAGRO
A Residuals Management Company

Submittal Date: May 2, 2011

Submitted By: Synagro Central, LLC.
807 Lake Lansing Rd.
Lansing, MI 48906

Facility Information:

Site Identification Form

GVRBA / Wyoming Clean Water
2350 Ivanrest Ave.
Wyoming, MI 49418
616.261.3559
Mr. Craig Smith

NPDES Number: COC-MIG960073

Stabilization Method: Lime Stabilized
Type of Biosolids: Liquid
Application Method: Subsurface
Type of Permit: New
Reason for Repermit:

Owner/Farmer Information:

Owned By: Gary Johnson
1401 19 Mile Rd.
Cedar Springs, MI 49319
616-696-1086

Farmed By: Gary Johnson
1401 19 Mile Rd.
Cedar Springs, MI 49319
616-696-1086

Property Purchase Date:

Previous Owner:

Site Identification Information

County: Kent
Township Solon
Section: 16
Available Acres: 59

MDNRE Site ID Number: 10N11W16-GJ01
Synagro Site ID Number: MI-KE-SO16-GJ01
Latitude: 43:15:10 North
Longitude: 85:37:07 West
Method Used: Google Earth

Soil and Nutrient Information

Site Use:	Agricultural
If agricultural, is site tiled?	No
Potential for Public Exposure:	Low

Soil Series: See Attached
Slope Class: See Attached
Application area not to exceed 12% slope

Soil Test Results

Initial Cation Exchange:	5
Soil Phosphorus:	33 ppm
Soil Potassium:	117 ppm
Next Crop:	Corn
Nitrogen Recommendation:	210 lb/A

Nutrient Application Data

Application Rate:	2.8 DT/A
Nitrogen Rate:	80.7324 lb/A
Phosphorus Rate:	95.76 lb/A
Potassium Rate:	30.8 lb/A

Has this site ever been permitted for another facility?

☑ No

☐ Yes (Explain below and attach documentation used to determine site availability for this facility)

MDNRE District Office: Michigan Department of Natural Resources & Environment
Mr. Dave Schipper-Water Bureau
State Office Building -350 Ottawa NW
Grand Rapids, MI 49503

For new site permits, this information will be provided to the Michigan Department of Natural Resources and Environment no less than ten (10) days prior to the date of application, unless an alternate time frame is approved. Field transfers and repermits will be submitted prior to application.

I certify under penalty of law, that this form and all attachments were prepared under my direction or supervision and are based on my inquiry of the person or persons directly responsible for gathering information. The information submitted is, to the best of my knowledge and belief, true, accurate and complete. I also certify that this site has not, and is not currently being used for disposal of any other waste material. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for violations.

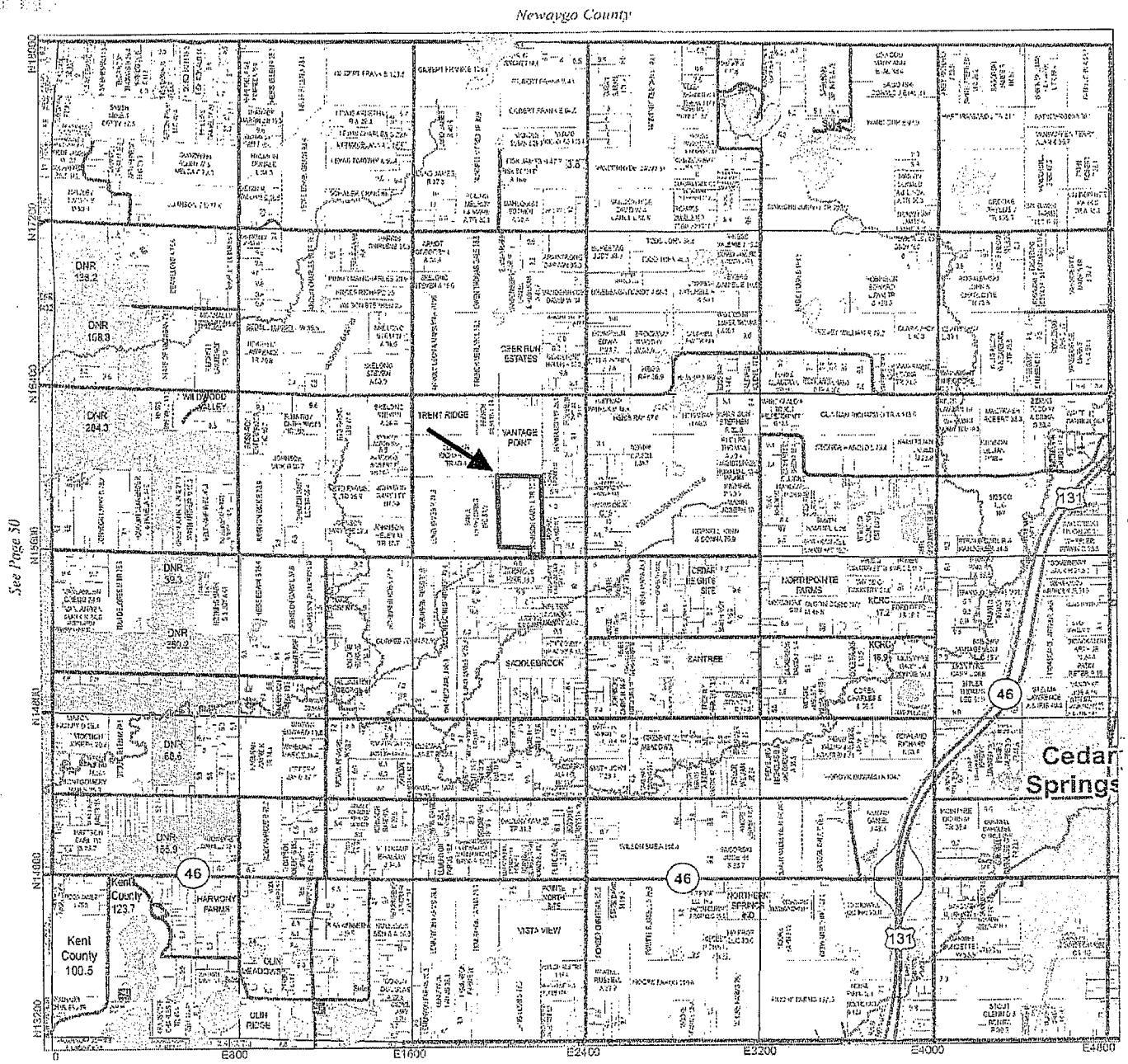
Submitted by:

Signature: _____
Print Name: William Goetsch
Title: Technical Services Manager
Date: May 2, 2011

SYNAGRO

Latitude: 43:15:10
Longitude: 85:37:07

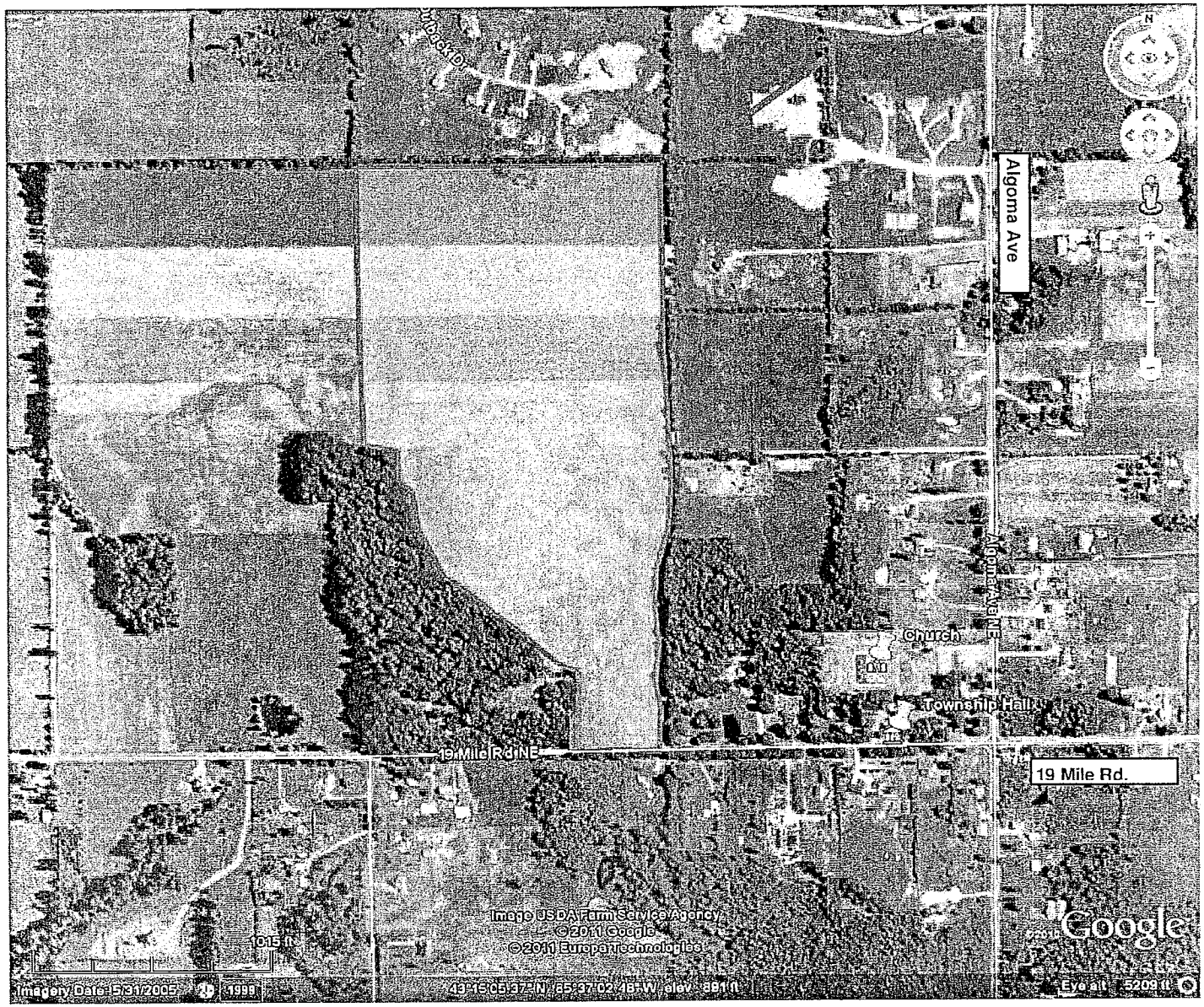
22 Section



Owner:	Gary Johnson
Farmer:	Gary Johnson
Address:	1401 19 Mile Rd.
	Cedar Springs, MI 49319
Phone:	616-696-1086

Synagro Field Number:	MI-KE-SO16-GJ01
MDNRE Field Number:	10N11W16-GJ01
County:	Kent
Township:	Solon
Section:	16
Acres:	59

Additional Site Info:



Owner:	Gary Johnson
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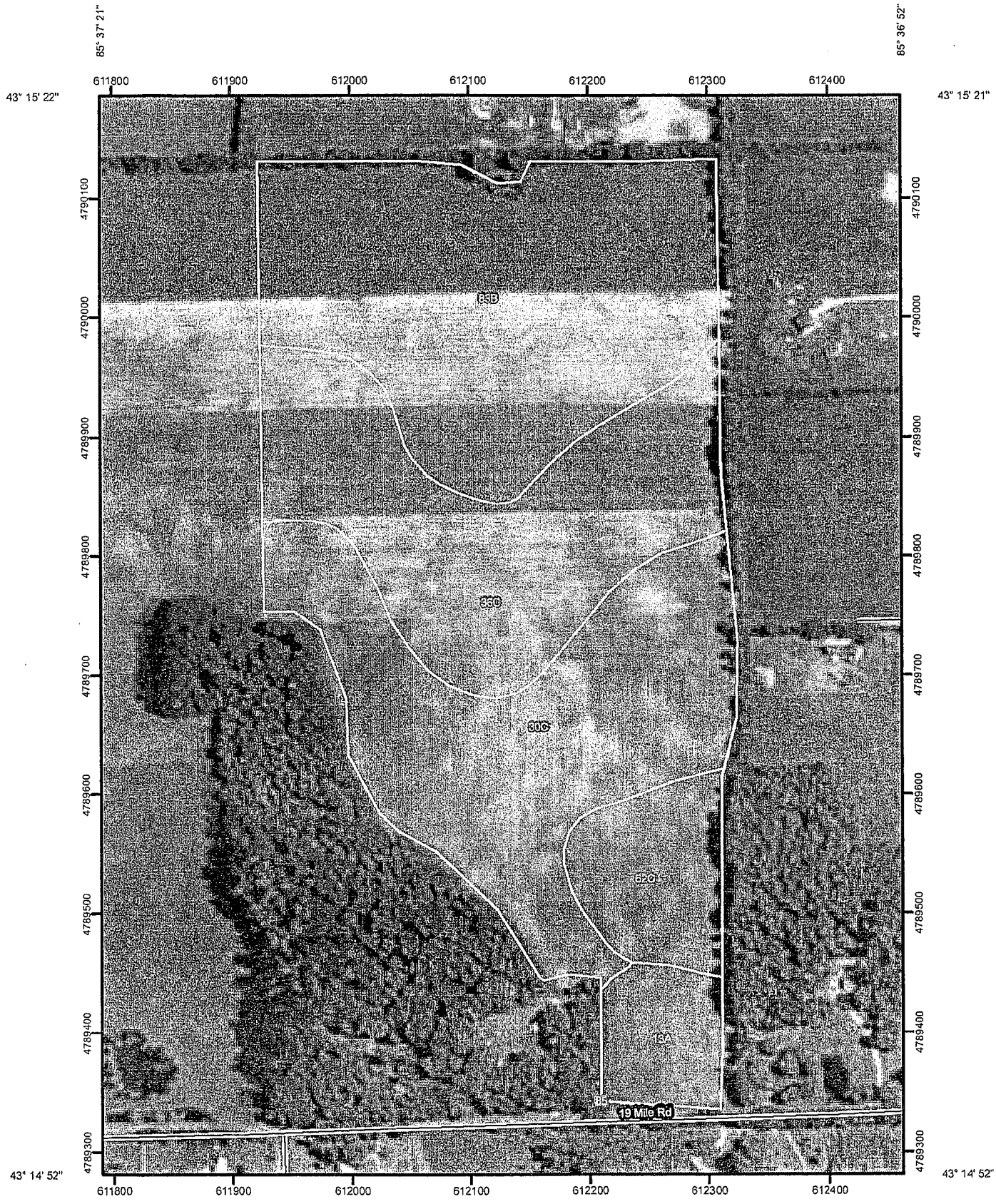
MDNRE Field Number:	10N11W16-GJ01
County:	Kent
Township:	Solon
Section:	16
Acres:	59

Additional Site Info:

Soil Map—Kent County, Michigan
(MI-KE-SO16-GJ01)



Map Scale: 1:4,310 if printed on A size (8.5" x 11") sheet.

N

Meters
0 40 80 160 240

Feet
0 150 300 600 900

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:4,320 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 16N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kent County, Michigan
Survey Area Data: Version 9, Jun 19, 2009

Date(s) aerial images were photographed: 6/22/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Kent County, Michigan (MI081)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
13A	Metamora sandy loam, 0 to 3 percent slopes	2.8	4.8%
30C	Spinks loamy sand, 6 to 12 percent slopes	17.0	28.7%
36C	Marlette loam, 6 to 12 percent slopes	14.9	25.1%
62C	Tekenink fine sandy loam, 6 to 12 percent slopes	4.3	7.2%
83B	Marlette loam, moderately wet, 1 to 5 percent slopes	20.3	34.2%
85	Lamson fine sandy loam	0.0	0.0%
Totals for Area of Interest		59.2	100.0%

Synagro Central, LLC.

807 Lake Lansing Road - Lansing, MI 48906 - Phone: (800) 575-8434 or (517) 487-9280 - Fax: (517) 487-2508

We, as Owner and Operator, hereby agree to voluntarily participate in a biosolids recycling program administered by Synagro Central, LLC. (hereinafter Synagro) under contract by GVRBA / Wyoming Wastewater Treatment Facility (hereinafter Generator). This agreement replaces any other previous biosolids land application agreements we have signed.

We understand that biosolids will be applied to the site(s) listed below in accordance with regulations administered by the Michigan Department of Environmental Quality (MDEQ) and the United States Environmental Protection Agency (USEPA).

We understand that following biosolids application the site restrictions below apply, and agree to be responsible for adhering to them:

1. **Food crops, feed crops, and fiber crops shall not be harvested for 30 days after the application of biosolids.**
2. **Food crops with harvested parts that touch the biosolids/soil mixture (e.g. tomatoes, peppers) shall not be harvested for 14 months after the application of biosolids.**
3. **Food crops with harvested parts below the surface of the land (e.g. potatoes, sugar beets) shall not be harvested for 20 months after the application of biosolids when the biosolids remain on the land surface $\geq$ 4 months prior to incorporation into the soil, or 38 months when the biosolids remain on the land surface < 4 months prior to incorporation.**
4. **Animals shall not be grazed on the land for 30 days after the application of biosolids.**
5. **Public access to land with a low potential for public exposure (e.g. private property) shall be restricted for 30 days. Public access to land with a high potential for public exposure (e.g. parks, playgrounds) shall be restricted for one year.**
6. **Turf grown on land where biosolids are applied shall not be harvested for 1 year after application of biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.**

We agree to allow representatives of Synagro, MDEQ, USEPA, and Generator access to my land for the purposes of conducting site inspections, obtaining soil samples, applying biosolids and related testing. We reserve the right to ask the above parties for proper identification. We authorize a representative of Synagro to obtain maps of my land from the local FSA office on my behalf.

We certify this land has not been permitted for use by another facility, and that no prior application of residuals (including septage) from another municipal, industrial or private treatment facility has been made to this land except as specifically stated below. Further, we agree not to accept biosolids (or septage) from any other source during the term of this agreement.

We understand that this transaction is not contemplated to be a sale of goods, and that the Generator and Synagro are willing to provide the service of land applying biosolids without charge. It is understood that application and field data provided to me is intended for informational purposes. The Generator and Synagro do not assume any responsibility for the interpretation and/or use of this data.

We understand that successful crop production depends on many variables, such as weather, soil conditions and specific farming practices and that while the Generator and Synagro have experience with land application of biosolids, the responsibility for properly adapting agricultural practices to biosolids utilization are solely ours. We also acknowledge receipt of the information sheet "Important Information About Using Biosolids as a Fertilizer" provided as Attachment A which is incorporated by reference into this agreement.

Synagro must apply biosolids at or below the agronomic rate of the crop to be grown. As such, we understand and agree that it is our responsibility when contacted by a Synagro representative to advise them of the crop to be grown following the biosolids application and they will use this information to apply at or below the allowed agronomic rate of the crop we specify.

We understand that should land ownership change, it is our responsibility to advise Synagro of these changes prior to any biosolids application. We understand land use restrictions from biosolids application overlap all ownership changes until the restrictions expire.

RENTER/LEASEE ACKNOWLEDGMENT

SIGNATURE: _____ DATE: _____

NAME: _____ PHONE: _____

ADDRESS: _____

OWNER ACKNOWLEDGMENT

SIGNATURE: Doug Fee DATE: _____

NAME: _____ PHONE: 616-696-1086

ADDRESS: 1401 19 Mile Rd PREVIOUS OWNER: _____

Cedar Springs, MI 49319 PROPERTY PURCHASE DATE: _____

FIELD INFORMATION

COUNTY: Kent TOWNSHIP: Solon SECTION: 17-19 ACRES: 150

CROP(S) TO BE GROWN: Various

City of Wyoming Laboratory Services

BIOSOLIDS REPORT

SAMPLE NAME January 1-15,2011
DATE 2/8/2011

METALS

	mg/kg, Dry Wt	Quantitation Limit, mg/kg
Ag	3.4	0.09
As	Below Detection	2.78
Cd	0.6	0.06
Cr	94.7	0.19
Cu	193.9	0.37
Mo	4.5	0.19
Ni	10.8	0.19
Pb	8.8	1.85
Se	Below Detection	2.78
Zn	769.6	0.46
Hg	0.12	0.10
Mn	73.9	0.07
Ca	87201.9	9.26
Mg	3745.1	9.26

NUTRIENTS

	% Dry Wt	Quantitation Limit, %
AMMONIA	0.43	0.0049
T K N	3.08	0.0056
NITRATE	0.0017	0.0011
POTASSIUM	0.55	0.0019
PHOSPHORUS	1.71	0.0483
% SOLIDS	5.9	

QUALITY CONTROL DATA

NUTRIENTS

	% DIFF	OK?
AMMONIA	0.58	YES
T K N	0.35	YES
PHOSPHORUS	3.28	YES

	SPK % REC	
AMMONIA	94.65	YES
T K N	87.03	W-L
PHOSPHORUS	110.59	W-H

AMMONIA SLOPE	-56.6	IN RANGE	ERA #
AMMONIA STD, mg/L	13.1	IN RANGE	
AMMONIA ERA	13.3	ERA In Range	345773
T K N ERA	15	ERA In Range	345776

Values highlighted in yellow are qualified.

Report No.
F10096-0490
Account No.
47001

A & L GREAT LAKES LABORATORIES, INC.

3505 Conestoga Drive • Fort Wayne, Indiana 46808 • 260-483-4759 • Fax 260-483-5274
www.algreatlakes.com • lab@algreatlakes.com

QUALITY ANALYSES FOR INFORMED DECISIONS ®

To: WILBUR-ELLIS
277 S. MAPLE ST
PO BOX 495
GRANT, MI 49327-0495

For: GARY JOHNSON

Farm: HOME FARM

Grower Code: GJOHN

Attn: CHRIS WILDE

Date Received: 04/06/2010 Date Reported: 04/08/2010

SOIL TEST REPORT

Sample ID	Lab Number	Organic Matter %	Phosphorus Available P ppm-P	Phosphorus Bray P2 ppm-P	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	Sodium Na ppm	pH Soil pH	pH Buffer pH	Cation Exchange Capacity meq/100g	Percent Base Saturation %K	%Mg	%Ca	%H	%Na
11	4105	2.3	62 *VH*		100 *M*	170 *VH*	700 *M*		6.8		5.3	4.8	26.6	65.6	3.0	
12	4106	3.5	64 *VH*		56 *L*	215 *H*	1350 *H*		7.4		8.7	1.7	20.6	77.7		
13	4107	1.3	41 *H*		73 *M*	90 *VH*	350 *M*		6.4	7.0	2.7	7.0	27.9	65.1		
14	4108	1.8	68 *VH*		121 *M*	150 *H*	500 *L*		6.5	6.9	5.3	5.9	23.8	47.5	22.8	
15	4109	1.5	14 *L*		141 *H*	260 *VH*	650 *L*		6.1	6.9	7.0	5.2	31.0	46.6	17.2	
16	4110	1.8	39 *H*		53 *L*	85 *H*	350 *L*		5.9	6.9	3.8	3.6	18.7	46.1	31.6	
17	4111	1.7	33 *H*		117 *M*	115 *H*	500 *L*		6.2	6.9	5.0	6.1	19.3	50.4	24.2	
18	4112	2.1	22 *M*		57 *L*	135 *H*	500 *L*		6.2	6.9	5.0	2.9	22.6	50.3	24.1	
19	4115	2.6	17 *L*		82 *M*	230 *VH*	800 *M*		6.8		6.3	3.3	30.3	63.3	3.0	
20	4116	2.9	41 *H*		104 *M*	140 *H*	650 *M*		6.3	6.9	5.9	4.5	19.8	55.2	20.4	

VL = VERY LOW *L* = LOW *M* = MEDIUM *H* = HIGH *VH* = VERY HIGH

Sample ID	Sulfur S ppm	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Nitrate NO3-N ppm	Ammonium NH4-N ppm	Bicarb-P P ppm				Comments

SYNAGRO

A Residuals Management Company

Synagro Central, LLC.
807 Lake Lansing Road
Lansing, MI 48906

4/12/2010

Kent County Health Department
700 Fuller Avenue NE
Grand Rapids, MI 49503

Solon Township Supervisor
2305 19 Mile Road NE
Cedar Springs, MI 49315

RE: LAND APPLICATION OF WASTEWATER TREATED BIOSOLIDS

Synagro Central, LLC. has applied to the Michigan Department of Natural Resources and Environment (MDNRE) for approval to land apply wastewater treated biosolids to the fields identified on the enclosed plat map. The land application of biosolids is both safe and environmentally beneficial. The MDNRE, along with the United States Environmental Protection Agency, regulate the amount of biosolids that we land apply by calculating Soil Fertility, Soil pH, Cation Exchange Capacity and the combination of nutrients contained in the biosolids.

All GVRBA / Wyoming Clean Water land applied biosolids are incorporated, when required, to reduce any risk of runoff and to minimize any offensive odors that may occur. Additonally, biosolids are applied at agronomic rates for the crop to be grown.

The following information represents the most current monitoring results for the GVRBA / Wyoming Clean Water:

Metal	Result	Limit	Metal	Result	Limit	Metal	Result	Limit
Arsenic	2.78	75	Lead	8.8	840	Nickel	10.8	420
Cadmium	0.6	85	Mercury	0.12	57	Selenium	2.78	100
Copper	193.9	4300	Molybdenum	4.5	75	Zinc	769.6	7500

This information has been provided to you by Synagro Central, LLC. and we hope you find it helpful. If you have any further questions, please feel free to call me at (616)299-3368. Thank you for your cooperation.

Sincerely,

William Goetsch
Technical Services Manager

Attachments: Plat Map indicating parcel

cc: File
Michigan Department of Natural Resources & Environment

GVRBA / Wyoming Clean W.	Owner: Gary Johnson	MDNRE Site ID: 10N11W16-GJ01
2350 Ivanrest Ave.	Farmer: Gary Johnson	Synagro Site ID: MI-KE-SO16-GJ01
Wyoming, MI 49418	Latitude: 43:15:10	Longitude: 85:37:07
616.261.3559	Owner: 1401 19 Mile Rd.	Farmer: 1401 19 Mile Rd.
	Address: Cedar Springs, MI 49319	Address: Cedar Springs, MI 49319

for Kim Hackbarth

BIOSOLIDS LAND APPLICATION PERMIT NOTIFICATION LOG

all Farmed by Gary Johnson

This form is to document that proper notifications have been made with regards to NEW land application sites. MI·KE·5016·GJ01 MI·KE·5028·GS01 MI·KE·5028·LD01 MI·KE·5028·LD02

Permit ID(s) _____

☑ MDNR&E Submittal of complete proposed land application site packet

Date of Submittal: 5/1/11

Method of submission:
- ☐ US Mail (requires acknowledgment please attach)
- ☒ E-Mail
- ☐ Hand Delivered
- ☐ Other (explain) _____

MDNR&E start date of 10 day waiting period _____

☑ Township Notification (notification letter and plat map)

Township Solon County Kent

Method of notification:
- ☐ US Mail (requires acknowledgment please attach)
- ☐ E-Mail
- ☐ Hand Delivered
- ☒ Fax (attach fax confirmation)

Township start date of 10 day waiting period 5/2/11

☒ Health Department Notification (notification letter and plat map)

Name of Health Department Kent County

Method of notification:
- ☐ US Mail (requires acknowledgment please attach)
- ☐ E-Mail
- ☐ Hand Delivered
- ☒ Fax (attach fax confirmation)

Health Department start date of 10 day waiting period 5/2/11

☐ Approval Date 5/12/11 (10 days from the latest of the above notifications)

☐ Facility courtesy phone call to township during waiting period verifying receipt of notifications and to discuss any known conflicts with the proposed land application.

Notes: Call Bob Ellich 5/9/11

☐ _____ Approval Date

William and Tamantha Goetsch
11259 Arloa Drive
Greenville, MI 48838
616-754-7339

facsimile transmittal

To: Solon Twp. Supervisor / Kent County Dept of Health Fax: 616-696-3970 / 616-632-7083

From: Bill Goetsch (Synagro) Date: 5/1/11

Re: Biosolids Land Ap. Pages: 9

CC:

☐ Urgent ☒ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

Notes:

Followins are notifications for land application of bio solids.

If you have any questions please call my mobile @ 616-299-3368

Thank You

Bill

PRE-OPERATING CHECKLIST-MICHIGAN

Facility: GVRBA-Wyoming Job #: 5655

Contact: Kim Hackbardt Phone: 616-292-7496 Cell:

Initials Title

1. Part 24 and 503 REQ.: Verify applicable 503 and Part 24 requirements are met (i.e., biosolids quality, lat/long, CPLR Notification, signed participation agreement, 503 management practices and site restrictions are met.
   Verify Pathogen Reduction Method: Lime — WG TSM

2. PERMIT: Verify biosolids generator has a valid MDEQ RMP authorizing land application. — WG TSM

3. FIELD AND SOURCE: Verify field is currently approved for use by this biosolids generator. Where appropriate, verify the proper documentation when transferring site between sources. — WG TSM

4. WAITING PERIOD: Verify minimum 10-day notice period for municipal and 21-days for industrial.
   Date land application may begin: Anytime — WG TSM

5. LANDOWNERSHIP/CROP: Verify land ownership has not changed from the permit application. At a minimum, verification must be done through a signature on a current participation agreement. Verify crop to be grown. — WG TSM

6. SOIL P: Verify soil phosphorus <300 lb/a Bray P1. — WG TSM

7. WATER TABLE: Verify minimum depth to groundwater >30 inches. — WG TSM

8. BIOSOLIDS ANALYSIS: Current analysis date: 4/12 No.of samples: 1 Sampling frequency: 2/mo
   Verify metals are under Table 1 and/or Table 3 limits. If applicable, date of CPLR letter: NA — WG TSM

9. APPLICATION RATE: Verify application rate will not cause metals to reach 90% of cumulative loading limit. Verify application will not exceed agronomic N rate. — WG TSM

Synagro Field Number	Farmer Name	Soil Test Date	App. Acres/ Total Acres	Previous Crop	Rate (DT/Ac.)	Estimated % Solids	Rate (gal/ac.)*	Total Max Capacity* (gal)
MI-KE-SO16-SD01	Gary Johnson	Jan-12	60.0	Corn	1.88	4.5	10,000	600,000
MI-KE-SO16-GJ01	Gary Johnson	Jan-12	55.0	Soy	1.88	4.5	10,000	550,000
MI-KE-SO17-DJ01	Dick Johnson	Jan-12	80.0	Corn	1.88	4.5	10,000	800,000
MI-KE-SO17-GJ01	Gary Johnson	Jan-12	30.0	Co/so	1.88	4.5	10,000	300,000
MI-KE-SO17-GJ02	Gary Johnson	Jan-12	6.0	Co/so	1.88	4.5	10,000	60,000
MI-KE-SO17-GJ03	Gary Johnson	Jan-12	12.0	Co/so	1.88	4.5	10,000	120,000

10. OPERATOR INSTRUCTIONS: For sub-surface injection the operator must maintain injector tips to obtain soil coverage over the injection furrows ensuring a significant amount of the biosolids is not present on the land surface within 1 hr after the biosolids are injected. For surface application with incorporation the operator must incorporate the biosolids within 6 hrs after application.
    Verify land application method: — PS WG TSM

11. FIELD MARKING: Verify field has been marked properly with flags, cones or other. 1) buffer zones maintained. 2) boundaries of adjacent landowners verified and if no distinct or man made boundaries between contiguous permitted and un-permitted fields, the boundaries are established by current deed or property survey. 3) restricted areas (i.e. slopes) are omitted. Verify these markings remain throughout the application process. — PS WG TSM

I HAVE COMPLETED THE ITEMS ABOVE FOR EACH OF THE FIELDS LISTED ABOVE.

William Goetsch

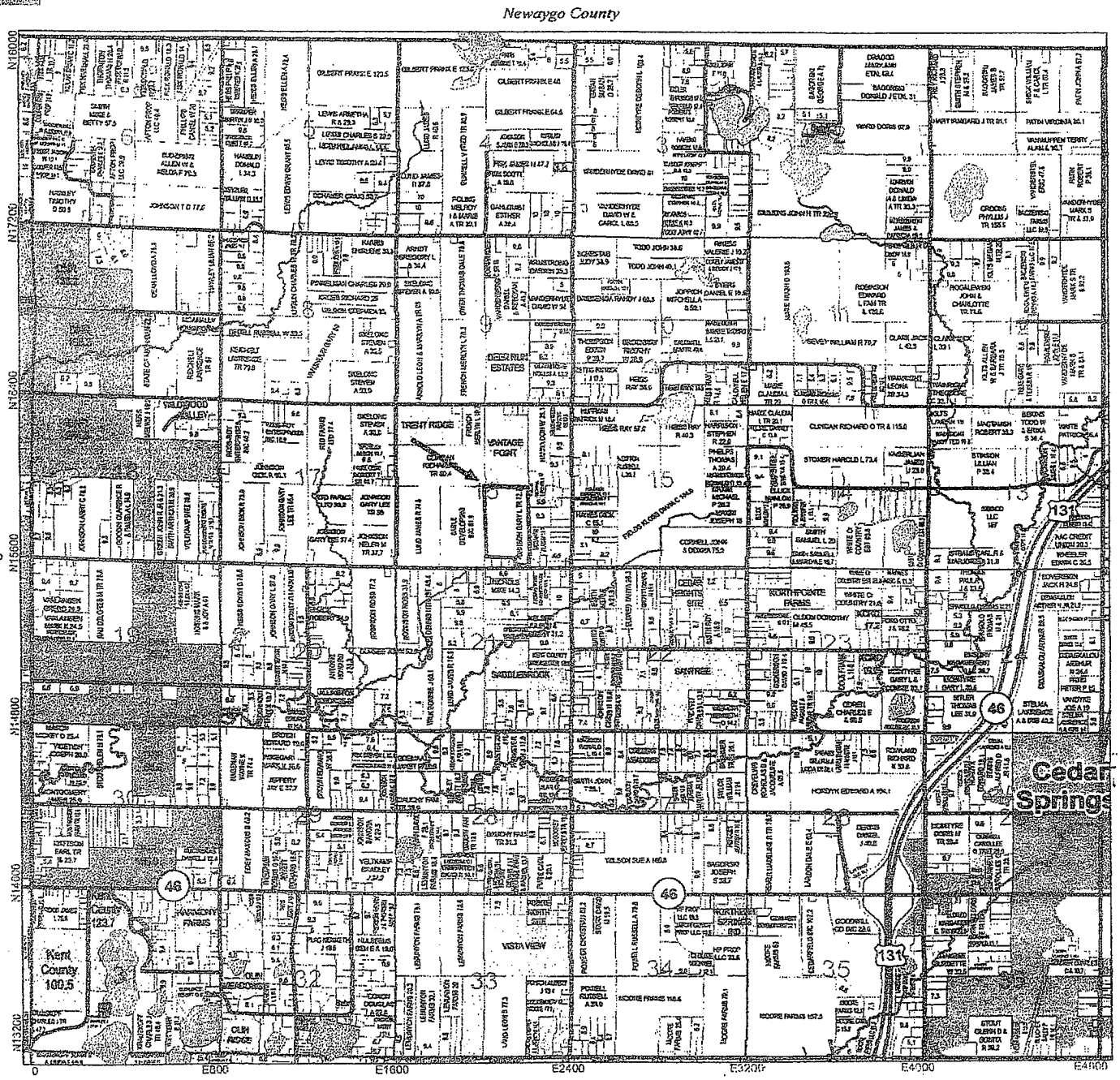
Technical Services Manager Date Project Supervisor Date

Title Codes: Technical Services Manager (TSM), Project Supervisor (PS)

SYNAGRO

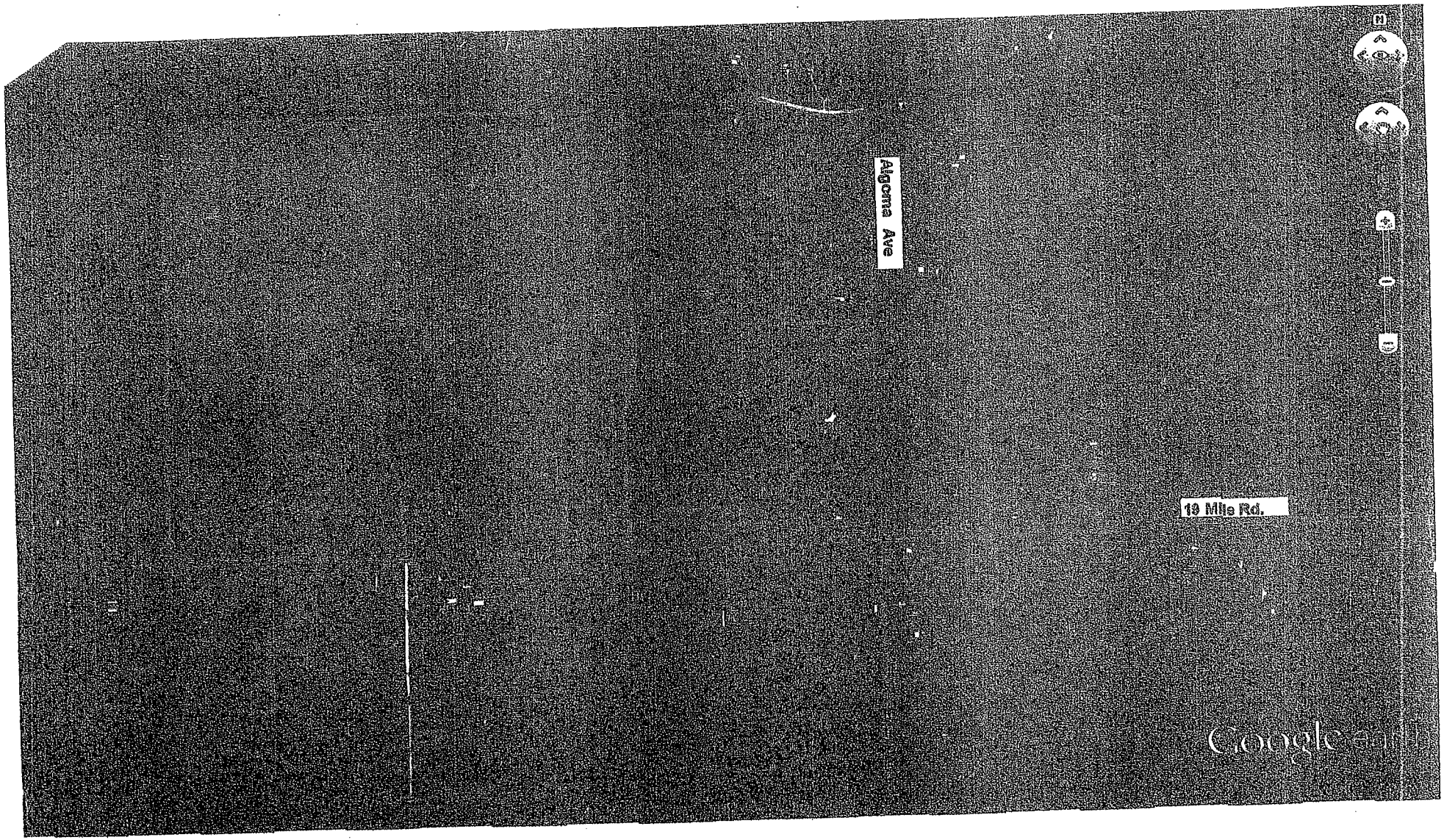
Latitude: 43:15:10
Longitude: 85:37:07

Solon — T.10N. - R.11W.



Owner:	Gary Johnson	Synagro Field Number:	MI-KE-SO16-GJ01
Farmer:	Gary Johnson	MDNRE Field Number:	10N11W16-GJ01
Address:	1401 19 Mile Rd.	County:	Kent
	Cedar Springs, MI 49319	Township:	Solon
Phone:	616-696-1086	Section:	16
		Acres:	59

Additional Site Info: *Double check well location and isolations*



Owner:	Gary Johnson
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	Cedar Springs, MI 49319
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MDNRE Field Number:	10N11W16-GJ01
County:	Kent
Township:	Solon
Section:	16
Acres:	59

Addit[illegible] *If location*

October 17, 2012

Gary Johnson
1401 19 Mile RD
Cedar Springs, MI 49319

Re: Biosolids Application
Field: 1
Dates of: May 30, 31, and June 4, of 2012

Dear Farmer Gary:

In accordance with State law, the City of Wyoming must provide certain information to you regarding the recent application of biosolids fertilizer to your land or the land you farm. I have summarized that information for you in the tables below.

Soil Fertility Data

Soil Parameter	
Cation Exchange Capacity (CEC)	5.
pH	6.3
Bray P1 (parts per million)	48
Postassium (K, parts per million)	55

Nutrient Information (in the product applied)

Nutrient	Total Pounds Applied Per Acre	Commercial Fertilizer Value ($/Acre)*
Total Available Nitrogen	114	$41.04
Total Phosphorus	58	$15.70
Total Potassium	21	$2.94
	%	
Ammonium Nitrogen	2.39	
Nitrate Nitrogen	.01	

*Based on fertilizer value at local markets: nitrogen @ 36¢/lb, phosphorus @ 27¢/lb, and potassium @ 14¢/lb

Micro-nutrient information (in the product applied)

Parameter	Concentration in Biosolids (mg/kg)	Limit (mg/kg)
Arsenic	1.15	41
Cadmium	.5	39
Copper	208.6	1500
Lead	14.9	300
Mercury	.17	17
Molybdenum	6.1	75
Nickel	16.9	420
Selenium	4.6	100
Zinc	383.8	2800

As always, our plant is available for you to tour at anytime. To schedule a tour, or if you have any questions regarding this information, please do not hesitate to call me at 261-3569. Thank you again for working together with the City of Wyoming to cut your costs and facilitate our biosolids recycling program.

Sincerely,

Kim Hackbardt
Biosolids Coordinator

cc:

APPENDIX L

GVRBA ACTIVE LAND APPLICATION SITE LIST

Field No.	Synagro ID	MDEQ ID	Owner	Operator	Acres	Lat	Long
1	MI-ML-PI36-AS02	11N10W36-AS02	AGNES SHORKA	JERRY DAVIS	32	43 18'28"	85 27'12"
2	MI-ML-PI25-AS01	11N10W25-AS01	AGNES SKORKA	JERRY DAVIS	36	43 19'03"	85 27'23"
3	MI-AL-WY17-AA03	03N11W17-AA03	ALAN ARBANAS	ALAN ARBANAS	19	42 38'20"	85 37'31"
4	MI-AL-WA30-AH01	02N12W30-AH01	ALAN HENRICKSON	ALAN HENRICKSON	99	42 31'31"	85 46'33"
5	MI-OW-GE34-AR01	06N13W34-AR01	ALAN RIETBERG	ALAN RIETBERG	18	42 52'09"	85 50'25"
6	MI-KE-GA24-AL01	05N11W24-AL01	ALFRAVA LATHAM	PLEASANT ACRE FARMS	68	42 47'59"	85 33'03"
7	MI-AL-LT01-AN01	04N11W01-AN01	ALLAN NICKELS	ALLAN NICKELS	74	42 46'00"	85 32'56"
8	MI-NE-EN34-AP02	11N11W34-AP02	ANTHONY PATIN	ANTHONY PATIN	60	43 17'53"	85 36'49"
9	MI-NE-EN36-AP01	11N11W36-AP01	ANTHONY PATIN	ANTHONY PATIN	156	43 17'49"	85 34'38"
10	MI-BA-CA01-AE01	04N08W01-AE01	ARNOLD ERB	SIMON HOEKSMA	46	42 45'28"	85 12'37"
11	MI-BA-CA02-AE02	04N08W02-AE02	ARNOLD ERB	SIMON HOEKSMA	142	42 45'25"	85 12'55"
12	MI-BA-CA02-AE03	04N08W02-AE03	ARNOLD ERB	SIMON HOEKSMA	118	42 45'50"	85 13'40"
13	MI-AL-LT25-AA01	04N11W25-AA01	ARTHUR AUBIL	PAUL LETTINGA	55	42 42'08"	85 33'48"
14	MI-KE-GT19-BB01	08N09W19-BB01	BARBRA BOLAND	JOSEPH SEIF	17.7	43 03'35"	85 24'46"
15	MI-KE-GT19-BB02	08N09W19-BB02	BARBRA BOLAND	JOSEPH SEIF	7.5	43 03'45"	85 25'05"
16	MI-KE-GT19-BB03	08N09W19-BB03	BARBRA BOLAND	JOSEPH SEIF	23	43 03'35"	85 25'07"
17	MI-AL-WY34-BA01	03N11W34-BA01	BARRY ALLEN	DAVID RANTZ	39	42 35'55"	85 35'44"
18	MI-KE-CN32-BH01	08N10W32-BH01	BARRY HARTWELL	BARRY HARTWELL	85	43 02'05"	85 30'51"
19	MI-KE-VE34-BC01	07N09W34-BC01	BERDIE LOU COOK	KEN ROTH	80	42 57'17"	85 21'50"
20	MI-AL-WY16-BH01	03N11W16-BH01	BERNARD HULL	BERNARD HULL	47	42 39'04"	85 36'23"
21	MI-AL-MA04-BW01	02N11W04-BW01	BERNARD WOLF	BERNARD WOLF	82	42 35'32"	85 36'50"
22	MI-AL-MA02-BW01	02N11W02-BW01	BLAINE WELKER	BRIAN WESTENDORP	25.5	42 35'32"	85 34'33"
23	MI-OW-CH09-BA02	09N13W09-BA02	BRIAN ABBOTT	BRIAN ABBOTT	26	43 11'19"	85 51'03"
24	MI-NE-EN33-BA01	NE-EN33-DN01	BRIAN ABBOTT	BRIAN ABBOTT	75	43 17'49"	85 38'01"
25	MI-AL-MA02-BW06	02N11W02-BW06	BRIAN WESTENDORP	BRIAN WESTENDORP	15	42 34'56"	85 34'43"
26	MI-AL-MA10-BW03	02N11W10-BW03	BRIAN WESTENDORP	BRIAN WESTENDORP	80	42 32'37"	85 36'41"
27	MI-AL-MA14-BW07	02N11W14-BW07	BRIAN WESTENDORP	BRIAN WESTENDORP	37	42 33'42"	85 34'39"
28	MI-AL-MA15-BW05	02N11W15-BW05	BRIAN WESTENDORP	BRIAN WESTENDORP	12	42 33'47"	85 35'36"
29	MI-AL-MA21-BW02	02N11W21-BW02	BRIAN WESTENDORP	BRIAN WESTENDORP	90	42 32'24"	85 36'23"
30	MI-AL-MA22-BW01	02N11W22-BW01	BRIAN WESTENDORP	BRIAN WESTENDORP	130	42 32'47"	85 35'37"
31	MI-KE-VE21-BO01	07N09W21-BO01	BRUCE ODELL	KEN ROTH	29	42 58'36"	85 22'30"
32	MI-AL-LT02-BR01	04N11W02-BR01	BRUCE ROGERS	BRUCE ROGERS	23	42 45'44"	85 35'00"
33	MI-AL-LT02-BR02	04N11W02-BR02	BRUCE ROGERS	BRUCE ROGERS	55	42 45'44"	85 34'50"
34	MI-AL-LT02-BR05	04N11W02-BR05	BRUCE ROGERS	BRUCE ROGERS	15	42 46'01"	85 34'50"
35	MI-AL-LT03-BR06	04N11W03-BR06	BRUCE ROGERS	BRUCE ROGERS	35	42 45'52"	85 36'11"
36	MI-KE-VE29-BR01	07N09W29-BR01	BRUCE ROTH	KEN ROTH	64	42 57'40"	85 24'13"
37	MI-KE-VE29-BR02	07N09W29-BR02	BRUCE ROTH	KEN ROTH	4	42 57'58"	85 24'02"
38	MI-AL-LT15-BS01	04N11W15-BS01	BRYCE SMITH	BRYCE SMITH	24	42 44'16"	85 35'18"
39	MI-AL-LT15-BS02	04N11W15-BS02	BRYCE SMITH	BRYCE SMITH	62	42 43'48"	85 35'43"
40	MI-KE-CA20-CM01	05N10W20-CM01	CALEDONIA UNITED METHODIST CHURCH	TROY BOWMAN	41	42 48'03"	85 30'58"
41	MI-KE-GA15-CV01	05N11W15-CV01	CALVIN J. VERDUIN	MIKE LYNN	60	42 49'32"	85 35'45"
42	MI-KE-VE31-CD01	07N09W31-CD01	CAROL DRENTH	KEN ROTH	50	42 57'00"	85 24'47"
43	MI-KE-NE14-CM01	10N10W14-CM01	CHARLES MCKEE	CHARLES MCKEE	65	43 15'09"	85 28'07"
44	MI-KE-SO13-CS01	10N11W13-CS01	CHARLES SECCHIA	ROBERT JOHNSON	39	43 15'15"	85 33'51"
45	MI-AL-DO05-CW02	04N12W05-CW02	CHRISTINE WEBER	JOE KWIATKOWSKI	85	42 45'22"	85 45'27"
46	MI-AL-DO08-CW01	04N12W08-CW01	CHRISTINE WEBER	JOE KWIATKOWSKI	24	42 44'43"	85 45'38"
47	MI-AL-WY09-CM01	03N11W09-CM01	CHUCK MIKLUSICAK	PATRICK RAKOWSKI	25	42 39'54"	85 36'24"
48	MI-KE-OA30-CP07	09N09W30-CP07	CHUCK PORTER	CHUCK PORTER	64	43 08'01"	85 25'02"
49	MI-KE-CO13-CP02	09N10W13-CP02	CHUCK PORTER	CHUCK PORTER	106	43 10'24"	85 26'00"
50	MI-KE-CO23-CP03	09N10W23-CP03	CHUCK PORTER	CHUCK PORTER	233	43 08'51"	85 27'33"
51	MI-ML-MV09-CP06	11N09W09-CP06	CHUCK PORTER	CHUCK PORTER	50	43 21'44"	85 23'15"
52	MI-ML-MV10-CP05	11N09W10-CP05	CHUCK PORTER	CHUCK PORTER	172	43 21'41"	85 22'16"
53	MI-ML-WI33-CP04	12N09W33-CP04	CHUCK PORTER	CHUCK PORTER	63	43 23'41"	85 23'59"
54	MI-KE-WY09-CW01	06N12W09-CW01	CITY OF WYOMING	CITY OF WYOMING	2	42 55'40"	85 44'58"
55	MI-OW-ZE06-CW01	05N14W06-CW01	CITY OF WYOMING CWP	DON GEERLINGS	23	42 51'05"	86 01'05"
56	MI-AL-WY23-CJ01	03N11W23-CJ01	CLAYTON JACKSON	CLAYTON JACKSON	65	42 37'48"	85 34'19"
57	MI-KE-GT05-CL01	08N09W05-CL01	CLAYTON LOVINS	DENNIS HEFFRON	54	43 06'13"	85 24'07"
58	MI-NE-EN01-CH01	11N11W01-CH01	CLIFF HALLIDAY	KIM HACKBARDT	100	43 22'50"	85 34'13"
59	MI-KE-AL05-CJ01	09N11W05-CJ01	CONSUMERS ENERGY	CHARLES JERRILS	16	43 12'03"	85 38'36"
1	MI-AL-DO02-CV01	04N12W02-CV01	CORWIN VERBEEK	CORWIN VERBEEK	64	42 45'44"	85 41'10"
2	MI-KE-OA31-CP01	09N09W31-CP01	CYNTHIA PERRY	CHUCK PORTER	70	43 07'53"	85 25'07"
3	MI-KE-CO03-DW01	09N10W03-DW01	D. M. WHITE	ROGER SWIFT	23	43 11'46"	85 28'19"
4	MI-AL-WA02-DD02	02N12W02-DD02	DALE DOEZEMA	DALE DOEZEMA	98	42 35'54"	85 40'06"
5	MI-AL-HO36-DD01	03N12W36-DD01	DALE DOEZEMA	DALE DOEZEMA	50	42 35'36"	85 40'00"
6	MI-KE-KE34-DH02	06N11W34-DH02	DALE HEYBOER	DALE HEYBOER	120	42 52'00"	85 35'45"
7	MI-KE-SO29-DA01	10N11W29-DA01	DAN ATWOOD	DAN ATWOOD	20	43 13'33"	85 38'17"
8	MI-AL-DO33-DB01	04N12W33-DB01	DAN BERENS	ELEANOR AND MARK KLOSKA	51	42 41'38"	85 44'03"
9	MI-KE-CO10-DD01	09N10W10-DD01	DAN DAVIS	JERRY DAVIS	26	43 10'39"	85 28'46"
10	MI-KE-AL21-DN02	09N11W21-DN02	DAN NORMAN	RONALD PORTER	52	43 09'09"	85 37'20"
11	MI-KE-AL22-DN01	09N11W22-DN01	DAN NORMAN	RONALD PORTER	93	43 08'57"	85 36'30"
12	MI-KE-OA07-DH01	09N09W07-DH01	DAROLD HARPER	DAROLD HARPER	67	43 11'21"	85 25'09"
13	MI-AL-DO02-DK01	04N12W02-DK01	DARRYL KRAGT	CORWIN VERBEEK	7.5	42 45'19"	85 41'03"
14	MI-KE-CO08-DD02	09N10W08-DD02	DAVE DUNAVEN	DAVE DUNAVEN	18	43 11'08"	85 30'51"
15	MI-KE-CO09-DD03	09N10W09-DD03	DAVE DUNAVEN	DAVE DUNAVEN	16	43 11'18"	85 29'49"
16	MI-KE-CO16-DD04	09N10W16-DD04	DAVE DUNAVEN	DAVE DUNAVEN	28	43 10'26"	85 30'27"
17	MI-AL-LT27-DB01	04N11W27-DB01	DAVID BROG	DAVID BROG	75	42 41'48"	85 36'09"
18	MI-AL-LT27-DB02	04N11W27-DB02	DAVID BROG	DAVID BROG	16	42 42'02"	85 36'09"
19	MI-AL-LT27-DB03	04N11W27-DB03	DAVID BROG	DAVID BROG	30	42 41'52"	85 35'41"
20	MI-AL-LT27-DB04	04N11W27-DB04	DAVID BROG	DAVID BROG	25	42 41'50"	85 35'16"
21	MI-AL-LT34-DB02	04N11W34-DB02	DAVID BROG	DAVID BROG	40	42 41'40"	85 35'01"
22	MI-AL-LT34-DB03	04N11W34-DB03	DAVID BROG	DAVID BROG	34	42 41'22"	85 35'14"
23	MI-KE-CA02-DC01	05N10W02-DC01	DAVID CLARK	DAVID CLARK	15	42 51'17"	85 27'08"
24	MI-KE-CO06-DD01	09N10W06-DD01	DAVID DUNAVEN	DAVID DUNAVEN	28	43 11'41"	85 32'13"
25	MI-NE-EN32-DI01	11N11W32-DI01	DAVID IGNASIAK	DICK JOHNSON	14	43 18'00"	85 38'49"
26	MI-AL-WY34-DR01	03N11W34-DR01	DAVID RANTZ	DAVID RANTZ	50	42 35'10"	85 35'16"

Field No.	Synagro ID	MDEQ ID	Owner	Operator	Acres	Lat	Long
27	MI-AL-WY34-DR02	03N11W34-DR02	DAVID RANTZ	DAVID RANTZ	25	42°35'44"	85°35'44"
28	MI-IO-EA36-DS01	06N07W36-DS01	DAVID STEEL	JOE KWIATKOWSKI	56	42°56'54"	85°04'58"
29	MI-AL-MA04-DV03	02N11W04-DV03	DEAN VANDERMEULEN	DEAN VANDERMEULEN	28.3	42°35'34"	85°36'26"
30	MI-AL-MA09-DV01	02N11W09-DV01	DEAN VANDERMEULEN	DEAN VANDERMEULEN	36	42°34'35"	85°26'30"
31	MI-AL-MA10-DV02	02N11W10-DV02	DEAN VANDERMEULEN	DEAN VANDERMEULEN	110	42°34'24"	85°35'47"
32	MI-KE-SO19-DR01	10N11W19-DR01	DELORES RAU	DICK JOHNSON	28	43°14'50"	85°39'11"
33	MI-ML-PI23-DP01	11N10W23-DP01	DEMETRIOUS PANOPOULOS	JERRY DAVIS	68	43°20'18"	85°28'16"
34	MI-ML-MV07-DD01	11N09W07-DD01	DENNIS DURST	WAYNE GRASSLEY	67	43°21'16"	85°25'29"
35	MI-IO-OT32-DH01	08N08W32-DH01	DENNIS HEFFRON	DENNIS HEFFRON	107	42°02'04"	85°17'25"
36	MI-NE-EN32-DJ01	11N11W32-DJ01	DICK JOHNSON	DICK JOHNSON	27	43°17'56"	85°38'38"
37	MI-NE-EN33-DJ01	11N11W33-DJ01	DICK JOHNSON	DICK JOHNSON	10	43°17'44"	85°38'24"
38	MI-KE-CS26-DC01	06N10W26-DC01	DOBIE CAPITAL LLC	BRIAN NICKELS	85	42°52'53"	85°27'16"
39	MI-KE-CS26-DC02	06N10W26-DC02	DOBIE CAPITAL LLC	BRIAN NICKELS	22	42°52'49"	85°27'45"
40	MI-KE-TY26-DF01	10N12W26-DF01	DON FORMAN	DICK JOHNSON	33	43°13'18"	85°42'12"
41	MI-BA-YS05-DJ01	03N10W05-DJ01	DON JACKSON	BOB VELD	40	42°40'25"	85°33'10"
42	MI-NE-EN10-DL01	11N11W10-DL01	DON LEHNERT	DON LEHNERT	60	43°21'51"	85°35'28"
43	MI-NE-EN27-DL01	11N11W27-DL01	DON LENHERT	DON LENHERT	75	43°18'53"	85°36'25"
44	MI-KE-AL01-DD02	09N11W01-DD02	DONALD DEGOOD	RONALD PORTER	27	43°12'08"	85°34'09"
45	MI-KE-AL02-DD01	09N11W02-DD01	DONALD DEGOOD	RONALD PORTER	36	43°12'15"	85°34'25"
46	MI-AL-DO19-DG01	04N12W19-DG01	DONALD GRACZYK	JIM SCHAENDORF	135	42°43'00"	85°46'45"
47	MI-KE-BY04-DH01	05N12W04-DH01	DONALD HELMHOLDT	JOE KWIATKOWSKI	200	42°51'10"	85°43'80"
48	MI-KE-CS28-DH02	06N10W28-DH02	DONALD HELMHOLDT	DONALD HELMHOLDT	28	42°52'55"	85°29'85"
49	MI-KE-CS02-DR01	06N10W28-DR01	DONALD RUNDHAUG	JOE KWIATKOWSKI	80	42°52'25"	85°30'10"
50	MI-KE-NE07-DS01	10N10W07-DS01	DORIS STOVALL	ROBERT JOHNSON	8	43°16'25"	85°33'02"
51	MI-KE-NE07-DS02	10N10W07-DS02	DORIS STOVALL	ROBERT JOHNSON	8.4	43°16'18"	85°32'55"
52	MI-KE-NE07-DS03	10N10W07-DS03	DORIS STOVALL	ROBERT JOHNSON	23	43°16'02"	85°33'03"
53	MI-KE-NE07-DS04	10N10W07-DS04	DORIS STOVALL	ROBERT JOHNSON	13	43°15'55"	85°32'46"
54	MI-KE-NE08-HS02	10N10W08-HS02	DORIS STOVALL	ROBERT JOHNSON	43	43°16'22"	85°31'33"
55	MI-KE-NE08-HS03	10N10W08-HS03	DORIS STOVALL	ROBERT JOHNSON	33	43°16'11"	85°31'38"
56	MI-ML-PI32-HS01	11N10W32-HS01	DORIS STOVALL	ROBERT JOHNSON	50	43°17'57"	85°32'40"
57	MI-AL-WY01-DJ02	03N11W01-DJ02	DOROTHY JACKSON	BOB VELD	50	42°40'25"	85°33'35"
58	MI-AL-WY01-DJ03	03N11W01-DJ03	DOROTHY JACKSON	BOB VELD	50	42°40'46"	85°31'29"
59	MI-ML-WI33-DK02	12N09W33-DK02	DOROTHY KRAMPE	CHUCK PORTER	64	43°23'24"	85°23'08"
60	MI-ML-WI34-DK01	12N09W34-DK01	DOROTHY KRAMPE	CHUCK PORTER	49	43°23'23"	85°22'54"
61	MI-KE-CO13-DH01	09N10W13-DH01	DOUG HASKELL	CHUCK PORTER	38	43°10'03"	85°26'13"
62	MI-AL-DO20-DH01	04N12W20-DH01	DOUG HELMLOLDT	TOM COOK	34	42°43'15"	85°45'30"
63	MI-KE-CO05-DU02	09N10W05-DU02	DOUG UZELAC	DAVE DUNAVEN	67	43°11'44"	85°31'32"
64	MI-KE-CO06-DU01	09N10W06-DU01	DOUG UZELAC	DAVID DUNAVEN	65	43°11'56"	85°32'14"
65	MI-AL-DO02-DG01	04N12W02-DG01	DWAIN GERBER	CORWIN VERBEEK	6	42°45'24"	85°41'09"
66	MI-KE-CO27-DJ01	09N10W27-DJ01	DWAIN JOHNSON	JERRY DAVIS	100	43°08'34"	85°28'31"
67	MI-AL-MA27-EO04	02N11W27-EO04	EDDIE OETMAN	EDDIE OETMAN	89	42°31'33"	85°35'20"
68	MI-AL-WY24-EM01	03N11W24-EM01	EDWARD MLYNARCHEK	VERN LETTINGA	60	42°48'30"	85°37'00"
69	MI-AL-DO28-EK02	04N12W28-EK02	ELEANOR AND MARK KLOSKA	ELEANOR AND MARK KLOSKA	22	42°41'51"	85°44'19"
70	MI-AL-DO33-EK01	04N12W33-EK01	ELEANOR AND MARK KLOSKA	ELEANOR AND MARK KLOSKA	19	42°41'42"	85°44'24"
71	MI-KE-CA32-EM01	05N10W32-EM01	ELEANOR MARKER	JERRY GOOD	70	42°46'29"	85°30'52"
72	MI-NE-EN11-EA01	11N11W11-EA01	ERNEST ARCHER	ERNEST ARCHER	70	43°22'15"	85°34'15"
73	MI-NE-EN12-EA02	11N11W12-EA02	ERNEST ARCHER	ERNEST ARCHER	38	43°22'10"	85°34'00"
74	MI-KE-BO03-FB01	05N09W03-FB01	FRANK BOUWENS	STEVE SCHUTTE	55	42°50'50"	85°21'58"
75	MI-NE-EN34-FP01	11N11W34-FP01	FRED PATIN	FRED PATIN	40	43°18'26"	85°36'14"
76	MI-NE-EN34-FP02	11N11W34-FP02	FRED PATIN	FRED PATIN	82	43°18'09"	85°36'49"
77	MI-NE-EN34-FP03	11N11W34-FP03	FRED PATIN	FRED PATIN	36	43°17'59"	85°36'17"
78	MI-KE-SO16-GJ01	10N11W16-GJ01	GARY JOHNSON	GARY JOHNSON	59	43°15'10"	85°37'07"
79	MI-KE-SO17-GJ01	10N11W17-GJ01	GARY JOHNSON	GARY JOHNSON	45	43°15'12"	85°38'01"
80	MI-KE-SO17-GJ02	10N11W17-GJ02	GARY JOHNSON	GARY JOHNSON	7	43°14'56"	85°38'03"
81	MI-KE-SO17-GJ03	10N11W17-GJ03	GARY JOHNSON	GARY JOHNSON	13	43°14'59"	85°38'25"
82	MI-KE-SO17-GJ04	10N11W17-GJ04	GARY JOHNSON	GARY JOHNSON	32	43°15'07"	85°38'35"
83	MI-KE-SO17-GJ05	10N11W17-GJ05	GARY JOHNSON	GARY JOHNSON	16	43°15'14"	85°38'42"
84	MI-KE-SO20-GJ06	10N11W20-GJ06	GARY JOHNSON	GARY JOHNSON	16	43°14'49"	85°38'41"
85	MI-KE-GA29-GM01	05N11W29-GM01	GARY MARTIN	GARY MARTIN	38	42°47'46"	85°38'08"
86	MI-OW-CH14-GB02	09N13W14-GB02	GENE BOLTON	GENE BOLTON BOLTON FARMS	85	43°10'21"	85°49'15"
87	MI-OW-CH15-GB01	09N13W15-GB01	GENE BOLTON	GENE BOLTON BOLTON FARMS	68	43°10'31"	85°50'25"
88	MI-KE-CO28-GP01	09N10W28-GP01	GENE POST	GENE POST	30	43°08'45"	85°30'22"
89	MI-KE-CO28-GP02	09N10W28-GP02	GENE POST	GENE POST	63	43°08'34"	85°30'15"
90	MI-KE-CO28-GP03	09N10W28-GP03	GENE POST	GENE POST	20	43°08'26"	85°30'28"
91	MI-KE-CO28-GP04	09N10W28-GP04	GENE POST	GENE POST	48	43°08'08"	85°30'08"
92	MI-NE-EN01-GA01	11N11W01-GA01	GEORGE ALVERSON	GEORGE ALVERSON	75	43°22'14"	85°34'33"
93	MI-ML-PI25-GB01	11N10W25-GB01	GEORGE BRADLEY	GEORGE BRADLEY	90	43°19'10"	85°27'05"
94	MI-ML-PI26-GB02	11N10W26-GB02	GEORGE BRADLEY	GEORGE BRADLEY	38	43°19'04"	85°28'23"
95	MI-AL-WY25-GC01	03N11W25-GC01	GEORGE CIGLER	PAUL LETTINGA	33	42°37'20"	85°32'51"
96	MI-OW-CH09-GD02	09N13W09-GD02	GEORGE DENHOF	GEORGE DENHOF	27	43°10'56"	85°51'11"
97	MI-KE-SO28-GS01	10N11W28-GS01	GEORGE SEMPOSKI	GARY JOHNSON	4	43°13'30"	85°37'27"
98	MI-KE-GA24-GC01	05N11W24-GC01	GERALD CRUMBACK	PLEASANT ACRE FARMS	17	42°48'00"	85°33'47"
99	MI-KE-CA16-GK02	05N10W16-GK02	GERALD KAYSER	GERALD KAYSER	120	42°49'03"	85°29'54"
100	MI-KE-GA25-GK03	05N11W25-GK03	GERALD KAYSER	GERALD KAYSER	425	42°48'03"	85°33'58"
101	MI-KE-GA27-GK06	05N11W27-GK06	GERALD KAYSER	GERALD KAYSER	120	42°47'19"	85°35'48"
102	MI-KE-GA36-GK01	05N11W36-GK01	GERALD KAYSER	GERALD KAYSER	134	42°46'40"	85°33'13"
103	MI-KE-BY30-GN01	05N12W30-GN01	GERALD NICKELS	JOE KWIATOWSKI	80	42°47'45"	85°46'40"
104	MI-OW-JA25-GN02	05N13W25-GN02	GERALD NICKELS	JOE KWIATOWSKI	19	42°47'45"	85°47'05"
105	MI-AL-DO11-GS01	04N12W11-GS01	GERTRUDE SEIF	CORWIN VERBEEK	40	42°45'11"	85°41'13"
106	MI-ML-MV07-GT03	11N09W07-GT03	GILBERT TEUNISSEN	JERRY DAVIS	36	43°21'14"	85°25'52"
107	MI-ML-MV17-GT01	11N09W17-GT01	GILBERT TEUNISSEN	JERRY DAVIS	14	43°20'45"	85°24'53"
108	MI-ML-MV18-GT02	11N09W18-GT02	GILBERT TEUNISSEN	JERRY DAVIS	208	43°20'58"	85°25'54"
109	MI-KE-CN25-GH01	08N10W25-GH01	GILES HEFFERAN	DENNIS HEFERON	70	43°02'49"	85°26'55"
110	MI-AL-LT11-GV01	04N11W11-GV01	GORDAN VAN LAAN	GORDAN VAN LAAN	40	42°44'52"	85°34'51"
111	MI-KE-NE04-GB02	10N10W04-GB02	GORDON BOHN	DEAN WALL	25	43°16'50"	85°30'34"

Field No.	Synagro ID	MDEQ ID	Owner	Operator	Acres	Lat	Long
112	MI-ML-MV28-WG01	11N09W28-WG01	GRASSLEY FARMS	WAYNE GRASSLEY	152	43 18'52"	85 23'50"
113	MI-ML-MV28-WG02	11N09W28-WG02	GRASSLEY FARMS	WAYNE GRASSLEY	20	43 18'56"	85 23'26"
114	MI-ML-WI33-WG03	12N09W33-WG03	GRASSLEY FARMS	WAYNE GRASSLEY	85	43 23'24"	85 23'51"
115	MI-AL-LT15-HD01	04N11W15-HD01	HAROLD DIEMER	JOHN SEIF	30	42 44'15"	85 35'31"
116	MI-NE-GR18-HF01	11N12W18-HF01	HAROLD FREY	BRIAN ABBOTT	55	43 20'21"	85 46'59"
117	MI-AL-HO11-HS01	03N12W11-HS01	HAROLD STEHOUWER	WALTER KLAWITER	38	42 39'17"	85 41'04"
118	MI-NE-EN02-HH01	11N11W02-HH01	HARRY HACKBARDT	KIM HACKBARDT	35	43 22'14"	85 35'23"
119	MI-KE-BY17-HK01	05N12W17-HK01	HENRY KOETZE	JOHN KUPERUS	29	42 49'33"	85 45'00"
120	MI-KE-CA08-IH02	05N10W08-IH02	IDONEA HERSEE	JOE KWIATKOWSKI	89	42 50'20"	85 31'00"
121	MI-ML-PI16-IB02	11N10W16-IB02	IRWIN BASSETT	TIMOTHY BUTLER	23	43 20'29"	85 30'20"
122	MI-KE-VE06-JR01	07N09W06-JR01	JACKIE RITTERSDORF	DENNIS HEFFRON	27	43 01'20"	85 24'45"
123	MI-KE-VE05-JR01	07N09W05-JR01	JACQ. RITTERSDORF	DENNIS HEFFRON	165	43 01'32"	85 24'15"
124	MI-KE-TY01-JC01	10N12W01-JC01	JAMES COOPER	TERRY AFTON	39	43 16'51"	85 41'17"
125	MI-NE-EN09-JD01	11N11W09-JD01	JAMES DUNN	JAMES DUNN	50	43 21'29"	85 37'30"
126	MI-ML-MV16-JF01	11N09W16-JF01	JAMES FASE	JAMES FASE	35	43 20'59"	85 23'45"
127	MI-ML-MV16-JF02	11N09W16-JF02	JAMES FASE	JAMES FASE	57	43 21'02"	85 23'18"
128	MI-ML-MV16-JF03	11N09W16-JF03	JAMES FASE	JAMES FASE	14.6	43 20'51"	85 23'05"
129	MI-ML-MV03-JL01	11N09W03-JL01	JAMES LARSEN	CHUCK PORTER	77	43 22'16"	85 22'12"
130	MI-MU-ML23-JW01	10N14W23-JW01	JAMES WHITE	BRIAN ABBOTT	35	43 14'23"	85 55'50"
131	MI-KE-CA06-JM01	05N10W06-JM01	JANET MERREN	TROY BOWMAN	48	42 50'40"	85 32'41"
132	MI-AL-WY35-JB01	03N11W35-JB01	JERRY BRONKHORST	JERRY BRONKHORST	55.4	42 36'13"	85 34'28"
133	MI-KE-OA19-JD01	09N09W19-JD01	JERRY DAVIS	JERRY DAVIS	34	43 09'22"	85 25'07"
134	MI-KE-VE09-JS01	07N09W09-JS01	JERRY SIETSEMA, III	DENNIS HEFFRON	80	43 00'42"	85 23'17"
135	MI-ML-PI34-JS01	11N10W34-JS01	JERRY STONER	SCOTT HAYDEN	33	43 18'23"	85 29'24"
136	MI-AL-DO19-JW01	04N12W19-JW01	JERRY WERKEMA	JIM SCHAENDORF	44	42 43'20"	85 46'30"
137	MI-KE-GA23-JP01	05N11W23-JP01	JESSE POST	JESSE POST	150	42 47'58"	85 34'06"
138	MI-OW-CH17-JH01	09N13W17-JH01	JIM HOLTROP	JIM HOLTROP	70	43 10'32"	85 54'15"
139	MI-OW-CH18-JH02	09N13W18-JH02	JIM HOLTROP	JIM HOLTROP	67	43 10'01"	85 53'28"
140	MI-OW-CH18-JH03	09N13W18-JH03	JIM HOLTROP	JIM HOLTROP	55	43 10'32"	85 54'15"
141	MI-OW-CH30-JH04	09N13W30-JH04	JIM HOLTROP	JIM HOLTROP	60	43 08'41"	85 51'20"
142	MI-AL-WY13-JJ01	03N11W13-JJ01	JIM JACKSON	PAUL LETTINGA	26	42 38'51"	85 32'51"
143	MI-AL-DO08-JS01	04N12W08-JS01	JIM SCHAENDORF	JIM SCHAENDORF	85	42 45'04"	85 44'39"
144	MI-KE-SO07-JJ01	10N11W07-JJ01	JODI JACK	DICK JOHNSON	27	43 16'27"	85 39'11"
145	MI-OW-JA36-JK01	05N13W36-JK01	JOE KWIATKOWSKI	JOE KWIATKOWSKI	150	42 46'24"	85 47'17"
146	MI-BA-TH05-JA01	04N10W05-JA01	JOEL ARNOLD	JERRY GOOD	47	42 46'04"	85 30'40"
147	MI-NE-EN14-JP01	11N11W14-JP01	JOHN A. PATIN	JOHN A. PATIN	58	43 21'04"	85 36'05"
148	MI-NE-EN14-JP02	11N11W14-JP02	JOHN A. PATIN	JOHN A. PATIN	42	43 21'03"	85 35'08"
149	MI-BA-OR29-JG01	02N10W29-JG01	JOHN GOY	JOHN GOY	38	42 31'30"	85 30'55"
150	MI-BA-OR29-JG02	02N10W29-JG02	JOHN GOY	JOHN GOY	51	42 31'35"	85 30'38"
151	MI-NE-EN14-JP03	11N11W14-JP03	JOHN PATIN	JOHN PATIN	158	43 20'47"	85 35'40"
152	MI-NE-EN14-JP04	11N11W14-JP04	JOHN PATIN	MIKE PATIN	93	43 20'25"	85 35'52"
153	MI-ML-PI22-JR01	11N10W22-JR01	JOHN ROHRER	CHUCK PORTER	64	43 20'08"	85 29'04"
154	MI-AL-WY02-LS01	03N11W02-LS01	JOHN SCHIMMEL	PAUL LETTINGA	60	42 40'15"	85 34'39"
155	MI-KE-CO24-JT01	09N10W24-JT01	JOHN THOMPSON	CHUCK PORTER	37	43 09'24"	85 26'00"
156	MI-AL-WY12-JT01	03N11W12-JT01	JOHN THURSTON	JOHN THURSTON	17	42 40'50"	85 32'55"
157	MI-KE-GA20-JY01	05N11W20-JY01	JOHN YOUNG	GARY MARTIN	30	42 48'11"	85 37'41"
158	MI-AL-DO22-JC01	04N12W22-JC01	JOSEPH CHACHULSKI	LARRY DOLEGOWSKI	13.6	42 42'42"	85 42'59"
159	MI-BA-TH01-JD01	04N10W01-JD01	JOSEPH DOMERS	HOWARD SMITH	45	45 45'29"	85 26'10"
160	MI-AL-LT01-JB01	04N11W01-JB01	JOYCE BUNING	RON NICKELS	16.5	42 46'00"	85 33'08"
161	MI-BA-RU06-JS08	03N09W06-JS08	JULIA SHAW	SCOTT MCKEOWN	33	42 40'51"	85 25'29"
162	MI-BA-YS01-JS06	03N10W01-JS06	JULIA SHAW	SCOTT MCKEOWN	31	42 40'38"	85 25'81"
163	MI-BA-YS01-JS07	03N10W01-JS07	JULIA SHAW	SCOTT MCKEOWN	38	42 40'48"	85 27'14"
164	MI-BA-YS02-JS09	03N10W02-JS09	JULIA SHAW	SCOTT MCKEOWN	29	42 40'21"	85 25'30"
165	MI-BA-TH05-SK01	04N10W05-SK01	K. SHANG-JEN	JERRY GOOD	91	42 45'56"	85 30'35"
166	MI-NE-EN03-KB01	11N11W03-KB01	KEITH BASSETT	KEITH BASSETT	25	43 22'06"	85 36'40"
167	MI-NE-GR24-KB01	11N12W24-KB01	KEITH BOUWKAMP	KEITH BOUWKAMP	40	43 20'08"	85 41'07"
168	MI-KE-GA24-KC01	05N11W24-KC01	KEN CRUMBACK	PLEASANT ACRE FARMS	17	42 48'00"	85 33'47"
169	MI-KE-LO34-KR04	06N09W34-KR04	KEN ROTH	KEN ROTH	15	42 52'09"	85 21'28"
170	MI-KE-LO34-KR05	06N09W34-KR05	KEN ROTH	KEN ROTH	35	42 52'09"	85 21'17"
171	MI-KE-VE32-KR01	07N09W32-KR01	KEN ROTH	KEN ROTH	21	42 57'23"	85 24'35"
172	MI-KE-VE32-KR02	07N09W32-KR02	KEN ROTH	KEN ROTH	31	42 57'23"	85 24'21"
173	MI-KE-VE32-KR03	07N09W32-KR03	KEN ROTH	KEN ROTH	33	42 57'11"	85 24'21"
174	MI-AL-LT01-KS01	04N11W01-KS01	KEN SEIF	KEN SEIF	60	42 42'34"	85 31'12"
175	MI-KE-GA25-KV01	05N11W25-KV01	KEN VANDERVEEN	KEN VANDERVEEN	50	42 47'50"	85 32'50"
176	MI-KE-CO32-KP01	09N10W32-KP01	KENNETH PLOEG	JERRY DAVIS	32	43 07'45"	85 31'13"
177	MI-NE-EN32-KM01	11N11W32-KM01	KEVIN MARCUS	DICK JOHNSON	33	43 18'18"	85 38'53"
178	MI-AL-DO22-LD01	04N12W22-LD01	LARRY DOLEGOWSKI	LARRY DOLEGOWSKI	21	42 42'46"	85 43'15"
179	MI-KE-SO18-LJ01	10N11W18-LJ01	LARRY JOHNSON	ROBERT JOHNSON	70	43 15'07"	85 40'00"
180	MI-KE-CA31-LS01	05N10W31-LS01	LARRY STAUFFER	JERRY GOOD PLEASANT ACRE FARMS	52	42 46'23"	85 32'32"
181	MI-KE-GA36-LS01	05N11W36-LS01	LARRY STAUFFER	JERRY GOOD PLEASANT ACRE FARMS	75	42 46'34"	85 32'55"
182	MI-AL-WY24-VL21	03N11W24-VL21	LATAIRETTE FARM LLC	VERN LETTINGA	40	42 38'08"	85 32'55"
183	MI-KE-BY32-JS01	05N12W32-JS01	LAVINA ROXBURY	JOE KWIATKOWSKI	41	42 46'25"	85 45'14"
184	MI-KE-SO28-LD01	10N11W28-LD01	LEON DAUCHY	GARY JOHNSON	18.5	43 13'41"	85 37'46"
185	MI-KE-SO28-LD02	10N11W28-LD02	LEON DAUCHY	GARY JOHNSON	10	43 13'41"	85 37'46"
186	MI-KE-GA22-BK01	05N11W22-BK01	LOUIS WAAYENBERG	LOUIS WAAYENBERG	10.6	42 48'26"	85 30'27"
187	MI-KE-GA22-LW01	05N11W22-LW01	LOUIS WAAYENBERG	LOUIS WAAYENBERG	15	42 48'46"	85 35'31"
188	MI-KE-GA23-LW02	05N11W23-LW02	LOUIS WAAYENBERG	LOUIS WAAYENBERG	39	42 48'36"	85 34'55"
189	MI-KE-GA23-LW03	05N11W23-LW03	LOUIS WAAYENBERG	LOUIS WAAYENBERG	84	42 48'36"	85 34'37"
190	MI-KE-KE34-MW01	06N11W34-MW01	MARCIA WILKERSON	DALE HEYBOER	40	42 51'29"	85 36'06"
191	MI-KE-SO29-MT01	10N11W29-MT01	MARCUS TIDEY	DICK JOHNSON	55	43 13'25"	85 38'54"
192	MI-IO-EA36-MB01	06N07W36-MB01	MARK BARNA	JOE KWIATKOWSKI	70	42 56'54"	85 05'23"
193	MI-KE-NE06-MV01	10N10W06-MV01	MARK VANDERHYDE	MARK VANDERHYDE	37	43 17'00"	85 32'57"
194	MI-KE-NE06-MV02	10N10W06-MV02	MARK VANDERHYDE	MARK VANDERHYDE	36	43 17'00"	85 32'59"
195	MI-KE-NE07-MV03	10N10W07-MV03	MARK VANDERHYDE	MARK VANDERHYDE	20	43 16'37"	85 32'56"
196	MI-KE-NE07-MV04	10N10W07-MV04	MARK VANDERHYDE	MARK VANDERHYDE	12	43 16'31"	85 32'57"

Field No.	Synagro ID	MDEQ ID	Owner	Operator	Acres	Lat	Long
197	MI-KE-SO01-MV05	10N11W01-MV05	MARK VANDERHYDE	MARK VANDERHYDE	34	43 16'47"	85 33'15"
198	MI-KE-SO12-MV06	10N11W12-MV06	MARK VANDERHYDE	MARK VANDERHYDE	74	43 16'30"	85 33'13"
199	MI-KE-SO12-MV07	10N11W12-MV07	MARK VANDERHYDE	MARK VANDERHYDE	17	43 16'30"	85 33'13"
200	MI-KE-SO12-MV08	10N11W12-MV08	MARK VANDERHYDE	MARK VANDERHYDE	31	43 16'08"	85 33'14"
201	MI-KE-SO12-MV09	10N11W12-MV09	MARK VANDERHYDE	MARK VANDERHYDE	12	43 15'59"	85 33'10"
202	MI-NE-EN10-MB01	11N11W10-MB01	MARVIN BERENDS	TIMOTHY BUTLER	31	43 21'15"	85 36'59"
203	MI-ML-PI05-MH01	11N10W05-MH01	MARVIN HILL	STEVE DE VRIES	16.7	43 22'07"	85 31'59"
204	MI-KE-CO09-MD01	09N10W09-MD01	MARY ELLEN DAUCHY	DAVE DUNAVEN	16	43 11'18"	85 29'58"
205	MI-KE-BO31-MM01	05N09W31-MM01	MARY MCDONALD	MIKE BOWMAN	50	42 46'52"	85 25'30"
206	MI-AL-MA02-MV01	02N11W02-MV01	MARY VANDERMEULEN	DEAN VANDERMEULEN	40	42 35'30"	85 34'19"
207	MI-KE-CO02-MC01	09N10W02-MC01	MAX COLE	JERRY DAVIS	49	43 11'47"	85 28'06"
208	MI-KE-CO02-MC02	09N10W02-MC02	MAX COLE	JERRY DAVIS	99	43 12'02"	85 28'04"
209	MI-KE-NE08-MB02	10N10W08-MB02	MIKE BACZEWSKI	MIKE BACZEWSKI	65	43 16'35"	85 31'44"
210	MI-KE-NE06-MB01	KE-NE06-MB01	MIKE BACZEWSKI	MIKE PORTER	89	43 17'30"	85 32'15"
211	MI-AL-LT12-MB01	04N11W12-MB01	MIKE BEUSCHEL	MIKE BEUSCHEL	120	42 44'50"	85 33'60"
212	MI-KE-CO13-MG01	09N10W13-MG01	MORRIS GARLICK	CHUCK PORTER	82	43 10'30"	85 26'04"
213	MI-KE-TY35-NP01	10N12W35-NP01	NANCY PHILLIPS	DICK JOHNSON	18	43 13'01"	85 41'42"
214	MI-AL-LT13-NT03	04N11W13-NT03	NETTIE THEDE	MIKE BEUSCHEL	70	42 43'38"	85 33'46"
215	MI-AL-LT14-NT04	04N11W14-NT04	NETTIE THEDE	MIKE BEUSCHEL	79	42 43'39"	85 34'06"
216	MI-KE-CS34-PR01	06N10W34-PR01	PATRICIA RENUCCI	JOE KWIATKOWSKI	29	42 51'52"	85 28'17"
217	MI-KE-CS35-PR02	06N10W35-PR02	PATRICIA RENUCCI	JOE KWIATKOWSKI	26.6	42 51'57"	85 27'55"
218	MI-AL-WY12-PB01	03N11W12-PB01	PAUL BLOOM	PAUL LETTINGA	100	42 40'00"	85 32'57"
219	MI-AL-WY03-NB01	03N11W03-NB01	PAUL LETTINGA	PAUL LETTINGA	75	42 40'30"	85 35'40"
220	MI-AL-WY13-VL31	03N11W13-VL31	PAUL LETTINGA	PAUL LETTINGA	76	42 38'54"	85 33'24"
221	MI-AL-WY24-VL33	03N11W24-VL33	PAUL LETTINGA	PAUL LETTINGA	35	42 37'45"	85 32'26"
222	MI-AL-WY29-VL30	03N11W29-VL30	PAUL LETTINGA	PAUL LETTINGA	94	42 37'36"	85 37'44"
223	MI-AL-WY22-PT01	03N11W22-PT01	PETE TALSMA	PETE TALSMA	30	42 37'54"	85 37'06"
224	MI-KE-VE09-PW01	07N09W09-PW01	PETER WEDGE	DENNIS HEFFRON	57	43 00'18"	85 23'04"
225	MI-KE-CO15-PN01	09N10W15-PN01	PHYLLIS NIELSEN	ROGER SWIFT	38	43 09'46"	85 28'42"
226	MI-KE-GA24-GK05	05N11W24-GK05	PLEASANT ACRES FARM	PLEASANT ACRES FARMS	37	42 47'58"	85 33'26"
227	MI-AL-WY12-RJ01	03N11W12-RJ01	RALPH JACKSON	RALPH JACKSON	44.5	42 39'25"	85 33'03"
228	MI-KE-BY02-RL01	05N12W02-RL01	RALPH LUTZ	JOE KWIATKOWSKI	27.9	42 51'15"	85 41'59"
229	MI-AL-WY24-RL14	03N11W24-RL14	RANDALL LETTINGA	RANDALL LETTINGA	39	42 37'57"	85 33'24"
230	MI-AL-WY24-RL01	03N11W24-RL01	RANDY LETTINGA	PAUL LETTINGA	72	42 38'14"	85 33'38"
231	MI-KE-VE08-RS01	07N09W08-RS01	RANDY SEAMANS	DENNIS HEFFERON	105	43 00'22"	85 24'19"
232	MI-KE-VE08-RS03	07N09W08-RS03	RANDY SEAMANS	DENNIS HEFFERON	100	43 00'48"	85 24'07"
233	MI-KE-VE08-RS04	07N09W08-RS04	RANDY SEAMANS	DENNIS HEFFERON	19	43 00'26"	85 23'58"
234	MI-KE-VE17-RS02	07N09W17-RS02	RANDY SEAMANS	DENNIS HEFFERON	23	42 59'57"	85 23'51"
235	MI-KE-SO13-RS01	10N11W13-RS01	RICH STRAUB	ROBERT JOHNSON	11	43 14'52"	85 34'00"
236	MI-KE-SO13-RS02	10N11W13-RS02	RICH STRAUB	ROBERT JOHNSON	10	43 14'53"	85 33'48"
237	MI-KE-CO13-RG01	09N10W13-RG01	RICHARD GARLICK	CHUCK PORTER	28	43 10'00"	85 26'14"
238	MI-KE-GA20-RM01	05N11W20-RM01	RICHARD MEYER	RICHARD MEYER	130	42 48'00"	85 38'09"
239	MI-KE-GA29-RM02	05N11W29-RM02	RICHARD MEYER	RICHARD MEYER	33	42 47'46"	85 37'54"
240	MI-MU-CA21-RM01	10N13W21-RM01	RICHARD MIDDLETON	BRIAN ABBOTT	23	43 14'17"	85 52'05"
241	MI-AL-WY10-RS01	03N11W10-RS01	RICHARD SATTERLEE	PAUL LETTINGA	38	42 39'28"	85 35'56"
242	MI-AL-WY10-RS03	03N11W10-RS01	RICHARD SATTERLEE	PAUL LETTINGA	32	42 40'00"	85 35'32"
243	MI-AL-WY10-RS02	03N11W10-RS02	RICHARD SATTERLEE	PAUL LETTINGA	10	42 39'46"	85 35'43"
244	MI-AL-DO08-RS01	04N12W08-RS01	RICHARD SNYDER	RICHARD SNYDER	65	42 44'31"	85 45'29"
245	MI-AL-DO17-RS02	04N12W17-RS02	RICHARD SNYDER	RICHARD SNYDER	34	42 44'06"	85 44'40"
246	MI-KE-GA35-RB05	05N11W35-RB05	ROBERT BREARLEY	ROBERT BREARLEY	30	42 46'45"	85 33'27"
247	MI-KE-GA35-RB06	05N11W35-RB06	ROBERT BREARLEY	ROBERT BREARLEY	36	42 46'40"	85 34'12"
248	MI-KE-GA35-RB07	05N11W35-RB07	ROBERT BREARLEY	DANNY DEVRIES	9	42 46'38"	85 34'02"
249	MI-KE-GA36-RB01	05N11W36-RB01	ROBERT BREARLEY	ROBERT BREARLEY	32	42 48'36"	85 34'55"
250	MI-KE-GA36-RB02	05N11W36-RB02	ROBERT BREARLEY	ROBERT BREARLEY	50	42 46'54"	85 33'52"
251	MI-KE-GA36-RB03	05N11W36-RB03	ROBERT BREARLEY	ROBERT BREARLEY	24	42 46'45"	85 33'27"
252	MI-KE-CO10-RJ04	09N10W10-RJ04	ROBERT JOHNSON	ROBERT JOHNSON	38	43 10'54"	85 28'21"
253	MI-KE-CO11-RJ01	09N10W11-RJ01	ROBERT JOHNSON	ROBERT JOHNSON	70	43 11'07"	85 28'01"
254	MI-KE-CO11-RJ02	09N10W11-RJ02	ROBERT JOHNSON	ROBERT JOHNSON	48	43 10'54"	85 27'30"
255	MI-KE-CO11-RJ03	09N10W11-RJ03	ROBERT JOHNSON	ROBERT JOHNSON	9.5	43 10'56"	85 28'10"
256	MI-KE-SO17-DJ01	10N11W17-DJ01	ROBERT JOHNSON	ROBERT JOHNSON	100	43 15'18"	85 38'57"
257	MI-KE-SO18-RJ01	10N11W18-RJ01	ROBERT JOHNSON	ROBERT JOHNSON	17	43 15'00"	85 39'12"
258	MI-AL-DO02-RP01	04N12W02-RP01	ROBERT PITSCH	CORWIN VERBEEK	7.5	42 45'22"	85 41'10"
259	MI-KE-CA30-RV01	05N10W30-RV01	ROBERT VELTING	JERRY GOOD	30	42 47'05"	85 31'43"
260	MI-AL-WY32-RW01	03N11W32-RW01	ROBERT WARNER	ROBERT WARNER	87	42 35'55"	85 37'53"
261	MI-KE-GA25-RP02	05N11W25-RP02	ROGER POLL	RICHARD MEYER	37	42 47'45"	85 33'47"
262	MI-KE-GA26-RP01	05N11W26-RP01	ROGER POLL	RICHARD MEYER	48	42 47'43"	85 34'00"
263	MI-KE-OA07-RS07	09N09W07-RS07	ROGER SWIFT	ROGER SWIFT	50	43 10'57"	85 24'52"
264	MI-KE-CO02-RS01	09N10W02-RS01	ROGER SWIFT	ROGER SWIFT	57	43 11'32"	85 27'58"
265	MI-KE-CO02-RS02	09N10W02-RS02	ROGER SWIFT	ROGER SWIFT	23	43 11'48"	85 27'30"
266	MI-KE-CO02-RS03	09N10W02-RS03	ROGER SWIFT	ROGER SWIFT	108	43 11'20"	85 27'30"
267	MI-KE-CO03-RS01	09N10W03-RS01	ROGER SWIFT	ROGER SWIFT	30	43 11'32"	85 28'21"
268	MI-KE-CO14-RS08	09N10W14-RS08	ROGER SWIFT	ROGER SWIFT	45	43 09'52"	67 52'75"
269	MI-KE-CO23-RS09	09N10W23-RS09	ROGER SWIFT	ROGER SWIFT	30	43 09'34"	85 27'48"
270	MI-KE-NE14-RS01	10N10W14-RS01	ROGER SWIFT	ROGER SWIFT	17	43 15'21"	85 27'35"
271	MI-KE-NE14-RS02	10N10W14-RS02	ROGER SWIFT	ROGER SWIFT	18.5	43 15'21"	85 27'17"
272	MI-KE-NE14-RS03	10N10W14-RS03	ROGER SWIFT	ROGER SWIFT	14	43 15'15"	85 27'34"
273	MI-KE-NE14-RS04	10N10W14-RS04	ROGER SWIFT	ROGER SWIFT	17	43 15'15"	85 27'16"
274	MI-KE-NE14-RS05	10N10W14-RS05	ROGER SWIFT	ROGER SWIFT	15	43 15'07"	85 27'32"
275	MI-KE-NE14-RS06	10N10W14-RS06	ROGER SWIFT	ROGER SWIFT	35	43 15'07"	85 27'16"
276	MI-KE-AP10-RC01	08N12W10-RC01	RON CORDES	STEVE VAN OEFFELEN	40	43 65'33"	85 43'20"
277	MI-KE-AP10-RC02	08N12W10-RC02	RON CORDES	STEVE VAN OEFFELEN	11	43 05'43"	85 43'21"
278	MI-KE-OA19-RP01	09N09W19-RP01	RON PORTER	RON PORTER	73	43 09'00"	85 25'10"
279	MI-KE-OA19-RP02	09N09W19-RP02	RON PORTER	RON PORTER	50	43 09'02"	85 24'51"
280	MI-KE-OA30-RP03	09N09W30-RP03	RON PORTER	RON PORTER	76	43 08'44"	85 25'10"
281	MI-NE-EN01-RM01	11N11W01-RM01	RONALD MCMICHAEL	KIM HACKBARDT	68	43 22'34"	85 34'42"

Field No.	Synagro ID	MDEQ ID	Owner	Operator	Acres	Lat	Long
282	MI-KE-SO17-RR01	10N11W17-RR01	ROSS ROY ENTERPRISES	BRIAN ABBOTT	53	43 15'32"	85 38'50"
283	MI-KE-CO24-RH01	09N10W24-RH01	ROYCE HAMMER	CHUCK PORTER	35	43 20'47"	85 35'40"
284	MI-KE-CN35-RL01	08N10W35-RL01	RUSSELL LOCK	RONALD THOMET	40	43 01'47"	85 28'02"
285	MI-KE-SO16-SD01	10N11W16-SD01	SABLE DEV., INC.	GARY JOHNSON	69	43 15'11"	85 37'26"
286	MI-KE-GT29-SJ01	08N09W29-SJ01	SALLY JELTMA	JOSEPH SEIF	90	43 02'45"	85 24'14"
287	MI-KE-NE06-SP01	10N10W06-SP01	SANDRA PATIN	ANTHONY PATIN	40	43 16'57"	85 32'42"
288	MI-KE-SO01-SP02	10N11W01-SP02	SANDRA PATIN	ANTHONY PATIN	23	43 17'03"	85 33'13"
289	MI-ML-PI27-SH01	11N10W27-SH01	SCOTT HAYDEN	SCOTT HAYDEN	23	43 18'39"	85 29'26"
290	MI-BA-IR32-SM02	04N09W32-SM02	SCOTT MCKEOWN	SCOTT MCKEOWN	70	42 41'00"	85 25'30"
291	MI-BA-IR32-SM03	04N09W32-SM03	SCOTT MCKEOWN	SCOTT MCKEOWN	80	42 41'00"	85 24'15"
292	MI-KE-CA31-ST01	05N10W31-ST01	SHIRLEY TOLAN	JIM TOLAN	48.4	42 46'18"	85 31'46"
293	MI-OW-CH34-SW01	09N13W34-SW01	SHIRLEY WILTENBURG	JACK BOLTON BOLTON FARMS	11	43 07'55"	85 49'58"
294	MI-OW-CH34-SW02	09N13W34-SW02	SHIRLEY WILTENBURG	JACK BOLTON BOLTON FARMS	50	43 07'45"	85 49'52"
295	MI-AL-LT22-AN02	04N11W22-AN02	SIMEON MAIER	SIMEON MAIER	65	42 36'35"	85 35'45"
296	MI-AL-LT22-SM05	04N11W22-SM05	SIMEON MAIER	SIMEON MAIER	37	42 43'20"	85 35'25"
297	MI-KE-GA21-SM01	05N11W21-SM01	SIMEON MAIER	SIMEON MAIER	75	42 48'30"	85 37'03"
298	MI-KE-GA21-SM09	05N11W21-SM09	SIMEON MAIER	SIMEON MAIER	27	42 48'00"	85 37'35"
299	MI-KE-GA21-SM10	05N11W21-SM10	SIMEON MAIER	SIMEON MAIER	44	42 48'37"	85 36'46"
300	MI-KE-GA28-SM08	05N11W28-SM08	SIMEON MAIER	SIMEON MAIER	40	52 47'80"	85 37'10"
301	MI-KE-GA29-SM03	05N11W29-SM03	SIMEON MAIER	SIMEON MAIER	35	42 48'00"	85 37'06"
302	MI-KE-GA33-SM06	05N11W33-SM06	SIMON MAIER	SIMON MAIER	16	42 46'27"	85 36'57"
303	MI-KE-GA01-SC01	05N11W01-SC01	STEELCASE	JOE KWIATKOWSKI	75	42 50'37"	85 33'20"
304	MI-KE-GA01-SC02	05N11W01-SC02	STEELCASE	JOE KWIATKOWSKI	70	42 50'45"	85 32'59"
305	MI-KE-GA12-SC03	05N11W12-SC03	STEELCASE	JOE KWIATKOWSKI	125	42 50'14"	85 33'03"
306	MI-KE-GA12-SC04	05N11W12-SC04	STEELCASE	JOE KWIATKOWSKI	100	42 50'10"	85 33'39"
307	MI-KE-GA12-SC05	05N11W12-SC05	STEELCASE	JOE KWIATKOWSKI	130	42 49'47"	85 33'32"
308	MI-KE-GA12-SC06	05N11W12-SC06	STEELCASE	JOE KWIATKOWSKI	132	42 49'50"	85 33'04"
309	MI-KE-OA29-ST01	09N09W29-ST01	STEPHEN TOWER	CHUCK PORTER	49	43 08'31"	85 23'52"
310	MI-BA-CA13-SD01	04N08W13-SD01	STEVE DE GROOTE	STEVE DE GROOTE	62	42 43'55"	85 12'20"
311	MI-BA-CA13-SD02	04N08W13-SD02	STEVE DE GROOTE	STEVE DE GROOTE	77	42 43'42"	85 12'20"
312	MI-BA-CA13-SD03	04N08W13-SD03	STEVE DE GROOTE	STEVE DE GROOTE	18	42 43'55"	85 11'57"
313	MI-BA-CA21-SD02	04N08W21-SD02	STEVE DE GROOTE	STEVE DE GROOTE	44	42 43'27"	85 15'12"
314	MI-KE-VE03-SK01	07N09W03-SK01	STEVE KONING	STEVE KONING	18	43 01'38"	85 21'49"
315	MI-AL-WY15-SM01	03N11W15-SM01	STEVE MISAK	PATRICK RAKOWSKI	40	42 38'48"	85 35'54"
316	MI-KE-BO10-SS02	05N09W10-SS02	STEVE SCHUTTE	STEVE SCHUTTE	105	42 50'26"	85 21'55"
317	MI-KE-BO19-SS01	05N09W19-SS01	STEVE SCHUTTE	STEVE SCHUTTE	58	42 48'03"	85 25'14"
318	MI-ML-MV17-SS01	11N09W17-SS01	STEVE SMITH	JERRY DAVIS	103	43 20'32"	85 25'14"
319	MI-KE-NE08-SM01	10N10W08-SM01	STEVEN MCCLURKEN	ROBERT JOHNSON	22	43 15'58"	85 31'28"
320	MI-KE-NE08-SM02	10N10W08-SM02	STEVEN MCCLURKEN	ROBERT JOHNSON	29	43 16'10"	85 31'08"
321	MI-KE-GT08-SR01	08N09W08-SR01	SUZANNE RODTS	DENNIS HEFFRON	25	43 05'55"	85 24'06"
322	MI-KE-GA32-TH01	05N11W32-TH01	TERRY HALLORAN	BILL SEIF	30	42 46'53"	85 37'36"
323	MI-ML-PI23-TB01	11N10W23-TB01	THOMAS BICKEL	THOMAS BICKEL	34	43 19'31"	85 28'49"
324	MI-KE-NE33-TN01	10N10W33-TN01	THOMAS NOREAN	THOMAS NOREAN	34.5	43 12'45"	85 29'44"
325	MI-KE-GA25-TT01	05N11W25-TT01	THOMAS TOLAN	BRUCE ROGERS	30	42 47'22"	85 32'53"
326	MI-KE-VE07-TH01	07N09W07-TH01	TIM HOWARD	TIM HOWARD	17	43 00'42"	85 24'52"
327	MI-KE-VE07-TH02	07N09W07-TH02	TIM HOWARD	TIM HOWARD	60	43 00'19"	85 24'46"
328	MI-KE-VE08-TH03	07N09W08-TH03	TIM HOWARD	TIM HOWARD	7.3	43 00'35"	85 24'32"
329	MI-KE-VE08-PH01	07N09W08-PH01	TIM,MAT&PAT HOWARD	TIM HOWARD	40	43 00'51"	85 24'29"
330	MI-ML-PI01-TA01	11N10W01-TA01	TIMOTHY ALLES	TIMOTHY ALLES	48	43 22'11"	85 26'46"
331	MI-AL-LT23-TB01	04N11W23-TB01	TODD BRINK	TODD BRINK	35	42 43'23"	85 34'56"
332	MI-AL-WY14-TS01	03N11W14-TS01	TOM STRIGLE	TOM STRIGLE	16	42 39'00"	85 34'41"
333	MI-AL-WY14-TS02	03N11W14-TS02	TOM STRIGLE	TOM STRIGLE	12	42 38'49"	85 34'34"
334	MI-KE-CO35-MT01	09N10W35-MT01	TROY TROYANOWSKI	RON PORTER	16	43 07'50"	85 27'07"
335	MI-BA-YS18-VL16	03N10W18-VL16	VERN LETTINGA	PAUL LETTINGA	50	42 38'39"	85 31'54"
336	MI-BA-YS18-VL19	03N10W18-VL19	VERN LETTINGA	PAUL LETTINGA	30	42 38'24"	85 32'09"
337	MI-BA-YS18-VL20	03N10W18-VL20	VERN LETTINGA	PAUL LETTINGA	36	42 38'25"	85 32'05"
338	MI-MU-RA13-WG01	09N14W13-WG01	WALTER GREYBOWSKI	BRIAN ABBOTT	50	43 09'53"	85 55'14"
339	MI-AL-HO11-WK04	03N12W11-WK04	WALTER KLAWITER	WALTER KLAWITER	33	42 39'29"	85 41'08"
340	MI-AL-HO12-WK01	03N12W12-WK01	WALTER KLAWITER	WALTER KLAWITER	75	42 40'00"	85 40'45"
341	MI-AL-HO12-WK03	03N12W12-WK03	WALTER KLAWITER	WALTER KLAWITER	28	42 39'28"	85 40'52"
342	MI-AL-HO14-WK02	03N12W14-WK02	WALTER KLAWITER	WALTER KLAWITER	34	42 39'02"	85 41'20"
343	MI-BA-TH06-WL01	04N10W06-WL01	WANDA LEITH	RON NICKELS	78	42 45'48"	85 32'30"
344	MI-ML-MV07-WG04	11N09W07-WG04	WAYNE GRASSLEY	WAYNE GRASSLEY	135	43 21'48"	85 26'21"
345	MI-KE-NE15-WP01	10N10W15-WP01	WENDELL PARKER	CHARLES MCKEE	37	43 15'18"	85 28'26"
346	MI-KE-CO26-WH01	09N10W26-WH01	WESLEY F. HESSLER	CHUCK PORTER	74	43 08'42"	85 28'03"
347	MI-KE-CS35-WT01	06N10W35-WT01	WESLEY TOLAN	WESLEY TOLAN	13	42 51'28"	85 26'59"
348	MI-KE-CS35-WT02	06N10W35-WT02	WESLEY TOLAN	WESLEY TOLAN	7.8	42 51'27"	85 27'28"
349	MI-KE-CO36-WC01	09N10W36-WC01	WILLAIM CUTLER	CHUCK PORTER	109	43 07'06"	85 26'45"
350	MI-KE-BO19-WC01	05N09W19-WC01	WILLIAM CUSHMAN	RUDULPH SCHUTTE	64	42 48'31"	85 25'18"
351	MI-KE-CO36-WC02	09N10W36-WC02	WILLIAM CUTLER	CHUCK PORTER	49	43 06'52"	85 26'75"
352	MI-KE-CA24-WH01	05N10W24-WH01	WILLIAM HOWARD	SIMON HOEKSMA	39	42 48'36"	85 26'10"
353	MI-KE-CA24-WH02	05N10W24-WH02	WILLIAM HOWARD	SIMON HOEKSMA	37	42 48'00"	85 26'08"
354	MI-KE-CA25-WH01	05N10W25-WH01	WILLIAM HOWARD	SIMON HOEKSMA	30	42 47'20"	85 26'08"
355	MI-KE-CA25-WH02	05N10W25-WH02	WILLIAM HOWARD	SIMON HOEKSMA	30	42 47'09"	85 26'04"
356	MI-BA-RU06-WJ01	03N09W06-WJ01	WILLIAM JOHNSON	WILLIAM JOHNSON	6	42 40'05"	85 25'15"
357	MI-BA-TH25-WS03	BA-TH25-WS03	WILLIAM SEIF	WILLIAM SEIF	62	42 42'39"	85 26'00"