Minnesota Pollution Control Agency

520 Lafayette Road North | St. Paul, Minnesota 55155-4194 | 651-296-6300

800-657-3864 | Use your preferred relay service | info.pca@state.mn.us | Equal Opportunity Employer

May 9, 2016

Robert D. Skanse, President
Douglas Corporation
9650 Valley View Road
Eden Prairie, MN 55344

RE: Executed Schedule of Compliance

Dear Mr. Skanse:

Enclosed is your signed copy of the executed Schedule of Compliance (Schedule) that was signed by the Minnesota Pollution Control Agency (MPCA) Commissioner or his designee. The date upon which the Schedule was executed by the Commissioner of his designee is the effective date of the Schedule.

Douglas Corporation (Regulated Party) is reminded that specific corrective actions need to be completed within specified timeframes as outlined in the Regulated Party Requirements part of the Schedule.

As indicated in the Schedule, all communications between the Regulated Party and the MPCA concerning the terms and conditions of the Schedule shall be directed to the MPCA Case Contact, Scot Sokola at 651-757-2744 or scot.sokola@state.mn.us.

Thank you for your cooperation in this matter.

Sincerely,

Scot R. Sokola

This document has been electronically signed.

Scot R. Sokola
Environmental Specialist 4
Water Section
Industrial Division

SS:map

Enclosure: Schedule of Compliance and Attachments

cc: Max Kieley, Attorney General's Office (w/enclosure)
Beverly Conerton, MPCA Legal Services (w/enclosure)
Paul Scheirer, MPCA (w/enclosure)
John Elling, MPCA (w/enclosure)
Activity ID PEN20160001 @ 606

STATE OF MINNESOTA
MINNESOTA POLLUTION CONTROL AGENCY

IN THE MATTER OF: **SCHEDULE OF COMPLIANCE**
Douglas Corporation

Part 1. ***PARTIES.*** This Schedule of Compliance ("Schedule") applies to and is binding upon the following parties:

a. Douglas Corporation ("Regulated Party"); and

b. The Minnesota Pollution Control Agency ("MPCA").

Unless specified otherwise in this Schedule, where this Schedule identifies actions to be taken by the MPCA, the Commissioner or the Commissioner's designees shall act on the MPCA's behalf.

Part 2. ***PURPOSE AND SCOPE OF SCHEDULE OF COMPLIANCE.*** The purpose of this Schedule is to resolve the alleged violations set out in Part 6 of this Schedule by specifying actions the Regulated Party agrees to undertake. By entering into this Schedule, the Regulated Party is settling a disputed matter between itself and the MPCA and does not admit that the alleged violations set out in Part 6 of this Schedule occurred. However, the Regulated Party agrees that the MPCA may rely upon the alleged violations set out in Part 6 as provided in Part 10 of this Schedule. Except for the purposes of implementing and enforcing this Schedule, nothing in this Schedule constitutes an admission by either Party, or creates rights, substantive or procedural, that can be asserted or enforced with respect to any claim of or legal action brought by a person who is not a party to this Schedule.

Part 3. ***AUTHORITY.*** This Schedule is entered under the authority vested in the MPCA by Minnesota Statutes Chapters 115 and 116.

Part 4. ***DEFINITIONS.*** Unless otherwise explicitly stated, the definitions in Minnesota Statutes Chapters 115, 115A, 115B, 115C, 116, 116B and in Minnesota Rules Chapters 7000 to 7151 apply, as appropriate, to the terms used in this Schedule.

Part 5. ***BACKGROUND.*** The following is the background of this Schedule:

a. The Regulated Party is a Minnesota corporation that operates a plating facility located at 3520 Xenwood Avenue South, St. Louis Park, Minnesota (the "Facility"). Historically, the Facility has conducted chrome plating on plastic utilizing plating solutions containing perfluorochemicals ("PFCs").

b. PFCs are a class of organofluorine compounds that have been used to make products that resist heat, oil, stains, grease and water. The chemical structures of PFCs make them extremely resistant to breakdown in the environment. PFCs include, but are not limited to, perfluorooctane sulfate ("PFOS"), perfluorooctanic acid ("PFOA"), and perfluorobutanoic acid ("PFBA").

c. The Regulated Party is a Large Quantity Generator of hazardous waste at the Facility.

d. In the fall of 2008 and the fall of 2009, MPCA staff conducted stormwater sampling as part of an investigation of sources of PFCs in Lake Calhoun. High concentrations of PFOS and other PFCs were detected in stormwater samples in a section of the storm sewer adjacent to the Facility.

e. On February 4, 2010, MPCA staff inspected the Facility and took samples of snow on the roof of the Facility near a vent pipe from the plating operation. At the inspection, the Regulated Party verified that some of the plating solutions used at the Facility contained PFCs.

f. On February 25 and 26, 2010, the MPCA discussed the results of the sampling with the Regulated Party.

g. On March 2, 2010, MPCA staff re-inspected the Facility and took stormwater samples from the roof of the Facility. MPCA staff also hand delivered to the Regulated Party a letter requiring the Regulated Party to take action to ensure that PFC-contaminated stormwater from the Facility's roof would not continue to be discharged to the storm sewer. The letter also notified the Regulated Party that replacement of the roof may be necessary to address the continued PFC discharge to stormwater.

h. Since February 2010, the Regulated Party has taken certain actions at the Facility to address the PFC stormwater discharge, including closing off the vent from the plating operation to the roof, replacing the roof, replacing the plating baths that contained PFCs, and periodic sampling of its stormwater.

i. On October 5, 2010, the MPCA took sediment and water samples of the City of St. Louis Park's stormwater pond that receives stormwater discharges from the Facility and which drains into Bass Lake and Lake Calhoun. On February 20, 2015, the Regulated Party took additional sediment and water samples from the stormwater pond.

j. In September/October 2010, the MPCA took sediment and water samples in Bass Lake. On January 21 and 29, 2014 and February 13, 2014, the Regulated Party took additional sediment and water samples in Bass Lake.

k. The Regulated Party has conducted a limited investigation of soil and groundwater contamination at and from the Facility.

l. On November 19, 2012, the MPCA sent the Regulated Party a Notice of Violation that contained alleged violations found during the February 4 and March 2, 2010 MPCA inspections.

m. In early November 2014, the Regulated Party determined that condensate in the roof vent from the sludge dryer was contaminated with PFOS. In response to this determination, the Regulated Party installed a roof cap, condensate drain, and dryer vent enclosure. Since Novemeber 10, 2014, condensate coming from the sludge dryer vent has drained back into a collection container inside the Facility and is processed through the Regulated Party's wastewater treatment system.

Part 5A. ***STATEMENT OF THE REGULATED PARTY.*** The MPCA and the Regulated Party have disputed and continue to dispute the jurisdiction of MPCA under the Minnesota Environmental Response and Liability Act, Minn. Stat. §§ 115B.01 to 115B.20 ("MERLA") with respect to releases and threatened releases of PFCs at the Facility. The MPCA asserts that all jurisdictional prerequisites necessary to act under MERLA with respect to releases and threatened releases of certain PFCs at the Facility have been met. The Regulated Party disagrees with MPCA's assertion and specifically denies that releases of PFCs at the Facility constitute hazardous substances or pollutants or contaminants as those terms are defined in MERLA. The Regulated Party further affirmatively asserts that releases and threatened releases of PFCs at the Facility do not constitute hazardous substances or pollutants or contaminants as defined in MERLA.

Part 6. ***ALLEGED VIOLATIONS.*** The MPCA alleges that the Regulated Party has violated the following requirements of statute, rule and/or permit condition:

a. **Minn. R. 7050.0210, GENERAL STANDARDS FOR WATERS OF THE STATE.**

> Subp. 2. **Nuisance conditions prohibited.** No sewage, industrial waste, or other wastes shall be discharged from either point or nonpoint sources into any waters of the state so as to cause any nuisance conditions, such as the presence of significant amounts of floating solids, scum, visible oil film, excessive suspended solids, material discoloration, obnoxious odors, gas ebullition, deleterious sludge deposits, undesirable slimes or fungus growths, aquatic habitat degradation, excessive growths of aquatic plants, or other offensive or harmful effects.
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> Subp. 13. **Pollution prohibited**. No sewage, industrial waste, or other wastes shall be discharged from either a point or a nonpoint source into the waters of the state in such quantity or in such manner alone or in combination with other substances as to cause pollution as defined by law. In any case where the waters of the state into which sewage, industrial waste, or other waste effluents discharge are assigned different standards than the waters of the state into which the receiving waters flow, the standards applicable to the waters into which the sewage, industrial waste or other wastes discharged shall be supplemented by the following:
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> The quality of any waters of the state receiving sewage, industrial waste, or other waste effluents shall be such that no violation of the standards of any waters of the state in any other class shall occur by reason of the discharge of the sewage, industrial waste, or other waste effluents

The Regulated Party discharged stormwater contaminated with PFOS from the Facility into the municipal stormwater system that drains into Bass Lake and Lake Calhoun, which are waters of the State. On February 4, 2010, MPCA staff observed yellow droplets in the snow surrounding the roof vents from the chromic acid etch tanks. At the time of the inspection, MPCA staff took samples of the yellow snow, and the sample results confirmed the presence of PFOS in concentrations up to 28,200,000 nanograms per Liter (ng/L). On March 2, 2010, MPCA staff took samples of snow melt from the roof, and the sample results confirmed the presence of PFOS in concentrations up to 8,900,000 ng/L. On August 10, 2010, MPCA staff sampled stormwater from the roof, and the sample results confirmed the continued presence of PFOS in concentrations up to 410,000 ng/L. Sampling by the Regulated Party on September 15, 2010, October 12, 2011, May 25, 2012, March 13,2013, September 28, 2013, April 28, 2014, August 29, 2014, and October 1, 2014, and by MPCA staff on November 4, 2013, confirmed the continued presence of PFOS in the stormwater from the Facility:

September 15, 2010	PFOS in concentrations up to 73,300 ng/L
October 12, 2011	PFOS in concentrations up to 220,000 ng/L
May 25 2012	PFOS in concentrations up to 33,000 ng/L
March 13, 2013	PFOS in concentrations up to 8,550 ng/L
September 28, 2013	PFOS in concentrations up to 298,000 ng/L
November 4, 2013	PFOS in concentrations up to 75,200 ng/L
April, 28 2014	PFOS in concentrations up to 39,800 ng/L
August 29, 2014	PFOS in concentrations up to 98,400 ng/L
October 1, 2014	PFOS in concentrations up to 19,200 ng/L
April 9, 2015	PFOS in concentrations up to 34,600 ng/L
July 6, 2015	PFOS in concentrations up to 10,400 ng/L
October 24, 2015	PFOS in concentrations up to 19,500 ng/L
November 17, 2015	PFOS in concentrations up to 9,370 ng/L
February 18, 2016	PFOS in concentrations up to 33,400 ng/L

The Regulated Party's discharge of PFOS-contaminated stormwater to the municipal stormwater system, which drains to Bass Lake and Lake Calhoun, has resulted in pollution of Bass Lake and Lake Calhoun. In addition, Lake Calhoun is listed as impaired water under Section 303(d) of the federal Clean Water Act for PFOS, and the water quality criteria for Lake Calhoun is 11ng/L for PFOS. The Minnesota Department of Health ("MDH") has also issued a fish consumption advisory for certain fish caught in Lake Calhoun because of the presence of PFOS in fish.

b. **Minn. R. 7060.0600, STANDARDS.**

> Subp. 2. **Prohibition against discharge into unsaturated zone.** No sewage, industrial waste, other waste, or other pollutants shall be allowed to be discharged to the unsaturated zone or deposited in such place, manner, or quantity that the effluent or residue therefrom, upon reaching the water table, may actually or potentially preclude or limit the use of the underground waters as a potable water supply, nor shall any such discharge or deposit be allowed which may pollute the underground waters. All such possible sources of pollutants shall be monitored at the discharger's expense as directed by the agency.

The Regulated Party discharged stormwater contaminated with PFOS into the unsaturated zone (soil). On February 4, 2010, MPCA staff observed yellow droplets in the snow surrounding the roof vents from the chromic acid etch tanks. At the time of the inspection, MPCA staff took samples of the yellow snow, and the sample results confirmed the presence of PFOS in concentrations up to 28,200,000 ng/L. On March 2, 2010, MPCA staff took samples of snow melt from the roof, and the sample results confirmed the presence of PFOS in concentrations up to 8,900,000 ng/L. One roof drain and downspout discharges to an asphalt alley along the southern end of the Facility. At the time of the MPCA sampling, there was a large crack in the

asphalt directly below the downspout and roof drain, which allowed PFOS-contaminated stormwater to be discharged into the unsaturated zone (soil).

On August 10, 2010, MPCA staff sampled stormwater from the roof, and the sample results confirmed the continued presence of PFOS in concentrations up to 410,000 ng/L. Sampling by the Regulated Party on September 15, 2010, October 12, 2011, May 25, 2012, March 13, 2013, September 28, 2013, April 28, 2014, August 29, 2014, and October 1, 2014, and by MPCA staff on November 4, 2013, confirmed the continued presence of PFOS in the stormwater from the Facility:

September 15, 2010	PFOS in concentrations up to 73,300 ng/L
October 12, 2011	PFOS in concentrations up to 220,000 ng/L
May 25, 2012	PFOS in concentrations up to 33,000 ng/L
March 13, 2013	PFOS in concentrations up to 8,550 ng/L
September 28, 2013	PFOS in concentrations up to 298,000 ng/L
November, 4, 2013	PFOS in concentrations up to 75,200 ng/L
April 28, 2014	PFOS in concentrations up to 39,800 ng/L
August 29, 2014	PFOS in concentrations up to 98,400 ng/L
October, 1, 2014	PFOS in concentrations up to 19,200 ng/L
April 9, 2015	PFOS in concentrations up to 34,600 ng/L
July 6, 2015	PFOS in concentrations up to 10,400 ng/L
October 24, 2015	PFOS in concentrations up to 19,500 ng/L
November 17, 2015	PFOS in concentrations up to 9,370 ng/L
February 18, 2016	PFOS in concentrations up to 33,400 ng/L

Sampling of groundwater by the Regulated Party on May 7, 2012, indicated that the release of PFOS in the unsaturated zone (soil) at the Facility has contaminated groundwater above the MDH's Health Risk Limit ("HRL") for drinking water. PFOS has been detected in groundwater at the Facility as high as 540 micrograms per liter (µg/l). The MDH's HRL for PFOS is 0.3 µg/l.

c. **Minn. R. 7045.0275, MANAGEMENT OF HAZARDOUS WASTE SPILLS.**

> Subp. 3. **Spills; duty to recover.** Any person who generates a hazardous waste that spills, leaks, or otherwise escapes from a container, tank, or other containment system, including its associated piping, shall recover the hazardous waste as rapidly and as thoroughly as possible and shall immediately take other action as may be reasonably possible to protect human life and health and minimize or abate pollution of the water, air, or land resources of the state.

On February 4, 2010, the Regulated Party failed to recover as rapidly and as thoroughly as possible a spill of hazardous waste plating solution (D002 and D007) into the trench of the P-O-P plating line. On March 2, 2010, MPCA staff documented that the spill had been recovered.

d. **Minn. R. 7045.0292, subp. 1.G. [ACCUMULATION OF HAZARDOUS WASTE; Large Quantity Generator], which references Minn. R. 7045.0566, PREPAREDNESS AND PREVENTION.**

> Subp. 2. **Operation of facility.** Facilities must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or nonsudden release to air, land, or water of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

The Regulated Party failed to maintain and operate the Facility to minimize the possibility of an unplanned release to air, land or water of hazardous waste constituents which could threaten human health or the environment. On February 4, 2010, MPCA staff observed droplets of yellow snow surrounding the roof vents from the chromic acid etch tanks. On March 2, 2010, MPCA staff took samples of snow melt from the roof, and the sample results confirmed the presence of chromium at 3.6 mg/L. On May 7, 2012, the Regulated Party collected groundwater samples at the Facility, which detected chromium in the groundwater as high as 19,100 µg/l. Chromium is a hazardous waste constituent under Minn. R. 7045.0141, subp. 1, which incorporates 40 C.F.R. Part 261, Appendix VIII and a hazardous waste under Minn. Rule 7045.0131, subp. 8.

e. **Minn. R. 7045.0292, subp 1.B.(2) [ACCUMULATION OF HAZARDOUS WASTE; Large Quantity Generator], which references Minn. R. 7045.0628, TANK SYSTEMS.**

> Subp. 2 **Assessment of existing tank system's integrity. The following requirements apply to existing tanks:**
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> A. For each existing tank system that does not have secondary containment meeting the requirements of subpart 4, the owner or operator must determine whether the tank system is leaking or is unfit for use. Except as provided in item C, the owner or operator must obtain and keep on file at the facility a written assessment reviewed and certified by an independent, qualified, registered professional engineer that attests to the tank system's integrity. The certification must include the statements in parts 7001.0070 and 7001.0540.
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> B This assessment must determine that the tank system is adequately designed and has sufficient structural strength and compatibility with the waste to be stored or treated to ensure that it will not collapse, rupture, or fail. This assessment must consider the following:
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> (1) design standards, if available, according to which the tank and ancillary equipment were constructed;

(2) hazardous characteristics of the waste that has been or will be handled;

(3) existing corrosion protection measures;

(4) documented age of the tank system, if available, otherwise, an estimate of the age; and

(5) results of a leak test, internal inspection, or other tank integrity examination. For nonenterable underground, inground, or onground tanks, this assessment must consist of a leak test that is capable of taking into account the effects of temperature variations, tank end deflection, vapor pockets, and high water table effects. For other than nonenterable underground, inground, or onground tanks and for ancillary equipment, this assessment must be either a leak test, as described above, or an internal inspection and/or other tank integrity examination certified by an independent, qualified, registered professional engineer, that addresses cracks, leaks, corrosion, and erosion. The certification must include the statements in parts 7001.0070 and 7001.0540.

Subp. 4. **Containment and detection of releases.**

A. In order to prevent the release of hazardous waste or hazardous constituents to the environment, secondary containment that meets the requirements of this part must be provided, except as provided in item H.

Subp. 7. **Inspections.**

A. The owner or operator must inspect, where present, at least once each operating day:

(1) overfill or spill control equipment such as waste feed cutoff systems, bypass systems, and drainage systems to ensure that it is in good working order;

(2) the aboveground portions of the tank system, if any, to detect corrosion or releases of waste;

(3) data gathered from monitoring equipment and leak detection equipment, such as pressure and temperature gauges or monitoring wells, to ensure that the tank system is being

operated according to its design; and the construction materials and the area immediately surrounding the externally accessible portion of the tank system, including secondary containment structures such as dikes, to detect erosion or signs of releases of hazardous waste such as wet spots or dead vegetation.

On February 4, 2010, the MPCA determined that the Regulated Party was improperly storing hazardous waste (D002 and D007 waste) in a floor drainage trench, which meets the definition of a tank in Minn. R. 7045.0020, subp. 90. The floor drainage trench, located in the chemical storage area, was used to store rinsate generated after cleaning chemical containers. Employees of the Regulated Party informed MPCA staff that they would empty the floor drainage trench when it was full, which happened weekly in most cases. The Regulated Party did not complete a tank assessment prior to storing hazardous waste in the floor drainage trench, nor did the Regulated Party meet all of the tank requirements, including performing daily inspections.

Part 7. ***REGULATED PARTY REQUIREMENTS.*** The Regulated Party agrees to the following requirements:

a. Stormwater Action Plan:

(1) Postmarked within 6 months after the Effective Date of this Schedule, the Regulated Party shall submit to the MPCA for review and approval, a Stormwater Action Plan (Stormwater Plan). The Stormwater Plan shall provide a detailed description of the technology to be used for the installation of either: (a) a system that will eliminate the discharge of stormwater from the Regulated Party's roof to the ground and that currently goes into the city of St. Louis Park's stormwater collection system; or b) a stormwater treatment system that will treat stormwater from the roof so that the stormwater after treatment is at a PFOS concentration that is less than the PFOS water quality criteria for Lake Calhoun ("stormwater treatment system"). The Stormwater Plan must include (where applicable) identifying system equipment, as built drawings, diagrams, system plans and specifications, and operational and maintenance procedures, including a schedule for sampling to verify the effectiveness of the treatment system. The Stormwater Plan shall also include a schedule for implementation and completion in accordance with the time requirement in Part 7.a (3) below. If the Regulated Party decides to pursue the design of a stormwater treatment

system, it shall hire one or more qualified consultant(s) to assist with the design, testing, and implementation of the stormwater treatment system. If the Regulated Party changes consultants, it must notify the MPCA in writing within 5 days of making such a change and explain the reason(s) for the change. For each consultant that the Regulated Party uses for completing this requirement, the Regulated Party shall submit to the MPCA in writing the name of the consultant and a detailed description of the consultant's education, experience, and qualifications to design, test, and implement the stormwater treatment system.

(2) If the Stormwater Plan is disapproved by the MPCA in whole or in part, the MPCA shall notify the Regulated Party in writing of the specific inadequacies and indicate the necessary amendments or revisions. Within 30 calendar days after receiving MPCA's comments, the Regulated Party shall submit a revised Stormwater Plan that addresses MPCA's comments. After MPCA approval of the Stormwater Plan, the Regulated Party shall immediately begin to implement the Stormwater Plan.

(3) Within 2 years after the Effective Date of this Schedule, the Regulated Party shall complete installation and shall initiate operation of either of the following MPCA approved systems: (a) a system that will eliminate the discharge of stormwater from the Regulated Party's roof to the ground and that currently goes into the city of St. Louis Park's stormwater collection system; or b) a stormwater treatment system that will treat stormwater from the roof so that the stormwater after treatment is at a concentration that is less than the PFOS water quality criteria for Lake Calhoun.

b. Stormwater Monitoring. The Regulated Party shall conduct stormwater monitoring in accordance with the requirements of Attachment A, the Stormwater Roof Discharge Monitoring. Attachment A is appended hereto and made an integral and enforceable part of the Schedule. The Regulated Party may discontinue this monitoring under any the following conditions:

(1) All requirements in Attachment A have been completed; or

(2) The Regulated Party has completed the installation and is operating a stormwater system that permanently eliminates the discharge of stormwater from its roof to the ground and the city of St. Louis Park's stormwater collection system; or

(3) The Regulated Party has completed the installation of and is operating a roof stormwater treatment system, and the discharge from this system has had 3 consecutive quarterly PFOS monitoring results that are less than the water quality criteria for Lake Calhoun.

c. Stormwater Pond Monitoring. The Regulated Party shall within 90 calendar days after the Effective Date of this Schedule, and every 6 months thereafter, sample the water in the stormwater pond located at 5580 35th Avenue South, St. Louis Park, Minnesota (Stormwater Pond). The Regulated Party shall analyze these samples for PFCs, at a minimum, for the parameters listed in Part 7.f. The Regulated Party shall submit to the MPCA a copy of the laboratory report for the results of these samples within 7 calendar days of the Regulated Party's receipt of the report.

d. Stormwater Pond Cleanout. The Regulated Party shall cleanout the sediment from the Stormwater Pond within 1 year after (1) completing the installation of the Regulated Party's roof stormwater discharge elimination system or (2) completing the installation of the roof stormwater treatment system and showing that the stormwater discharge concentration is below the PFOS water quality criteria for Lake Calhoun. 30 days prior to cleanout of the sediment in the Stormwater Pond, the Regulated Party shall submit to the MPCA for review and approval a Stormwater Pond Cleanout Plan that describes how the Regulated Party will cleanout the sediment and where the sediment will be disposed. The Regulated Party shall obtain access for cleanout of the Stormwater Pond. If sampling of the water in the Stormwater Pond shows that the concentrations of PFOS in the the water are below the water quality criteria for Lake Calhoun at the time when the Stormwater Pond cleanout is required under this Schedule, the Regulated Party may submit to the MPCA for review and approval a written request to eliminate the requirement to cleanout the Stormwater Pond. The Regulated Party

must provide a detailed description of it's rational for not cleaning out the pond, and submit copies of all documentation to support the Regulated Party's request, including copies of the Stormwater Pond water sample results.

e. Groundwater Investigation, Monitoring and Remediation.

(1). The Regulated Party shall complete groundwater Remedial Investigation ("RI") as described in Attachment B, Feasibility Study ("FS") and, if necessary, Remedial Design/Response Action ("RD/RA") activities in order to determine the extent and magnitude of groundwater contamination, evaluate possible alternative response actions for contaminated groundwater, and if necessary, implement groundwater response actions. MPCA's process for evaluating the extent and magnitude of groundwater contamination, evaluating possible remedial technologies for contaminated groundwater, selecting a remedy if necessary, and overseeing the implementation of any selected remedy shall follow the MPCA's process for implementation of response actions under the Minnesota Environmental Response and Liability Act, Minn. Stat. §§ 115B.01 to 115B.20 ("MERLA"), which is attached hereto as Exhibits 1 and 2 to Attachment B and made a part hereof. Exhibits 1 and 2 are attached only for the purpose of describing the MERLA process. The actual scope of the groundwater investigation and monitoring for the RI is set forth in Attachment B.

(2). Postmarked within 60 calendar days after the Effective Date of this Schedule, the Regulated Party shall submit to the MPCA for review and approval a revised Groundwater Investigation and Monitoring Plan to define the extent and magnitude of groundwater contamination. The Groundwater Investigation and Monitoring Plan shall be considered the work plan for the groundwater RI. The Groundwater Investigation and Monitoring Plan shall contain, at a minimum, the elements described in Attachment B and a schedule for implementation. Upon MPCA approval of the Groundwater Investigation and Monitoring Plan, the Regulated Party shall immediately implement the approved Groundwater Investigation and Monitoring Plan within the time schedule in the plan.

(3). The Regulated Party shall submit to the MPCA for review and approval an RI Report summarizing the information gathered in the Groundwater Investigation and

Monitoring Plan to assist the MPCA to determine whether the extent and magnitude of the groundwater contamination plume has been defined, whether the plume has been defined, whether the contamination in groundwater is either stable or decreasing, and to evaluate the potential risk to human health or the environment.

(4). If after receiving the RI Report the MPCA determines that additional groundwater investigation and/or monitoring is needed to define the extent and magnitude of contamination and/or that groundwater remediation is necessary to protect public health, welfare or the environment, the MPCA will notify the Regulated Party in writing. Within 60 calendar days after receipt of notification from the MPCA of the need for additional groundwater investigation and/or monitoring, the Regulated Party shall submit to the MPCA for review and approval a work plan for undertaking additional groundwater investigation and monitoring. The work plan shall contain a schedule for implementation of the additional groundwater investigation and monitoring and submittal of a report to the MPCA for review and approval. The Regulated Party shall implement the work plan within the schedule in the work plan.

(5) If after receiving the RI report the MPCA determines that an FS is appropriate to evaluate response actions, the Regulated Party shall within 60 calendar days after receipt of notification from the MPCA submit to the MPCA for review and approval an FS Work Plan. The FS Work Plan shall contain a schedule for preparation and submission of an FS and FS report. The Regulated Party shall implement the FS Work Plan and submit an FS report to the MPCA for review and approval within the time schedule in the FS Work Plan.

(6) After MPCA approval of the FS report, the MPCA shall select a remedy based on the remedy selection criteria. If the MPCA selects a remedy, the Regulated Party shall submit an RD/RA Work Plan to the MPCA for review and approval within 60 days after MPCA notification of the remedy to the Regulated Party. The RD/RA Work Plan shall contain a schedule for implementation of the remedy selected. The Regulated Party shall implement the remedy within the time schedule in the work plan.

(7) Within 60 days after completion of the remedy in the RD/RA Work Plan, the Regulated Party shall submit to the MPCA for review and approval an RA Implementation Report.

f. PFC Sampling. All samples collected under this Schedule for PFCs shall, at a minimum, be analyzed for the following parameters: PFOS, PFOA, PFHxS, PFBA, and PFBS.

g. Filing of an Environmental Covenant and Easement. Within 30 days after the Effective Date of this Schedule, the Regulated Party shall submit to the MPCA for review and approval a draft Environmental Covenant. The Environmental Covenant shall be in the form of the environmental covenant found at **https://www.pca.state.mn.us/sites/default/files/c-rem4-03.doc** and shall contain the following use and activity limitations and affirmative obligations: (1) the use of the Facility property shall be limited to commercial or industrial land uses; (2) there shall be no extraction or pumping of groundwater from beneath the Facility Property and no installation of any water supply wells, trenches or drains which could be used to extract such groundwater; (3) the owner of the Facility property shall maintain the integrity of pavement, building floors and vegetative cover at the Property to prevent infiltration of precipitation and/or human exposure to residual contamination on the Property; and (4) if the building on the Facility property is removed, the owner of the Facility Property shall sample the soil beneath the property to determine the scope and extent of contamination. Within 30 calendar days after MPCA approval of the draft Environmental Covenant, the Regulated Party shall file the Environmental Covenant with the Hennepin County Recorder's Office against the property on which the Facility is located and provide proof of filing or a copy of the filed Environmental Covenant to the MPCA.

h. Plan Implementation and Revisions. The Regulated Party shall implement the plans required in Part 7 or otherwise required by this Schedule until the Regulated Party has received written notification from the MPCA that the requirements have been completed. If the MPCA determines that an increase in the frequency of sampling or monitoring in Part 7.b or 7.c is necessary to protect public health or welfare or the environment, the MPCA will notify the

Regulated Party. Within 30 calendar days after receipt of notification, the Regulated Party shall submit to the MPCA for review and approval a revised plan that addresses MPCA's notification and includes a time schedule for implementation. Upon MPCA approval of the revised plan, the Regulated Party shall immediately implement the approved plan.

i. Submittals. All plans, Attachments, submittals, schedules, implementation and completion dates, and other approvals that are approved by the MPCA in writing under this Schedule shall become an integral and enforceable part of this Schedule.

j. Water Quality Standards or Criteria for PFCs. For purposes of Parts 7.a through 7.d, all standards or criteria for PFCs required to be met under this Schedule shall be the most current Minnesota water quality standards or criteria. If Minnesota water quality standards or criteria for PFCs are changed during this Schedule, the Regulated Party shall comply with the most current PFC standards or criteria.

Part 8. *PENALTIES FOR VIOLATIONS OF THIS SCHEDULE.*

a. If the Regulated Party fails to comply with requirements of Part 7 of this Schedule, the Regulated Party shall pay to the MPCA a penalty in the amount of $500 per requirement for each day of failure.

b. Penalties for failure to comply with requirements of Part 7 of this Schedule shall accrue from the date the Regulated Party was to have fulfilled the requirement until the Regulated Party fulfills the requirement. Penalties shall not accrue while the MPCA considers a timely extension request under Part 13 or during dispute resolution under Part 11, unless the MPCA determines that the Regulated Party filed the request or initiated dispute resolution solely for purposes of delay. If the Regulated Party does not pursue dispute resolution under Part 11 for denial of a timely extension request, penalties shall accrue from the date the extension request is denied by the MPCA Case Contact. If the Regulated Party pursues dispute resolution for denial of an extension request and does not file a timely challenge in a court of competent jurisdiction as provided by Part 11, penalties shall accrue from the date of a Commissioner's dispute resolution decision against the Regulated Party until the Regulated Party fulfills the requirement that is the subject of the extension request.

c. The Regulated Party shall pay a penalty under this Part within 30 days after receiving written notice from the MPCA that the penalty is due. The written notice shall specify the provision of the Schedule that the Regulated Party has not fulfilled and indicate the date penalties began to accrue. If the Regulated Party fails to make timely payment, the MPCA may assess and the Regulated Party agrees to pay a late payment charge, in addition to the stipulated penalty, to be assessed as follows. Forty-five days after receipt of written notice, the Regulated Party shall be obligated to pay a late charge in an amount equal to ten percent of the unpaid stipulated penalty. Sixty days after receipt of written notice, the Regulated Party shall be obligated to pay an additional late charge in an amount equal to twenty percent of the unpaid stipulated penalty.

d. In dispute resolution before the Commissioner under Part 11, the Regulated Party can contest the factual basis for the MPCA's determination that the Regulated Party has not fulfilled a requirement of this Schedule covered by this Part. However, the Regulated Party waives its right to challenge, on legal grounds, the requirement that it pay penalties under this Part.

e. The Regulated Party shall not be liable for payment of penalties for failure to comply with requirements of Part 7 of this Schedule covered by this Part if it has submitted to the MPCA a timely request for an extension of schedule under Part 13 and the MPCA has granted the request. The MPCA's grant of an extension of schedule waives the payment of penalties covered by this Part only on the requirements for which the MPCA granted an extension of schedule and only for the time period specified by the MPCA in the grant of an extension. An extension of schedule for one requirement of Part 7 does not extend the schedule for any other requirement of Part 7.

f. Any requirement of this Schedule may be enforced as provided in Minn. Stat. § 115.071. Payment of a stipulated penalty does not relieve the Regulated Party of its obligation to fulfill and complete requirements under the Schedule and to otherwise comply with the terms and conditions of the Schedule.

Part 9. ***COVENANT NOT TO SUE AND RESERVATION OF REMEDIES.*** With respect to the Regulated Party, the MPCA agrees not to exercise any administrative, legal or equitable

remedies available to the MPCA to address the violations alleged and described in Part 6 and in the MPCA Notice of Violation dated November 19, 2012, issued to the Regulated Party as long as the Regulated Party performs according to and has complied with the terms and conditions contained in this Schedule. The MPCA reserves the right to enforce this Schedule or take any action authorized by law, if the Regulated Party fails to comply with the terms and conditions of this Schedule.

Further, the MPCA reserves the right to seek to enjoin violations of this Schedule and to exercise its emergency powers pursuant to Minn. Stat. § 116.11 in the event conditions or the Regulated Party's conduct warrant such action. Nothing in this Schedule shall prevent the MPCA from exercising these rights and nothing in this Schedule constitutes a waiver of these rights. The MPCA reserves the right to pursue recovery for Natural Resources Damages pursuant to Minn. Stat. § 115.071, Minn. Stat. § 115B.08 or other laws. Nothing in this Schedule shall prevent the MPCA from exercising these rights and nothing in this Schedule constitutes a waiver of these rights.

The Regulated Party agrees to waive all claims it may now have, as of the Effective Date of this Schedule, under Minn. Stat. § 15.472 for fees and expenses arising out of matters leading up to and addressed in this Schedule.

Part 10. ***REPEAT VIOLATIONS.*** Federal and state environmental programs establish harsher penalties for violations of environmental laws or rules that constitute repeat violations. In a proceeding to resolve alleged violations by the Regulated Party, if any, occurring after the date of the alleged violations set out in Part 6 of this Schedule, the Regulated Party may argue about the extent to which the violations alleged in Part 6 of this Schedule should affect the penalty amount for the later violations, but waives the right: (1) to contend that the violations alleged in Part 6 of this Schedule did not occur as alleged and (2) to require the MPCA to prove the violations alleged in Part 6 of this Schedule.

Part 11. ***RESOLUTION OF DISPUTES.*** The parties to this Schedule shall resolve disputes that arise as to any part of the Schedule as follows:

a. Either party, acting through its Case Contact (as defined in Part 14 below), may initiate dispute resolution by providing to the Case Contact of the other party an initial written

statement setting forth the matter in dispute, the position of the party, and the information the party is relying upon to support its position.

The other party, acting through its Case Contact, shall provide a written statement of its position and supporting information to the case contact of the initiating party within 14 calendar days after receipt of the initial written statement.

b. If the parties, acting through their Case Contacts, do not reach a resolution of the dispute and reduce such resolution to writing in a form agreed upon by the parties within 21 calendar days after the initiating party receives the statement of position from the responding party, the Commissioner shall issue a written decision resolving the dispute. The written decision may address stipulated penalties assessed pursuant to Part 8. The Commissioner's decision shall be considered a final decision of the MPCA for purposes of judicial review.

c. The Commissioner's decision shall become an integral and enforceable part of this Schedule unless the Regulated Party timely challenges the decision in a court of competent jurisdiction. Failure to timely challenge means the Regulated Party agrees to comply with the MPCA Commissioner's decision on the matter in dispute and to pay any penalties that accrue pursuant to Part 8 for failure to fulfill requirements of this Schedule that are the subject of the dispute resolution. Further, if the Commissioner's decision assesses penalties pursuant to Part 8 of this Schedule, the Regulated Party agrees to and shall pay the amount of penalty determined by the Commissioner within 60 days after receiving the Commissioner's decision.

d. Throughout any dispute resolution, the Regulated Party shall comply with all portions of the Schedule that the MPCA determines are not in dispute.

Part 12. ***VENUE.*** Actions brought by the MPCA to enforce requirements and terms of this Schedule shall be venued in Ramsey County District Court.

Part 13. ***EXTENSION OF SCHEDULES.*** If the Regulated Party wants an extension of a deadline included in a schedule set out in Part 7, the Regulated Party must request the extension in writing at least ten days before the scheduled deadline, or as soon as possible before that date if the reason for the extension request arises less than ten days before the deadline.

Each deadline extension request shall separately specify the reason why the extension is needed. No requested extension shall be effective until approved in writing by the MPCA, acting through the MPCA Case Contact or the Commissioner.

The MPCA shall grant an extension only for the period of time the MPCA determines is reasonable under the circumstances. The written approval or grant of an extension request shall be considered an enforceable part of the Schedule.

The Regulated Party has the burden of demonstrating to the satisfaction of the MPCA that the request for the extension is timely, and that good cause exists for granting the extension. Good cause can include, but is not limited to, the following:

a. Circumstances beyond the reasonable control of the Regulated Party.

b. Delays caused by the MPCA in reviewing timely submittals required by this Schedule, the Regulated Party submitted in complete and approvable form, which make it not feasible for the Regulated Party to meet the required schedules.

Good cause does not include unanticipated costs, increases in the cost of control equipment, or delays in MPCA review of submittals when the submittals are not in complete and approvable form.

The Regulated Party may challenge a decision by the MPCA to deny a request for an extension under Part 11.

Part 14. ***CASE CONTACT.*** The MPCA and the Regulated Party shall each designate a Case Contact for the purpose of overseeing the implementation of this Schedule. The MPCA Case Contact is Scot Sokola. The Regulated Party's Case Contact is John Fudala. Either party may change its designated Case Contact by notifying the other party in writing, within five days of the change. To the extent possible, communications between the Regulated Party and the MPCA concerning the terms and conditions of this Schedule shall be directed through the Case Contacts. The address and telephone number of the MPCA's Case Contact is: 520 Lafayette Road North, St. Paul, MN 55155, 651-757-2744. The address and telephone number of the Regulated Party's Case Contact is: 3520 Xenwood Avenue South, St. Louis Park, MN, 55416. Regulated Party phone number is 952-941-2944.

Part 15. ***REGULATED PARTY INFORMATION.*** The Regulated Party shall not knowingly make any false statement, representation or certification in any record, report, plan or other document filed or required to be submitted to the MPCA under this Schedule. The Regulated Party shall immediately, upon discovery, report to the MPCA any errors in such record, report, plan or other document.

Part 16. ***REVIEW OF SUBMITTALS.*** The MPCA, acting through its Commissioner, Case Contact, or other designated MPCA staff, shall review all submittals made by the Regulated Party as required by this Schedule and shall notify the Regulated Party in writing of the approval or disapproval of each submittal, if applicable. The MPCA and the Regulated Party shall consult with each other upon the request of either party during the review of submittals or modifications. If any submittal is disapproved in whole or in part, the MPCA Commissioner or designated MPCA staff shall notify the Regulated Party of the specific inadequacies and shall indicate the necessary amendments or reviews. Within 30 calendar days after receipt of any notice of disapproval, the Regulated Party shall submit revisions and take actions to correct the inadequacies.

Part 17. ***ACCESS.*** During the term of this Schedule, the Regulated Party agrees to provide the MPCA and its staff access to the Facility (which includes both the building and property on which the building is located) and its records and documents related to the implementation of this Schedule to the extent provided under Minn. Stat. § 116.091 or other law, conditioned only upon the presentation of credentials.

Part 18. ***SAMPLING AND DATA AVAILABILITY.*** The Regulated Party shall make available to the MPCA the results of any sampling, tests, or other data generated by the Regulated Party, or on its behalf, to implement the requirements of this Schedule. The MPCA likewise reserves the right to take any samples at the Facility.

Part 19. ***RETENTION OF RECORDS.*** The Regulated Party shall retain in its possession all records, documents, reports and data related to this Schedule.

The Regulated Party shall preserve these records, documents, reports and data for a minimum of three years after the termination of this Schedule despite any document retention

policy of the Regulated Party to the contrary, and shall promptly make all such documentation available for review upon request by the MPCA.

Part 20. ***APPLICABLE LAWS AND PERMITS.*** The Regulated Party shall undertake all actions required to be taken pursuant to this Schedule in accordance with the requirements of all applicable state and federal laws and regulations. Except when the MPCA has specified and authorized a different compliance method in Part 7, the Regulated Party must also comply with all applicable permits, orders, stipulation Schedules and schedules of compliance. Nothing in this Schedule exempts or relieves the Regulated Party of its obligation to comply with local governmental requirements.

Part 21. ***OTHER CLAIMS.*** Nothing herein shall release the Regulated Party from any claims, causes of action or demands in law or equity by any person, firm, partnership or corporation not a signatory to this Schedule for any liability it may have arising out of or relating to the release of any pollutant or contaminant from its operations of the Facility. Neither the Regulated Party nor the MPCA shall be held as a party to any contract entered into by the other party to implement the requirements of this Schedule.

Part 22. ***HOLD HARMLESS AGREEMENT.*** The Regulated Party agrees to indemnify, save and hold the MPCA, its agents and employees harmless from any and all claims or causes of action arising from or on account of acts or omissions of the Regulated Party, its officers, employees, agents, or contractors in implementing the activities conducted pursuant to this Schedule; provided, however, that the Regulated Party shall not indemnify the MPCA or save or hold its employees and agents harmless from any claims or causes of action arising out of the acts or omissions of the MPCA, or its employees and agents.

When the Regulated Party is required to hold the MPCA harmless, the MPCA shall give the Regulated Party notice of any claim or cause of action subject to this Part and the Regulated Party has the right to participate in the defense against any claim or cause of action. No settlement shall be effective against the Regulated Party unless the Regulated Party agrees to the settlement. Nothing herein waives or modifies the provisions of the Minnesota Tort Claims Act, Minn. Stat. §§ 3.732, et seq., and other applicable law.

Part 23. ***SUCCESSORS, AGENTS AND CONTRACTORS.*** This Schedule shall be binding upon the Regulated Party and its successors and assigns and upon the MPCA, its successors and assigns. If the Regulated Party sells or otherwise conveys or assigns any of its right, title or interest in the Facility, the conveyance shall not release the Regulated Party from any obligation imposed by this Schedule, unless the party to whom the right, title or interest has been transferred or assigned agrees in writing to fulfill the obligations of this Schedule and the MPCA approves the transfer or assignment. The Regulated Party shall ensure that the Regulated Party's agents, contractors and subsidiaries comply with the terms and conditions of this Schedule.

Part 24. ***AMENDMENTS.*** Except with respect to extensions of schedules granted under Part 13 and approved submittals under Part 16, this Schedule may be amended only by written agreement between the parties.

Part 25. ***EFFECTIVE DATE.*** This Schedule shall be effective on the date it is signed by the MPCA.

Part 26. ***TERMINATION.*** The provisions of this Schedule shall be deemed satisfied and terminated when the Regulated Party receives written notice from the MPCA that the Regulated Party has demonstrated, to the satisfaction of the MPCA, that all terms of the Schedule have been completed.

BY THEIR SIGNATURES BELOW, THE UNDERSIGNED REPRESENT THAT THEY HAVE AUTHORITY TO BIND THE PARTIES THEY REPRESENT

DOUGLAS CORPORATION

By: Robert D Skanse

Name: Robert D Skanse

Title: President

Date: 4/28/16

STATE OF MINNESOTA
POLLUTION CONTROL AGENCY

By: Sarah Kilgriff

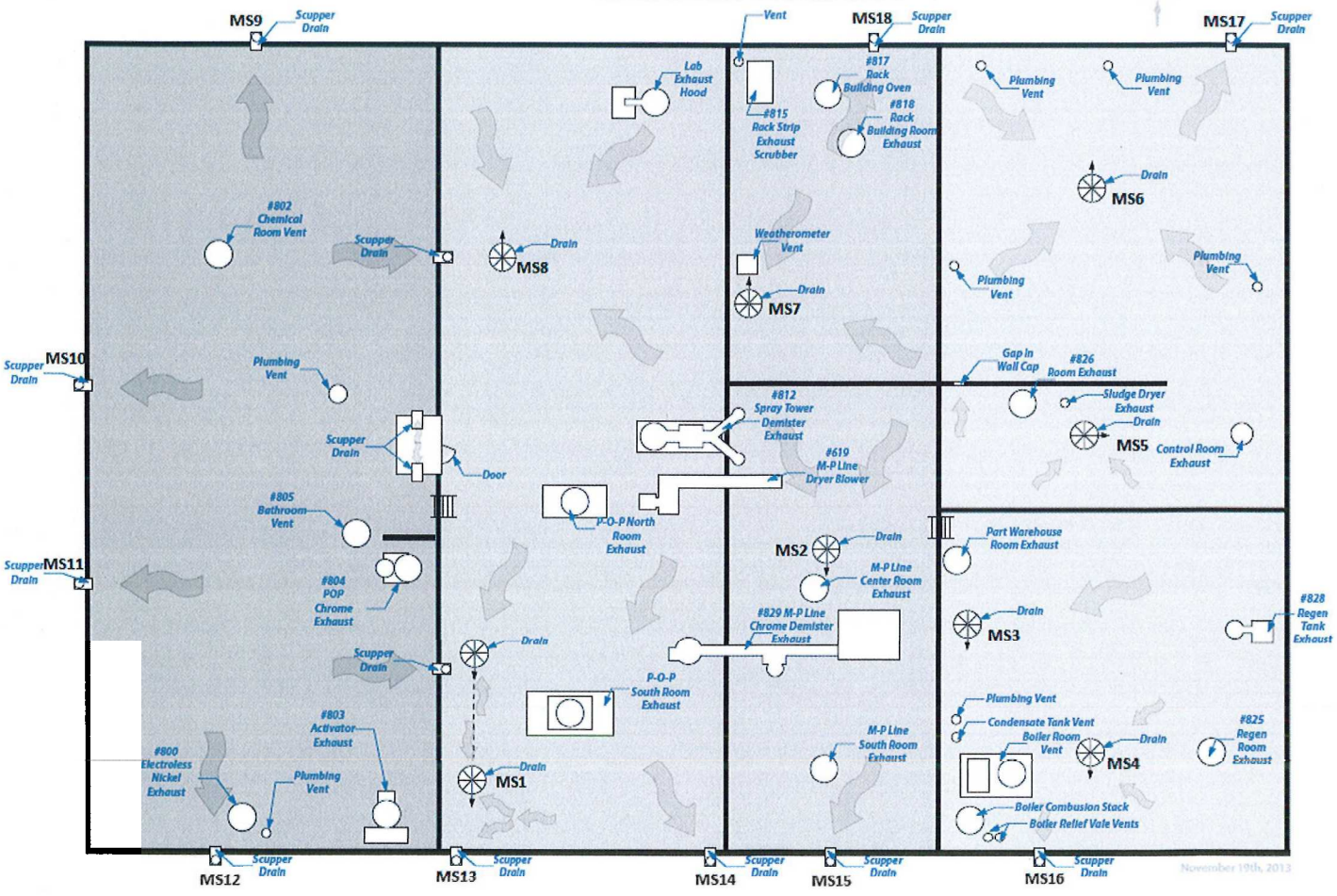
Sarah Kilgriff, Manager
Land and Air Compliance Section
Industrial Division

Date: 5/4/16

Figure 1

DOUGLAS CORPORATION

St. Louis Park • 3520 Xenwood Avenue South • St. Louis Park MN 55416



April 19, 2016

ATTACHMENT A
To Schedule of Compliance
Douglas Corporation
Stormwater Roof Discharge Monitoring

Douglas Corporation (Regulated Party) shall conduct sampling and analysis of samples for each monitoring station (MS) in accordance with Table 1 below and the requirements of this Attachment A. Part I describes in greater detail the stormwater monitoring requirements for each MS. Part II describes additional sampling, collection, analysis, and reporting requirements. Part III describes MPCA stormwater data trend analysis and the requirements for an Investigation Work Plan, if additional investigation is needed. Part IV describes the requirements for a Corrective Action Plan if needed.

Table 1

Parameter	Detection Limit	Sampling Frequency	Sample Location	Number of Samples	Sampling Method
PFOS	2.5 ng/L	*at least Quarterly	All MS with measureable discharge in accordance with the sampling requirement of this Attachment A	*1 sample for each quarter & a duplicate sample taken as required in Part II.A.2 below.	Grab or Composite, in accordance with the requirements of Attachment A

Each MS represents the discharge from a roof drain as shown in Figure 1, which is appended to and made a part of Attachment A and the Schedule of Compliance.

Monitoring Stations have been broken into two MS groups:

MS Group 1: the Regulated Party has stated that, based on past stormwater sampling, the monitoring stations in MS Group 1 consistently have sufficient flow from a rain or snowmelt event for quarterly monitoring to occur. MS Group 1 consists of: MS1, MS2, MS3, MS4, MS5, MS6, MS7, MS8, MS9, MS10, MS11, and MS12.

MS Group 2: the Regulated Party has stated that, based on past stormwater sampling, the frequency of discharge from monitoring stations in MS Group 2 would be rare, absent a large precipitation event, and that consistent quarterly monitoring would be difficult to achieve. MS Group 2 consists of: MS13, MS14, MS15, MS16, MS17, and MS18.

* Note: The Regulated Party may monitor Group 1 and 2 MS's more frequently than quarterly, and may monitor more than one MS at a time if it chooses to do so.

Part I. Stormwater Monitoring Requirements for MS Groups 1 and 2.

A. **The following stormwater monitoring requirements apply to MS Group 1 only.**

1. Monitoring shall be conducted in the following order: MS1, MS4, MS5, MS6, MS3, MS7, MS2, MS8, MS11, MS10, MS12, and MS9. The first monitoring will be at MS1. Monitoring will continue at MS1 until the concentration of PFOS in MS1 for three consecutive monitoring events have been less than the water quality (WQ) criteria, which is defined as the WQ criteria for PFOS for Lake Calhoun on the date of sample collection. Then, monitoring will move to the next MS. The assumption is that if PFOS levels decrease at monitoring stations that in the past have had higher PFOS levels, then the levels of PFOS at other monitoring stations will correspondingly decrease. The successive sampling at each of the monitoring stations is intended to confirm that the stormwater discharge from each of the monitoring stations is less than the WQ criteria.

2. When a MS has had three consecutive PFOS monitoring results that are less than the WQ criteria, the Regulated Party may submit a written request to the MPCA for termination of monitoring for that particular MS. The monitoring termination for the requested MS is considered effective on the date the Regulated Party receives written approval from the MPCA.

3. Once the Regulated Party has received written approval to terminate monitoring of a MS, the Regulated Party shall begin quarterly monitoring for the next MS in the order described in item I.A.1. above.

4. The Regulated Party shall repeat procedures described in I.A.1- A.3 until it has received termination approval in writing from the MPCA for all twelve monitoring stations.

B. **The follow requirements apply to MS Group 2 only.**

1. The Regulated Party shall inspect each MS for measureable discharge when collecting samples for any of the MS Group 1 stations, and during heavy precipitation events.

2. If any MS inspection shows sufficient discharge flow to collect a sample, the Regulated Party shall collect a sample.

3. When any MS has had three consecutive PFOS monitoring results that are less than the WQ criteria, the Regulated Party may submit a written request to the MPCA for termination of monitoring for that particular MS. The monitoring termination for the requested MS is considered effective on the date the Regulated Party receives written approval from the MPCA.

4. Once all MS Group 1 stations have had their monitoring terminated, the Regulated Party may submit a request to the MPCA to modify monitoring requirements for any of MS Group 2 stations that have not yet been terminated. The Regulated Party must submit a written request that describes in detail (including the use of monitoring data if available) why a modification should be approved by the MPCA.

Part II. Sample Collection, Analysis, and Reporting Requirements.

A. Sample Collection Requirements.

1. The Regulated Party shall collect the MS samples within the first half hour after a measureable stormwater discharge. A measurable stormwater discharge is one that has sufficient flow to collect a representative sample and to fill the sample container with a sufficient volume to facilitate laboratory analysis to be performed. Stormwater discharges include both precipitation and snowmelt events because both can produce measureable stormwater discharge. Both precipitation and snow melt must be sampled.

2. Duplicate samples must be taken during at least 1 of 4 monitoring quarters until the Regulated Party has received written approval from the MPCA to terminate monitoring at a particular MS. The duplicate quarterly sample must be taken contemporaneously with the required MS sample. The sample results will not be averaged for purposes of meeting the required less than the WQ criteria for PFOS concentration and must be reported as separate results.

3. If the Regulated Party is not able to collect a MS sample within the first half hour after the start of a measureable stormwater discharge, the Regulated Party shall collect the sample at the earliest possible time following the start of the precipitation/snowmelt discharge event. When a sample is not able to be collected in the first half hour, the Regulated Party shall record that information on the stormwater sample collection log required in Part II.A.8 below.

4. If the Regulated Party is not able to collect the required samples during a quarter, the Regulated Party shall (when possible) collect two samples of separate stormwater discharges during the following quarter. When samples are collected more than once in a given quarter, the samples must be collected at least 72 hours apart for MS Group1 and 48 hours apart for MS Group 2, or as otherwise approved in writing by the MPCA. Snowmelt is considered a stormwater discharge event applicable to required monitoring. These additional sample events are intended to make up for a missed sampling event and do not count for meeting the duplicate sampling required in Table 1 and Part II.A.2 above.

5. When the Regulated Party is not able to collect a sample, the Regulated Party shall record this on the stormwater sample collection log, required in Part II.A.8 below, and shall include an explanation of why the monitoring event was missed.

6. Unless the conditions for collecting a composite sample (see below) are met during a given precipitation/snowmelt discharge event, a single grab sample is the required sampling method.

7. Because some precipitation/snowmelt discharge events may only produce a small volume of water, it may be necessary in rare instances to collect composite samples in order to fill the sample bottle with the amount required to perform PFOS analysis. *Composite samples are only permissible when there are very low* discharge flows from the MS to be sampled or when there are light but prolonged precipitation/snowmelt conditions. Depending upon the characteristics of a given precipitation/snowmelt discharge event, it may be necessary to extend the time period for composite sample collection over a period of up to 48 hours from the beginning of the precipitation/snowmelt discharge event.

8. The Regulated Party shall record information related to each monitoring/sampling event in the Stormwater Sample Collection Log (Attachment A-1). The stormwater sample collection log shall be a running log (i.e., each sampling event must be recorded as it occurs and all previous sampling events must remain in the log and not be deleted). Information to be recorded shall include MS number, sample collection date(s), time at which precipitation event began, time of sample collection, whether the sample is a single grab or composite sample, a description of the procedure used if a composite sample was collected (e.g., how many subsamples were combined to make the composite, the date and time of collection of each subsample, etc.), description of the flow from the MS (e.g., fast, slow, trickle) at the time of sample collection, and an explanation for the reasons for any missed sampling events. The Regulated Party shall utilize a rain gauge to record amounts (in inches) of precipitation at each sampling event (including each subsample

collected for a composite sample). The rain gauge must be placed in an area where accurate measurements will be provided, emptied after each sample/subsample collection event, and must be maintained. The Regulated Party shall record its rain gauge precipitation amounts on the stormwater sample collection log (Attachment A-1).

B. Sample Analysis and Reporting Requirements.

1. The Regulated Party shall submit each collected sample to a laboratory certified by the Minnesota Department of Health for analysis of PFCs, or other laboratory approved in writing by the MPCA for analysis of PFCs. The Regulated Party shall comply with all laboratory sample collection, sample preservation, and holding time requirements.

2. Within 7 calendar days after the Regulated Party receives a laboratory report on the stormwater MS samples, the Regulated Party shall submit a copy of the full laboratory report, completed sample chain of custody form, and a completed stormwater sample collection log (Attachment A-1) to the MPCA.

Part III. Stormwater Statistical Trend Analysis; Investigation Work Plan.

A. The MPCA will periodically evaluate stormwater sample data to determine whether the levels of PFOS in the stormwater are trending upward or downward. The MPCA's statistical trend analysis will begin with data collected by the MPCA on November 4, 2013 and will include stormwater samples collected since that time (April 28, 2014, August 29, 2014, and October 1, 2014), samples collected after the October 1, 2014 sampling event, and samples collected under this Schedule of Compliance. Each evaluation will be cumulative and will including all samples taken from November 4, 2013 to the date of the most current statistical trend analysis.

B. If the MPCA's statistical trend analysis indicates a significant upward trend in stormwater PFOS concentrations, the Regulated Party will be notified in writing that it is required to investigate the cause for the upward trend in PFOS concentrations. Within 30 calendar days after receipt of MPCA's written notification, the Regulated Party shall submit an Investigation Work Plan (Investigation Plan) to the MPCA for review and approval. The Investigation Plan shall include steps that the Regulated Party will take to identify sources of PFOS to the stormwater, a time schedule for implementation of the Investigation Plan, including completion dates for the investigative work activities and submittal of a report to the MPCA describing the results, and recommendations of the investigation.

C. If the Investigation Plan is disapproved in whole or in part, the MPCA Commissioner or designated MPCA staff shall notify the Regulated Party in writing of the specific inadequacies and shall indicate the necessary amendments or revisions. Within 15 calendar days after receipt of any notice of disapproval, the Regulated Party shall submit to the MPCA for review and approval a revised Investigation Plan that corrects the inadequacies.

D. After MPCA approves the Investigation Plan, the Regulated Party shall implement the Investigation Plan in accordance with its time schedules.

Part IV. Corrective Action Plan.

A. Within 30 calendar days after completion of the work under the Investigation Plan, the Regulated Party shall submit a report to the MPCA identifying each of the sources of PFOS to any stormwater MS and a Corrective Action Plan containing steps that the Regulated Party will take to eliminate the PFOS sources. The Corrective Action Plan shall include time schedules for implementation, and completion for each corrective action and submittal of a report to the MPCA describing the implementation of the corrective actions.

B. If the Corrective Action Plan is disapproved in whole or in part, the MPCA Commissioner or designated MPCA staff shall notify the Regulated Party in writing of the specific inadequacies and shall indicate the necessary amendments or revisions. Within 15 calendar days after receipt of any notice of disapproval, the Regulated Party shall submit to the MPCA for review and approval a revised Corrective Action Plan that corrects the inadequacies.

C. After MPCA approves the Corrective Action Plan, the Regulated Party shall implement the Corrective Action Plan in accordance with its time schedules.

Attachment A-1 (included as part of Schedule of Compliance and Attachment A)

Stormwater Sample Collection Log

MS ID #	Sample Collection Date	Rain Gauge (inches) Grab Sample	Rain Gauge (inches) Composite subsamples	Precipitation Event Start Time	Sample Collection Time	Sample Type: Composite or Grab	If Composite enter time of each subsample	Number of Composite samples	Description of Flow Rate	Explanation for Missed Monitoring	Notes/Comments

EXHIBIT 2 TO ATTACHMENT B
Table of Contents

Exhibit B

REMEDIAL DESIGN AND RESPONSE ACTION IMPLEMENTATION

I. INTRODUCTION

Part III.B. of the Request for Response Action (RFRA), to which this Exhibit is appended, requests the Responsible Party (RP) to prepare a Remedial Design/Response Action Plan (RD/RA Plan) and implement Response Actions (RAs) at the Site. This Exhibit sets forth the requirements for preparing the RD/RA Plan and implementing the RAs, which have been selected by the Minnesota Pollution Control Agency (MPCA) Commissioner pursuant to Part IV.D. of Exhibit A to the RFRA, and is appended to and made an integral part of the RFRA.

II. RETAIN CONSULTANT

The RP shall retain a consultant qualified to undertake and complete the requirements of this Exhibit. If the RP retains the same consultant used to complete Exhibit A to the RFRA, the RP shall proceed immediately with preparation of the RD/RA Plan. If the RP chooses to retain a different consultant, the RP shall retain the consultant and notify the MPCA project manager of the name of that consultant within thirty (30) days of notification of approval of the FS Report by the MPCA Commissioner.

III. REMEDIAL DESIGN/RESPONSE ACTION PLAN

III.A. RD/RA Plan Submittal

Within sixty (60) days of notification of approval of the FS Report by the MPCA Commissioner, the RP shall prepare and submit to the MPCA Commissioner for review and approval a RD/RA Plan which shall be based on the approved RI/FS reports and the Record of Decision (ROD) issued by the MPCA Commissioner under Exhibit A to the RFRA.

III.B. RD/RA Plan Contents

The purpose of the RD/RA Plan is to provide a detailed design, an implementation schedule, and a monitoring plan for the RAs specified in the ROD which, upon implementation, will protect the public health and welfare, and the environment from the release or threatened release of hazardous substances, pollutants or contaminants, at or from the Site.

The RD/RA Plan shall set forth in detail the steps necessary to implement the Site remedy specified in ROD. The RD/RA Plan shall include a restatement of the response action objectives and cleanup levels specified in the ROD. The RD/RA Plan shall include, at a minimum, the following:

III.B.1. Remedial Design. The purpose of the remedial design is to specify detailed methods and time schedules for the implementation of the RAs specified in the ROD. This section shall include, at a minimum, the following elements:

- design criteria and rationale;
- a plan view drawing of the overall Site, showing general locations for response action components;
- technical and operational plans and engineering designs for implementation of the response action including plan and cross sectional views for the individual components to be installed or actions to be implemented;
- a description of the types of equipment to be employed, including capacity, size, and materials or construction;
- an operational description of process units or other RA components;
- process flow sheets, including process material (e.g., chemical or activated carbon) consumption rates, and a description of the process;
- a discussion of potential construction problems and respective contingency plans;
- a schedule for implementing the construction phase;
- a Site-specific hazardous waste transportation plan (if necessary);
- the identity of all contractors, transporters, or other persons conducting removal or response actions at the Site;
- a description of any permits or licenses required to implement the RA;
- a description of the post RA operation and maintenance procedures and schedules; and
- a description of activities to be undertaken by the RPs during RA implementation to fulfill the requirements of Part III, Sections C.1. (Project Management), C.3. (Sampling and Investigations), C.5. (Record Retention), C.8. (Site Security and Safety Plan), and C.9. (Community Relations) of Exhibit A to the RFRA as they pertain to the removal or response actions and operation and maintenance activities.

III.B.2. RA Monitoring Plan. The RD/RA Plan shall propose an RA monitoring plan for the Site. The purpose of post-RA implementation monitoring is to determine the status and effectiveness of the implemented RAs. The RA monitoring plan shall, at a minimum, contain the following in order to determine that the cleanup levels specified in the ROD are achieved:

III.B.2.a. Environmental Media and Analytical Parameter List. The environmental media (soil, ground water, surface water and air) and a corresponding list of analytes to be monitored shall be proposed, along with the selection rationale, and a corresponding list of chemical analytical methodologies (including EPA or Standard Method numbers and detection limits) to be performed.

III.B.2.b. Monitoring Facility Location and Design. The design and location of all monitoring facilities/locations shall be proposed.

III.B.2.c. Sampling Schedule. A sampling schedule for the analytical parameters proposed in the RA monitoring plan for all monitoring locations shall be proposed. Sampling shall, at a minimum, be conducted on a quarterly basis.

III.B.2.d. Reporting Plan. A schedule for reporting the results of long-term monitoring to the MPCA shall be proposed. The schedule shall, at a minimum, contain the following:

1. Quarterly Monitoring Reports. The RP shall submit analytical results to the MPCA Commissioner quarterly by 45 days following the sampling completed during the previous quarter.

2. Annual Monitoring Reports. The RP shall submit an Annual Monitoring Report to the MPCA Commissioner on or before January 1, 2002 and each January 1 thereafter. Any remedial technology employed in implementation of the RD/RA Plan shall be left in place and operated by the RP until the MPCA Commissioner authorizes the RP in writing to discontinue, move, or modify some or all of the remedial technology. The RP may request discontinuation of the remedial technologies in the annual report, when the cleanup levels set forth in the ROD have been achieved. The RP shall move or modify the remedial technology when the movement or modifications, as approved by the MPCA Commissioner, may better achieve the remedial action objectives set forth in the ROD.

The Annual Monitoring Report shall contain the following:

- a Site map showing all monitoring locations;
- the results of all parameter analyses for the previous year;
- the results of all water level measurements for the previous year;
- regional and Site specific ground water piezometric maps for each aquifer including surface water elevations;
- cross section(s) indicating relative communication between aquifers;
- a map for each sampling event showing each monitoring location with contaminant concentrations and isoconcentration lines for selected parameters;

- graphs and tables illustrating the concentrations over time using data from each sampling event (these graphs and tables shall be cumulative showing parameter analyses for all previous years as
- well as the reporting year); and

- a sampling plan for the next year with an assessment of the monitoring parameters, sampling frequencies, and the need for the addition or deletion of monitoring locations and parameters.

III.C. RD/RA Plan Implementation

Within thirty (30) days of the MPCA Commissioner approval of the RD/RA plan, the RP shall initiate the RA. The purpose of RA implementation is to take those actions that will protect public health and welfare, and the environment, from the release or threatened release of hazardous substances or pollutants or contaminants at or from the Site.

The RD/RA Plan, as approved or modified by the MPCA Commissioner shall be implemented in accordance with the time schedules set forth in Part III of the RFRA and Part III.B. of this Exhibit. The implementation of RAs shall be conducted in accordance with all applicable federal and state ARARs, and local laws, rules, regulations, and ordinances.

During implementation of the RD/RA Plan, the MPCA Commissioner may specify such additions and/or revisions to the RD/RA Plan as the Commissioner deems necessary to protect public health and welfare, and the environment.

III.D. RA Implementation Report

Within sixty (60) days of the completion of implementation of the RAs specified in the approved RD/RA Plan, a RA Implementation Report which includes the following elements, shall be submitted to the MPCA Commissioner:

- the data and results of the RA implementation;

- the follow-up actions, if any, to be taken in the following one-year period;

- a certification that all work plans, specifications, and schedules have been implemented and completed in accordance with the RD/RA Plan as approved or modified by the MPCA Commissioner;

- discussion of difficulties encountered during the implementation that may alter and/or impair or otherwise reduce the effectiveness of the RA implementation to prevent, eliminate, or minimize the release or threatened release of hazardous substances or pollutants or contaminants, at or from the Site, or which may require unanticipated operational or maintenance actions to maintain the effectiveness of any of the implemented RAs; and

- a discussion of any necessary modifications to the operation and maintenance procedures as approved.

IV. REPORT ON COMPLETION OF RA

Within sixty (60) days of notification, by the MPCA Commissioner, that all Site-specific Response Action Objectives and Cleanup Levels (Exhibit A, Part IV.A.) have been met, a Report on Completion of RA, which includes the following elements, shall be submitted to the MPCA Commissioner.

- a summary of the response action objectives and cleanup levels and a history of how they were met;
- certification that all RAs have been properly dismantled, including supporting documentation (e.g., monitoring well abandonment logs);
- a summary of any ongoing institutional controls (e.g., deed restrictions);
- a final cost summary.

V. MPCA COMMISSIONER ACTIONS

The RP shall submit to the MPCA Commissioner all plans, reports, or other documents (submittals) required by this Exhibit. The review and approval, approval with modifications and/or a request for additional information, or rejection of submittals shall be in accordance with this section and Part IV of the RFRA. The Site Safety and Security Plan does not require MPCA Commissioner approval.

V.A. Approval Of The RD/RA Plan, RA Implementation Report, And Report On Completion Of RA

The MPCA Commissioner shall review and approve, approve with modifications and/or a request for additional information, or reject the RD/RA Plan, RA Implementation Report, and the Report on Completion of RA based on the requirements of Parts III.B, III.D, and IV respectively. Modifications by the MPCA Commissioner are final.

If the MPCA Commissioner approves the RD/RA Plan, RA Implementation Report, or the Report on Completion of RA with a requirement to provide additional information, the Commissioner will: 1) specify the deficiencies in the RD/RA Plan, RA Implementation Report, or the Report on Completion of RA that necessitate the need for additional information; 2) provide direction to address the deficiencies; 3) specify the manner in which the RP shall document or otherwise convey the additional information; and 4) specify the time frame for submission or conveyance of the requested additional information.

If the MPCA Commissioner rejects the RD/RA Plan, RA Implementation Report, or the Report on Completion of RA, the Commissioner will: 1) specify the deficiencies in the RD/RA Plan, RA Implementation Report, or Completion of RA Report that necessitate the rejection; 2) provide direction to address the deficiencies; 3) specify the manner in which the RP shall document or otherwise convey the information necessary to correct the deficiencies; and 4) specify the time frame for submission or conveyance of the information necessary to correct the deficiencies.

EXHIBIT 1 TO ATTACHMENT B
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Exhibit A
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

I. INTRODUCTION, PURPOSE, AND REQUIREMENTS

I.A. Introduction

Part III.A of the Request for Response Action (RFRA), to which this Exhibit is appended, requests the Responsible Party (RP) to conduct a Remedial Investigation/ Feasibility Study (RI/FS) with respect to release(s) or threatened release(s) of hazardous substances or pollutants or contaminants at or from the Company site (Site). This Exhibit sets forth the requirements for completing the RI/FS and is appended to and made an integral part of the RFRA. Terms used in this Exhibit are defined in Attachment I to the RFRA.

I.B. Purpose

The purpose of conducting an RI/FS is to provide information necessary to enable the Minnesota Pollution Control Agency (MPCA) Commissioner to select a final remedy for the Site.

In order to arrive at remedy selection in the most expedient manner, the RI and FS activities will be conducted concurrently. The RI/FS Work Plan shall propose:

- the RI activities; and
- a list of possible technology types.

The RI Report shall:

- report the results of the RI; and
- document the development and screening of possible response action alternatives.

The FS Report shall present:

- the results of treatability studies; and
- the Detailed Analysis Report (DAR).

I.B.1. Remedial Investigation. The RI activities will (1) provide for the complete characterization of the release(s) or threatened release(s) of hazardous substances or pollutants or contaminants at or from the Site and the actual or potential hazard the release(s) or threatened release(s) pose to public health and welfare, and the environment; (2) produce sufficient data and information to allow the RP to submit the RI and FS reports (Part III.E and III.F); and (3) produce data of sufficient quantity and adequate technical content to assess the possible alternative response actions during the FS.

I.B.2. Feasibility Study. The FS activities consist of developing a list of technology types, development and screening of possible response action alternatives, preparing and conducting treatability studies, and conducting a detailed analysis of evaluated alternatives. The MPCA Commissioner will review the FS Report and select the final response action(s) using the Selection of Remedy Criteria set forth in Part IV.C. of this Exhibit.

I.C. Requirements

The RI/FS shall be conducted according to the provisions of this Exhibit The United States Environmental Protection Agency (EPA) Guidance for Conducting Remedial Investigations and Feasibility Studies under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (October 1988 Interim Final) will provide the RP with specific guidance for completing the actions required under this Exhibit to the extent that this guidance is consistent with the requirements of this Exhibit. The sampling and quality assurance activities (Part III.C.3) shall be consistent with the requirements of the EPA Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans (QAMS-005/80). Risk assessments (i.e., evaluation, quantitation, tabulation of results, and mechanics of presentation) performed under this Exhibit (Part III.C.6.) shall be based on appropriate MPCA requirements, U.S. EPA's "The Risk Assessment Guidelines of 1986" (EPA/600/8-87/045), "Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Pt. A, December 1989, Interim Final) and the EPA Risk Assessment Guidance for Superfund, Vol. 2, Environmental Evaluation Manual (March 1989, Interim Final).

At a minimum, the Site Security and Safety Plan (Part III.C.8) shall incorporate and be consistent with the requirements of:

- OSHA requirements 29 CFR Part 1910.120, Hazardous Waste Operations and Emergency Response.
- OSHA requirements 29 CFR Part 1910 (General Industry Standards) and 1926 (Construction Industry Standards).
- Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, NIOSH/OSHA/USCG/EPA, DHHS (NIOSH) Publication Number 85-115, October 1985.

As new versions or future revisions of the documents referenced in this section become available to the public, the latest version of each document shall supersede all previous versions of that document and shall be used for conducting the RI/FS.

II. RETAIN CONSULTANT

Within thirty (30) days of the effective date of the RFRA, the RP shall retain a consultant qualified to undertake and complete the requirements of this Exhibit and shall notify the MPCA Project Manager of the name of that consultant.

III. REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

III.A. RI/FS Objectives

The objectives of the RI/FS are to:

- identify all sources of contamination;
- evaluate the nature and extent of soil, sediment, surface water, ground water, and air contamination at the Site and in any adjacent areas affected by contamination at or from the Site;
- identify all existing and potential migration characteristics and pathways for the hazardous substances or pollutants or contaminants identified at the Site, including the direction, rate, and dispersion of contaminant migration;

- identify alternative response actions and evaluate the feasibility and effectiveness of implementing those alternative response actions to prevent, minimize, or eliminate release(s) or threatened release(s) of hazardous substances or pollutants or contaminants at or from the Site; and
- collect and evaluate the information necessary to prepare a remedial design/response action plan in accordance with Exhibit B to the RFRA.

III.B. RI/FS Work Plan Submittal

Within ninety (90) days of the effective date of the RFRA, the RP shall submit to the MPCA Commissioner for approval pursuant to Part IV.B. and IV.B.1. of this Exhibit, a proposed RI/FS Work Plan and implementation schedule which details all of the activities necessary to complete the RI/FS. The proposed RI/FS Work Plan shall be prepared to enable the RP to meet the RI/FS Objectives (Part III.A) and shall, at a minimum, address all of the elements described in the RI/FS Work Plan Contents (Part III.C.).

III.C. RI/FS Work Plan Contents

The proposed RI/FS Work Plan shall address, at a minimum, each of the following elements:

III.C.1. Project Management. A Project Management section of the RI/FS Work Plan shall describe how the RI/FS will be managed by the RP and its contractors, subcontractors, and consultants. This section shall include an organization chart with the names and titles of key personnel and a description of their individual responsibilities.

III.C.2. Background Evaluation. The RI/FS Work Plan shall include a Background Evaluation that includes these sections: Operational History, Topographic Survey, History of Site Assessment Work and Remedial or Removal Actions, and Identification of Data Gaps.

III.C.2.a. Operational History of The Site. This section shall include a detailed explanation of the operational history of the Site (i.e., all past facilities and a description of their specific operations), including history of property ownership boundaries, and pertinent area and boundary features of the Site. In addition, this section shall include the following detailed information related to the release(s) or threatened release(s) of hazardous substances or pollutants or contaminants at the Site:

- a list of the hazardous substances or pollutants or contaminants that have been stored, used, treated, or disposed of on-Site and their estimated volumes, concentrations, and characteristics;
- a description of what, where, when, how and by whom hazardous substances or pollutants or contaminants were released during the operation of all facilities of record at the Site (e.g., Provide an explanation of how the Site or a specific area became contaminated.);
- a description of contaminant source areas and facilities which release or threaten the release of hazardous substances or pollutants or contaminants to soil, sediment, surface water, ground water, or air;
- a Site map delineating each area where such hazardous substances or pollutants or contaminants were disposed, treated, stored, transferred, handled, or used;
- a description of all industrial processes which are or were related to the use or generation of each hazardous substance or pollutant or contaminant; and
- a description of past disposal practices for hazardous substances or pollutants or contaminants.

Any historical research needs that have not been met by file review may be met by conducting employee interviews, reviews of the RP's records, and aerial photograph investigations.

III.C.2.b. Topographic Survey. This section shall include a description of the general physiography of the Site and surrounding area and one (1) Site map using a one (1) inch = 1000 feet scale and ten (10) foot contour interval.

Additional maps for each identifiable contaminant source area shall be provided using a one (1) inch = 50 feet scale and a two (2) foot contour interval. Surface water features, drainage direction, buildings, process areas, storage tanks, well locations, forested areas, utilities, paved areas, easements, rights-of-way, pipelines (surface and subsurface), landfills, borrow pits, debris piles, raw material piles, and impoundments shall be shown. The maps shall be of sufficient detail and accuracy to locate all current or proposed future work at the Site.

III.C.2.c. History of Site Assessment Work and Remedial or Removal Actions. This section shall include a history of all previous investigation(s) and response action(s) conducted at the Site including:

- a detailed description of regional and local hydrogeology and geology based on published literature and available technical information. Cross Sections and maps shall be included. Include the type and extent of surface soils as presented in the Soil Conservation Service soil surveys;
- a summary of all soil, surface water, ground water, and air assessment work completed to date, including contaminant source area identification, data reduction and interpretation, and the QA/QC procedures which were followed;
- a description of the nature and extent of the release(s) and/or threatened release(s), including a summary of actual and potential on-Site and off-Site health and/or environmental effects; and
- a summary of any previous remedial or removal actions conducted at the Site. This summary shall include cleanup activities and any related field inspections, sampling surveys, or other related
- technical investigations.

III.C.2.d. Identification of Data Gaps. Gaps in information (data gaps) necessary to fulfill the RI/FS Objectives (Part III.A) shall be identified and recommendations shall be made for additional RI work necessary to meet the RI/FS Objectives and produce sufficient information to support the screening and detailed analysis of response action alternatives in the RI/FS. For each data gap identified, the RP shall provide a list and description of research and field activities necessary to address that data gap.

III.C.3. Sampling and Investigations. The RI/FS Work Plan shall propose activities and methodologies necessary to conduct the investigations specified in Parts III.C.3.c, d, e and f, III.C.6. and propose the plans specified in Parts III.C.3.a and b.

III.C.3.a. Sampling and Analysis Plan. A comprehensive sampling and analysis plan shall be proposed for the investigations required under Parts III.C.3.c, d, e, and f, and III.C.6 below. This plan shall include:

- objectives of the sampling investigation;
- criteria for sampling location selection;
- a map showing all locations that will be sampled;

- a description of the types of samples which will be collected;
- a description of the depth/frequency of sampling at each location;
- a proposed sampling schedule;
- identification of all chemical parameters to be analyzed (analytes), selection rationale, and a corresponding list of chemical analytical methodologies (including EPA or Standard Method numbers and detection limits) to be performed. Prior to determining a final analyte list, analytes of concern should be separated into carcinogens and non-carcinogens. In addition, representative ground water samples shall be analyzed to identify natural chemical constituents that may effect various treatment methods or that may identify upgradient sources of contamination;
- abiotic and biotic environmental sampling shall be proposed to complete the assessment process required under Part III.C.6. The technical specifications and procedures for soil sampling methods, drilling methods, borehole and surface geophysical methods, and monitoring well and piezometer installations. ASTM procedures shall be used and referenced where appropriate and available;
- provisions for obtaining access to and obtaining samples from the Site and other affected properties (where appropriate);
- a description of quality assurance/quality control procedures for the collection, identification, preservation, holding times, and transportation of samples; type and volume of sample containers;
- the calibration and maintenance of field instruments; decontamination of sampling equipment; and the processing, verification, storage, calculations and statistics, and reporting of field data including field chain-of-custody procedures, identification of qualified persons conducting the sampling, and identification of a laboratory meeting the requirements of Part III.C.3.b.; and
- a description of any computer models to be employed in data analysis. Model descriptions shall include capabilities and limitations, all assumptions or approximations that will be made in calibrating and using the model, specific objectives to be achieved with the model, and justification for use of the model method including a discussion of why the model is the preferred model or method for meeting the objectives stated in the RI/FS Work Plan. The quantities or values that are desired from the model that are not confirmed by direct measurement shall be identified and the sensitivity of the model results to input parameters discussed. All data and programming including any proprietary programs shall be made available to the MPCA staff upon request.

III.C.3.b. Laboratory QA/QC Plan. The RI/FS Work Plan shall include a laboratory QA/QC plan which shall consist of the following sections:

- identification of laboratories performing analysis;
- description of laboratory sample chain of custody procedures;
- description of calibration procedures and frequency;
- description of analytical standard operating procedures;
- description of data reduction, validation, and reporting procedures;
- description of internal quality control checks;
- description of performance and system audits;
- description of preventative maintenance procedures;
- description of specific procedures for routine assessment of data precision, accuracy, completeness, and any necessary corrective action; and
- description of quality assurance reports to management.

Refer to EPA QA/QC guidance, which is available through the internet, at http://es.epa.gov/ncerqa/qa/qa-docs/html

III.C.3.c. Geologic Investigation. This section of the RI/FS Work Plan shall provide a description of the proposed activities which will be undertaken to characterize the geology and contaminant distribution at the Site and other affected properties. The geologic investigation shall be conducted in areas of known and suspected disposal and in areas where ground water contamination exists and no known or suspected contaminant source area has been identified. This section shall include the following:

- a proposal to define the stratigraphy of the consolidated and unconsolidated deposits including the identification of high or low permeability lenses of material in the unsaturated (vadose) zone which may affect contaminant migration or the attenuation of contaminants. This proposal shall also include the extent and type of lithologies of respective consolidated units and unconsolidated materials including relative amounts of organic matter, gravel, sand, silt, and clay according to ASTM soils classification scheme or other acceptable standard procedures;
- proposed tests to define the physical and chemical properties which affect the movement or attenuation of contaminants in the stratigraphic units identified above. These properties include: density, organic matter content, cation exchange capacity, percent clay content, vertical hydraulic conductivity, total porosity, effective porosity, and adsorption potential (Kd). See the soil cleanup guidance for additional parameters.
- proposed methods to define the nature and extent of contamination in the vadose zone;
- a proposal to identify areas disturbed by excavations or other activities that may be routes of contaminant migration (e.g., buried pipes, utility corridors, fill areas, tank basins); and
- a proposal to identify ambient concentrations of analytes in the soil.

III.C.3.d. Hydrogeologic Investigation. This section of the proposed RI/FS Work Plan shall provide a description of activities to be undertaken to characterize the local and regional hydrogeology and the contaminant distribution in the ground water at the Site and other affected properties. This section shall include the following:

- a proposal to identify Quaternary (glacial) and bedrock aquifers, aquitards, and perched water zones;
- a proposal for the installation and development of ground water monitoring wells and/or piezometers or other devices needed to clearly define ground water flow conditions in the glacial and bedrock aquifers, aquitards, and perched water zones. All wells shall be surveyed to the National Geodetic Vertical Datum reference elevation, and procedures shall be specified for measuring water elevations in all wells to the nearest hundredth of a foot;
- a proposal for the installation of ground water monitoring wells which shall be used to define ground water quality upgradient, within, and downgradient of suspected and/or identified contaminant source areas and at the interface between ground water and surface water;
- a proposal for a ground water quality monitoring program to be conducted to define the nature and extent of ground water contamination at the Site and other affected properties. Municipal, industrial, agricultural, domestic and monitoring wells, and springs shall be considered for inclusion in the monitoring program. The monitoring program shall have a minimum frequency of quarterly sampling with water level measurements;
- proposed tests (e.g., slug and/or pumping tests to determine the hydraulic properties, including horizontal hydraulic conductivity and secondary porosity, of aquifers and aquitards at the Site and other affected properties) which shall define ground water flow relationships (directions, gradients, and velocities for both vertical and horizontal flow components) including potential aquifer interconnections, recharge areas, discharge

areas, and ground water interactions with surface water. In addition, this section shall propose how the flow relationships will be evaluated with respect to contaminant distribution and the potential future movement of contaminants;

- a proposal to define ground water use(s) and the potential effect water use(s) may have on contaminant movement in both horizontal and vertical directions. Include with this proposal an inventory map showing all active, unused, and abandoned municipal, industrial, agricultural, domestic and monitoring wells, and springs within a one mile radius of the Site, and of high capacity wells and municipal water supply wells within a three mile radius of the Site; and
- a description of visual aids which will be used to present, in the RI Report, the hydrogeologic and hydrogeochemical data gathered during the Hydrogeologic Investigation (e.g., cross sections, piezometric maps, isoconcentration maps, graphical methods, and tables).

III.C.3.e. Surface Water Investigation. This section of the RI/FS Work Plan shall identify all surface water bodies within a one mile radius of the Site including rivers, lakes, ponds, wetlands, bogs, calcareous fens, low-flow streams, creeks, springs, and named and unnamed ditches. Both perennial and intermittent surface water features shall be identified. A map showing the locations of all identified surface water bodies and the location of known or suspected releases of contaminants from the Site to surface water bodies shall be included. This section shall include a proposal to evaluate each surface water body identified, evaluate its potential to be impacted by Site contaminants through releases via ground water, surface run-off, drainage, airborne deposition, and other possible pathways. This proposal shall include a plan to identify the benthic sediments and benthic community conditions underlying surface water upgradient, adjacent to, and downgradient of the contaminant source area. In addition, methodologies shall be proposed to determine the mass loading of contaminants to the surface water bodies.

The water use classification for the identified surface water body or bodies, in accordance with Minnesota Rules Chapter 7050 and the wetlands classification in accordance with Minn. Stat. §§ 103G.005, subds. 15 and 18 and 103G.201 (1988), shall be included. Identification of the water use characteristics (e.g., agricultural, recreational, and private or municipal water supply) of the identified surface water bodies shall also be included.

III.C.3.f. Air Investigation. This section of the RI/FS Work Plan shall propose methodologies for investigations to determine the nature and extent of contaminants that are or may become airborne (e.g., vapors, gases, mists, or particulates) through either natural phenomenon or as a result of activities at the Site.

III.C.4. List of Possible Technology Types and Proposed Treatability Studies. The RI/FS Work Plan shall include a comprehensive list of technology types that may be applicable to the release(s) or threatened release(s) at or from the Site. This list shall be developed considering the Remedy Selection Criteria (Part IV.C.). This list shall include: 1) technology types that prevent or eliminate the release(s) or threatened release(s) by completely destroying, detoxifying, or immobilizing hazardous substances or pollutants or contaminants and leave materials on-Site that require no long-term management; 2) technology types that prevent or minimize the release(s) or threatened release(s) by treatment process options that reduce the toxicity, mobility, or volume of the hazardous substances or pollutants or contaminants; 3) technology types that control the threats posed by the release(s) or threatened release(s) of hazardous substances or pollutants or contaminants by containment; and 4) a general description of the treatability studies necessary to evaluate the

respective technology types identified under 1, 2 or 3 above. At a minimum, chemical oxidation/reduction treatability studies for soil and ground water shall be considered. In addition, excavation/treatment remedies for soils and permeable reactive barrier remedies for ground water shall be considered.

III.C.5. Record Retention. The RI/FS Work Plan shall provide a description of how the data obtained pursuant to this Exhibit will be managed and preserved by the RP in accordance with Part II.D of the RFRA.

III.C.6. Risk Assessment[1] . The RI/FS Work Plan shall provide a detailed description of activities that will be undertaken to conduct separate ecological and human health Baseline Risk Assessments. Ecological and human health Baseline Risk Assessments are evaluations of the actual and potential threat to public health and welfare, and the environment posed by the release(s) or threatened release(s) of hazardous substances or pollutants or contaminants, in the absence of any remedial action.

The risk assessment activities shall be conducted so as to generate the information necessary to meet the reporting requirements of the Baseline Risk Assessment as specified in Part III.E.2.

Formats, technology, and mathematical symbols used in the Baseline Risk Assessments shall correspond as closely as possible to those presented in EPA's Superfund risk assessment guidance referred to under Part I.C. Any alternative formats, technology, mathematical models shall be proposed in the RI/FS Work Plan.

III.C.7. Interim Response Actions. The RI/FS Work Plan shall propose any Interim Response Action (IRA) that can be implemented prior to completion of the RI/FS to stabilize, contain, and/or mitigate any release(s) or threatened release(s) of hazardous substances or pollutants or contaminants, which is reasonable and necessary to protect public health or welfare, or the environment. At a minimum, the RP shall propose the methodology to conduct an IRA for the contaminated soils in the former above-ground storage tank basin area (see Attachment 2 to the RFRA). The design for any proposed IRA shall be consistent with the Remedial Design (Exhibit B, Part III.A.).

III.C.8. Site Security and Safety Plan. A Site-specific security and safety plan shall be prepared as a separate part of the RI/FS Work Plan, describing all measures including contingency plans and Site access restrictions which will be implemented during field activities to (1) ensure protection of public health and welfare, and the environment and (2) protect the health and safety of personnel involved in the RI/FS. These measures should consider the recommendations in the May 1997 Health Consultation, prepared by the Minnesota Department of Health.

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[1] **An RP lacking significant risk assessment experience should be prepared to subcontract such work to qualified organization. The Baseline Risk Assessment shall be thoroughly reviewed by a technical editor to ensure that the text will be understandable by the MPCA technical staff, the MPCA Board, and the interested public.**

III.C.9. Community Relations. The RI/FS Work Plan shall include a community relations section providing procedures for (1) informing local residents, municipalities, environmental groups, and interested parties about activities at the Site; (2) responding to inquiries from concerned citizens; and (3) cooperation with the MPCA Community Relations efforts. Refer to the MPCA community relations guidance document, entitled "Community Involvement in Risk Based Decision Making", located on the MPCA web site at http://www.pca.state.mn.us/cleanup/pubs/coor9_98.pdf.

III.C.10. Schedule. The RI/FS Work Plan shall propose a schedule that provides specific time frames and dates for completion of each activity and report conducted or submitted under the RI/FS Work Plan. The proposed schedule shall reflect the timelines specified in the RFRA, for conducting the RI and FS activities.

III.D. RI/FS Work Plan Implementation

Within thirty (30) days of the MPCA Commissioner approval of the RI/FS Work Plan, the RP shall initiate the RI and development and screening of response action alternatives. The RP shall complete the RI with one hundred fifty (150) days of initiating the RI activities. The RI/FS shall be conducted in accordance with all applicable federal, state, and local laws, rules, regulations, and ordinances including but not limited to Minn. Stat. ch. 103I and Minn. Rules ch. 4725 for the installation of any ground water monitoring wells.

Any necessary additional RI activities not included in RI/FS Work Plan shall be identified and proposed in the monthly reports submitted pursuant to Part III.C of the RFRA. The impact of the additional RI activities on the List of Possible Technology Types and Proposed Treatability Studies (Part III.C.4) shall also be described in the monthly reports. If any additional RI activities will adversely affect work scheduled through the end of the upcoming month or will require significant revisions to the approved RI/FS Work Plan, the RP shall notify the MPCA Project Manager immediately of the situation followed by a written explanation within ten (10) days of the initial notification.

III.E. Remedial Investigation Report

Within sixty (60) days after completion of the RI, an RI Report detailing: (1) the data and results of the RI; (2) baseline risk assessment; and (3) screening of possible response action alternatives shall be prepared and submitted to the MPCA Commissioner. The RI Report shall organize and present all data generated as a result of implementation of the approved RI/FS Work Plan including, at a minimum, analytical results, assessment of completion of QA objectives, boring logs, field data sheets, and test results including data reduction and interpretation of all results. Further, the RI Report shall include:

III.E.1. Nature and Extent of the Release or Threatened Release. The RI Report shall include a description of the following:

- the nature and extent of hazardous substances or pollutants or contaminants released or threatened to be released to the soils, surface water, ground water, and air;
- the contaminant fate and migration pathways within each media;
- an evaluation of the reliability, and accuracy of the results of any computer models employed for data interpretation.

III.E.2. Baseline Risk Assessment. The results of two Baseline Risk Assessments, one addressing human health risks and one addressing ecological risks (Part III.C.6.), shall be reported as separate chapters in the RI Report.

Each chapter of the Baseline Risk Assessment shall include an executive summary written in layman's terms. A narrated videotape walk-through of the Site and surrounding areas shall be included to highlight information presented in the Baseline Risk Assessment text.

The risk assessment reports shall provide:

III.E.2.a. Data Evaluation. An evaluation of the results of the RI showing the actual and projected concentrations of hazardous substances, pollutants or contaminants present in relevant media (e.g., soil, surface water, ground water, air, benthic sediment, and biota).

III.E.2.b. Toxicity Assessment. An identification of the hazard and toxicological properties of each contaminant identified through sampling and investigations. A comparison between the list of contaminants known to have been deposited on the Site versus those found through analyses. Identification of the chemical specific Applicable or Relevant and Appropriate Requirements (ARARs) for hazardous substances, or pollutants or contaminants identified at the Site. Minnesota State ARARs are included in Attachment I to this Exhibit.

III.E.2.c. Exposure Assessment. A comprehensive exposure pathways table. An inclusion/exclusion analysis and supporting rationale shall be included for each pathway. Following the inclusion/exclusion analysis, a determination of the extent and likelihood of exposure to contaminants at or from the Site. Identification of the potential receptor populations. Provide in-depth environmental fate and transport analysis for completed exposure pathways including physical and biological degradation processes and hydrogeologic conditions.

III.E.2.d. Risk Characterization. Both a maximum exposure case analysis and a Reasonable Maximum Exposure (RME) shall be provided for each pathway.

III.E.2.e. Uncertainty and Sensitivity Analysis. If there is or will be more than one analyte of concern associated with the Site, a chemical mixtures risk assessment addressing additivity and synergism shall be conducted and reported upon.

As part of the uncertainty analysis a Synergistics Effects Uncertainty Analysis (SEUA) shall be conducted and reported upon which assumes risks posed by conditions at the Site may be underestimated by an additivity based risk characterization. The SEUA shall provide modified remediation levels necessary to compensate for possible synergistic effects.

III.E.3. Development and Screening of Response Action Alternatives. The RI Report shall include a Development and Screening of Response Action Alternatives chapter that provides an evaluation of (a) each of the response action alternatives assembled from the List of Possible Technology Types and Proposed Treatability Studies (Part III.C.4), except for those technology types that have been eliminated from further consideration by the MPCA Commissioner in approving the RI/FS Work Plan, and (b) any other technology types identified by the RP or the MPCA Commissioner prior to approval of the RI Report.

The purpose of this chapter is to document the development of response action alternatives by combining or assembling technology types and their respective process options which will be applied to specific operable units or the Site as a whole. After the response action

alternatives have been developed, they will be screened to assure that only those alternatives that will likely achieve the response action objectives and cleanup levels (Part IV.A.) will be retained for further analysis in the DAR.

III.E.3.a. Describe Process Options and Document the Screening of Response Action Alternatives. All development and screening decisions shall be thoroughly documented. This documentation shall include both written description and summary tables. An example of a screening table, Table 1, is attached.

The development and screening of response action alternatives is accomplished by conducting the following tasks:

Development

From the list of technology types, as approved in the RI/FS Work Plan, develop the response action alternatives by describing the process options for each technology type and assemble the technology types with respective process options into response action alternatives. This step is accomplished by following the procedures outlined below:

- array the technology types and describe all possible process options for each technology type;
- for each process option, list the action and location specific ARARs;
- establish the volumes of contaminants and the volumes and types of contaminated media or areas of the Site to which the response action alternative will be applied (e.g. operable units); and
- assemble one or more technology type(s) and the respective process option into one response action alternative.

Screening

Once the response action alternatives have been developed, the response action alternatives are evaluated and screened using the Site Specific Response Action Objectives and Cleanup Levels (Part IV.A). Those response action alternatives that do not meet the Response Action Objectives and the Cleanup Levels are eliminated from further consideration. Response Action Alternatives that pass this screening are designated as "evaluated alternatives" and shall be further evaluated in the DAR.

The RP shall provide its recommendation and rationale regarding which response action alternatives should not be given further consideration for implementation at the Site.

III.E.3.b. Treatability Studies. This chapter of the RI Report shall provide:

- a description of all completed treatability studies and the results of any pilot studies, bench tests, or other activities that were performed to evaluate technology types and process options; and
- proposals, with time frames, for any additional treatability studies that are needed to further evaluate any response action alternatives that pass the screening and are to be further analyzed in the DAR.

III.F. Feasibility Study Report

Within ninety (90) days of the MPCA Commissioner's approval of the RI Report (Part IV.B.2), the RP shall prepare and submit to the MPCA Commissioner an FS Report consisting of the results of any treatability studies and a DAR. The DAR shall address all the evaluated alternatives specified by the MPCA Commissioner in approving or modifying the RI Report.

III.F.1. Treatability Studies. This section of the FS Report shall include the results of all completed and ongoing bench or pilot studies identified in the RI Report (Part III.E.3.b). In addition, for each of the technologies that have undergone treatability studies, the following factors shall be addressed and presented:

- effectiveness in treating the hazardous substances, pollutants or contaminants;
- reliability and past successes of the technology under similar conditions to those at the Site; and
- availability of the technology type and specific process option for implementation at the Site.

III.F.2. Detailed Analysis Report. This section of the FS Report shall analyze evaluated alternatives in detail considering the Remedy Selection Criteria (Part IV.C.). The DAR shall include the following elements for each evaluated alternative:

III.F.2.a. Detailed Description. Each evaluated alternative shall be described and individually assessed against the Balancing Criteria (Part IV.C.2.), namely, long term effectiveness, implementability, short term risks, total cost, and community acceptance. At a minimum, the detailed description for each evaluated alternative shall address the questions posed in Table 2 and include:

- the operable unit to which the evaluated alternative would be applied;
- a description of the technology type and process option;
- a description of the engineering considerations required for implementation (e.g., for a pilot treatment facility, any additional studies that may be needed to proceed with final response action design);
- a description of operation, maintenance, and monitoring requirements;
- a description of off-Site disposal needs and transportation plans;
- a description of temporary storage requirements;
- a description of safety requirements associated with implementation, including both on-Site and off-Site health and safety considerations;
- a description of how any of the other evaluated alternatives could be combined with this evaluated alternative and how any of the combinations could best be implemented to produce significant cost savings and/or better achieve the Site Specific Response Action objectives and Cleanup Levels (Part IV.A);
- a description/review of on-Site or off-Site treatment or disposal facilities which could be utilized to ensure compliance with ARARs; and
- a description of the evaluated alternative response action dismantling to be conducted upon completion of response action.

III.F.2.b. Comparative Analysis of Evaluated Alternatives. Once the evaluated alternatives have been described and individually assessed against the Balancing Criteria (Part IV.C.2.) a comparative analysis shall be conducted to evaluate the relative performance of each evaluated alternative. The purpose of this comparative analysis is to identify the advantages and disadvantages of each evaluated alternative relative to one another with respect to each

of the Balancing Criteria (Part IV.C.2), in order to facilitate selection of an appropriate remedy.

The comparative analysis shall include both a table and a narrative discussion describing the strengths and weaknesses of the evaluated alternatives relative to one another by using each specific component of each Balancing Criterion to evaluate the relative performance of each evaluated alternative. The narrative shall discuss how likely changes in variables could alter each evaluated alternative's relative performance. This section shall be organized in the following manner; under each individual Balancing Criterion, discuss the evaluated alternative that performs the best overall under that Balancing Criterion. Other evaluated alternatives shall be discussed in the order in which they perform. For innovative technologies, their potential advantages in performance or cost and the degree of uncertainty in their expected performance, as compared with more demonstrated technologies, shall also be discussed. Table 2 provides the outline of a comparative analysis table to be completed as part of the requirements of this section.

The presentation of differences among the evaluated alternatives can be measured either qualitatively or quantitatively, as appropriate, and shall identify substantive differences (e.g., greater short-term risk concerns or greater cost). Quantitative information that was used to assess the evaluated alternatives (e.g., specific cost estimates, time until the Site-specific response action objectives and cleanup levels are met, and levels of residual contamination) shall be included in these discussions.

III.F.2.c. Recommended Evaluated Alternative(s) and Conceptual Design. The RP shall include in the DAR its recommendation of the evaluated alternative (or combination of evaluated alternatives) which should be implemented at the Site. The purpose of preparing a conceptual design is to illustrate all aspects of the RP-recommended evaluated alternative (or combination) in sufficient detail to enable the MPCA Commissioner to fully evaluate the RP-recommended evaluated alternative (or combination). The conceptual design for the RP-recommended evaluated alternative (or combination) shall include, but not be limited to, the elements listed below:

- a conceptual plan view drawing of the overall site, showing general locations for response action components;
- conceptual layouts (plan and cross sectional views where required) for the individual components to be installed, or actions to be implemented;
- conceptual design criteria and rationale;
- a description of types of equipment required, including approximate capacity, size, and materials of construction;
- process flow sheets, including chemical consumption estimates and a description of the process;
- an operational description of process units or other components;
- a description of unique structural concepts for components;
- a description of operation and maintenance requirements;
- a discussion of potential construction problems;
- right-of-way requirements;
- additional engineering data required to proceed with design;
- a discussion of permits that are required pursuant to environmental and other statutes, rules, and regulations;
- implementation cost estimate;
- annual O&M cost estimates;

- remedial action dismantling cost; and
- estimated implementation schedule.

IV. MPCA COMMISSIONER ACTIONS

IV.A. **Establishment of Site Specific Response Action Objectives and Cleanup Levels**. The MPCA Commissioner shall assess data as they are obtained through implementation of the RI. When sufficient data exist, the MPCA Commissioner shall specify and notify the RP of the Site-specific response action objectives and cleanup levels for the contaminants, environmental media of concern, and exposure pathways associated with the Site. The Site-specific objectives and cleanup levels shall be determined using ARARs, the "Compilation of Ground Water Rules and Regulations MPCA Superfund Program," dated March 27, 1991, Attachment I, the MPCA Risk-Based Site Evaluation Manual (available on the MPCA web site at), and documented case studies. The MPCA Commissioner will notify the RP of the Site-specific response action objectives and cleanup levels no later than the approval of the RI Report.

IV.B. **Review of Submittals**. The RP shall submit to the MPCA Commissioner all work plans, reports, or other documents (submittals) required by this Exhibit. The review and approval, modification, or rejection of submittals shall be in accordance with this Section and Part IV of the RFRA. Given the MPCA preference for implementing response actions in an expedient manner, the MPCA Commissioner may request implementation of an IRA at any point during the RI/FS.

IV.B.1. Approval of RI/FS Work Plan. The MPCA Commissioner shall review and approve, approve with modifications and/or a request for additional information, or reject the RI/FS Work Plan. Modifications by the MPCA Commissioner are final.

If the MPCA Commissioner approves the RI/FS Work Plan with a requirement to provide additional information, the Commissioner will: 1) specify the deficiencies in the RI/FS Work Plan that necessitate the need for additional information; 2) provide direction to address the deficiencies; 3) specify the manner in which the RP shall document or otherwise convey the additional information; and 4) specify the time frame for submission or conveyance of the requested additional information.

If the MPCA Commissioner rejects the RI/FS Work Plan, the Commissioner will: 1) specify the deficiencies in the RI/FS Work Plan that necessitate the rejection; 2) provide direction to address the deficiencies; 3) specify the manner in which the RP shall document or otherwise convey the information necessary to correct the deficiencies; and 4) specify the time frame for submission or conveyance of the revised RI/FS Work Plan.

As part of reviewing the RI/FS Work Plan, the MPCA Commissioner will eliminate from further consideration any possible technology types that are clearly not feasible or effective considering the Remedy Selection Criteria (Part IV.C.), and may identify other possible technology types and process options to be analyzed in the Development and Screening of Response Action Alternatives chapter (Part III.E.3) of the RI Report.

Site security and safety are the responsibility of the RP. The MPCA Commissioner may comment on the Site Security and Safety Plan but will neither approve nor disapprove that plan. Within ten (10) days of notification of the MPCA Commissioner's approval of the

RI/FS Work Plan, the RP shall implement the Site Security and Safety Plan, taking into account the comments of the MPCA Commissioner.

IV.B.2. Approval of the RI Report. The MPCA Commissioner shall review and approve, approve with modifications and/or a request for additional information, or reject the RI Report. Modifications by the MPCA Commissioner are final.

If the MPCA Commissioner approves the RI Report with a requirement to provide additional information, the Commissioner will: 1) specify the deficiencies in the RI Report that necessitate the need for additional information; 2) provide direction to address the deficiencies; 3) specify the manner in which the RP shall document or otherwise convey the additional information; and 4) specify the time frame for submission or conveyance of the requested additional formation.

If the MPCA Commissioner rejects the RI Report, the Commissioner will: 1) specify the deficiencies in the RI Report that necessitate the rejection; 2) provide direction to address the deficiencies; 3) specify the manner in which the RP shall document or otherwise convey the information necessary to correct the deficiencies; and 4) specify the time frame for submission or conveyance of the revised RI Report.

IV.B.2.a. Evaluation of the Response Action Alternatives

The MPCA Commissioner shall, as part of reviewing the RI Report, evaluate the response action alternatives presented in the Development and Screening of Response Action Alternatives chapter (Part III.E.3). In determining whether to eliminate a particular response action alternative from further consideration, the MPCA Commissioner will determine whether that alternative meets the response action objectives and cleanup levels (Part IV.A) specified for the Site. In approving the RI Report the MPCA Commissioner will specify the evaluated alternatives to be addressed in the DAR.

IV.B.3. Approval of Feasibility Study Report. The MPCA Commissioner shall review and approve, approve with modifications and/or a request for additional information, or reject the FS Report. Modifications by the MPCA Commissioner are final.

If the MPCA Commissioner approves the FS Report with a requirement to provide additional information, the Commissioner will: 1) specify the deficiencies in the FS Report that necessitate the need for information necessary to correct the deficiencies; 2) provide direction to address the deficiencies; 3) specify the manner in which the RP shall document or otherwise convey the additional information; and 4) specify the time frame for submission or conveyance of the revised FS Report.

If the MPCA Commissioner rejects the FS Report, the Commissioner will: 1) specify the deficiencies in the FS Report that necessitate the rejection; 2) provide direction to address the deficiencies; 3) specify the manner in which the RP shall document or otherwise convey the information necessary to correct the deficiencies; and 4) specify the time frame for submission or conveyance of the revised FS Report.

IV.C. **Remedy Selection Criteria**. The purpose of implementing any response action is to protect the public health, welfare, and the environment by preventing, minimizing or eliminating the release(s), or threatened release(s) of hazardous substances, pollutants, or contaminants. Protection of public health, welfare, and the environment is best achieved by implementing a

permanent remedy for the Site. An implemented remedy is considered permanent when it allows for unrestricted use of all land and natural resources impacted by the contaminants and, except for the purpose of treatment, does not involve removal of the contaminants to another site and minimizes exchange of the contaminants to other environmental media. Refer to the MPCA guidance document on remedy selection, located on the MPCA web site at

The MPCA Commissioner will apply the following threshold, balancing criteria and community acceptance to select a final response action from amongst evaluated alternatives.

IV.C.1. Threshold Criterion. Each response alternative or evaluated alternatives must meet the threshold criterion of providing overall protection for the public health and welfare, and the environment. This criterion is met if the response action alternative or the evaluated alternative will achieve the response action objectives and cleanup levels identified pursuant to the Establishment of Site Specific Response Action Objectives and Cleanup Levels (Part IV.A.) or provides for a permanent remedy.

IV.C.2. Balancing Criteria. Evaluated alternatives that meet the threshold criterion of overall protection of public health and welfare, and the environment shall be evaluated using the Balancing Criteria listed below. The evaluated alternative that provides the best balance among the Balancing Criteria in consideration of the site-specific circumstances shall be selected as the final response action. The Balancing Criteria are listed in order of priority with long-term effectiveness being the most important.

- Long-Term Effectiveness
  Long-term effectiveness is the ability of an evaluated alternative to maintain the desired level of protection of public health and welfare, and the environment over time. Permanent remedies provide absolute long-term effectiveness. In the event a permanent remedy is not feasible, evaluated alternatives that significantly alter the hazardous substances or pollutants or contaminants to produce significant reductions in toxicity, mobility, or volume through treatment will be preferred. In addition, the ability of the alternative to obtain and/or manage treatment residuals, minimize transfer of contaminants to another environmental media, and maintain established response action objectives and cleanup levels over time shall be a major consideration.
- Implementability
  The technical and administrative feasibility of implementing the evaluated alternative and the availability of goods and services needed to implement the evaluated alternative shall be considered.
- Short-Term Risks

The short-term risks that may be posed as a result of implementing an evaluated alternative shall be considered and weighted against the ultimate long-term benefits of implementing that evaluated alternative.

- Total Costs
  The complete cost breakdown of implementation of the evaluated alternative including the projected costs of any long-term monitoring, operation and maintenance, and response action dismantling shall be considered. The future costs to replace the alternative or respond to a future release shall also be considered in this evaluation.

IV.C.3. Community Acceptance. The degree of community acceptance shall be determined for each evaluated alternative.

The community shall be consulted regularly in regard to the response action alternatives available for remediation at the Site. Efforts will be made to inform the community about the hazards of the Site and the advantages and disadvantages of various approaches to remediation and to gain an understanding of the concerns and preferences of the community with regard to the final remedy for the Site. The community's concerns and response action preferences will be considered when the MPCA Commissioner selects a remedy.

IV.D. Selection of Response Action and Record of Decision

The MPCA Commissioner will select the final response action(s) and will document this selection in a Record of Decision (ROD) or Minnesota Decision Document (MDD). The final RI and FS Reports, as approved by the MPCA Commissioner, will, with the MPCA Site file, form the basis for the selection of the final response action for the Site and will provide the information necessary to support the development of the ROD/MDD. The ROD/MDD will identify the selected evaluated alternative (or combination of evaluated alternatives) to be implemented by the RP pursuant to Exhibit B to the RFRA. The ROD/MDD shall be appended to and made an integral part of the RFRA.

ATTACHMENT B
to the Schedule of Compliance
Douglas Corporation
Groundwater Investigation and Monitoring

I. Past Groundwater Investigations.

On May 7, 2012, Douglas Corporation (Douglas) conducted a limited onsite soil and groundwater investigation at its facility at 3520 Xenwood Avenue South, St. Louis Park, Minnesota (Facility). Soil and/or groundwater samples were collected from soil borings at eight different locations at the Facility. No soil samples were collected from under the building at the Facility. The laboratory results showed that total chromium and perfluorooctane sulfonate (PFOS) were detected above laboratory reporting limits in soil and groundwater samples. Total chromium and PFOS concentrations in soil samples were all below the respective MPCA residential soil reference values (SRVs). The (dissolved) total chromium concentration in one groundwater sample was 19,100 micrograms-per-liter (ug/L), which is slightly below the Minnesota Department of Health (MDH) Health Risk Limit (HRL) of 20,000 ug/L for trivalent chromium, but is above the HRL of 100 ug/L for hexavalent chromium. The PFOS concentrations in several groundwater samples exceed the MDH HRL of 0.3 ug/L for PFOS, and were as high as 440 ug/L.

As part of a limited groundwater investigation to identify and define the release of chromium and perfluorochemicals (PFCs) to groundwater at and from its Facility, Douglas initially installed temporary wells TW-1 and TW-2 and permanent wells MW-1 and MW-2. On October 29, 2012, and January 23, 2013, Douglas sampled MW-1 and MW-2, and two existing Saint Louis Park monitoring wells MW-117 and SLP-03. Locations of these wells can be seen on attached Figure 2, which is appended hereto and made a part of this Attachment B and the Schedule of Compliance.

After reviewing the groundwater data from these two sampling events, the MPCA requested that Douglas install an additional off-site groundwater monitoring well due east of the Facility, just west of Highway 100. When Douglas could not obtain access to property in that area, MPCA agreed to a revised location just east of Highway 100 (see attached Figure 2). In accordance with the MPCA-approved work plan, Douglas installed the additional off-site groundwater monitoring well (MW-3) on April 14, 2014. On May 22, 2014, Douglas collected water samples from all five wells in the monitoring network (i.e., MW-1, MW-2, MW-3, MW-117, and SLP-03).

The laboratory results show that concentrations of (dissolved) total and hexavalent chromium and PFOS in water samples from MW-1 and MW-3 exceed the respective HRLs for these analytes. The laboratory results from MW-3 also show that groundwater contamination has migrated off-site (outside the Facility property boundaries) at concentrations that exceed the

HRLs for hexavalent chromium and PFOS. Therefore, MPCA required Douglas to submit an additional groundwater investigation work plan (Work Plan) for MPCA review and approval.

Douglas submitted a Work Plan to the MPCA on December 16, 2014. The Work Plan proposed six push-probe borings to evaluate shallow groundwater east of MW-3 and west of Bass Lake. On December 30, 2014, the MPCA approved the Work Plan with a number of modifications, including that:

- The Work Plan is to be considered an initial attempt at determining the lateral extent of groundwater contamination in the shallow, unconsolidated glacial drift aquifer.
- Depending upon the laboratory results from the temporary (Geoprobe) monitoring wells, additional temporary monitoring wells may be required.
- The vertical extent of groundwater contamination would need to be investigated after the results of this shallow groundwater/lateral extent investigation have been evaluated by MPCA.

On February 23 and 24, 2015, Douglas' contractor completed six push-probe borings, east of MW-3, as part of Douglas' limited groundwater investigation of the shallow aquifer. Exhibit 1 shows the locations of the six push-probe borings. Laboratory results for groundwater samples collected from the six borings indicate that PFOS was detected in four of the six borings, and PFOS concentrations in two borings (PTW-3 and PTW-5) exceeded the HRL of 0.3 ug/L for PFOS.

MPCA subsequently requested that Douglas collect a second round of (confirmatory) samples from the six boring locations. On May 27, 2015, Douglas' contractor advanced six push-probes in approximately the same locations that were used for the February 23-24 sampling event, after approval of the locations by the MPCA. Laboratory results from the six borings differed slightly from the February results, but confirmed the presence of PFOS in four of the six boring locations and HRL exceedances of PFOS in PTW-3 and PTW-5.

On June 2, 2015, Douglas submitted to the MPCA a "Work Plan for Second Round Groundwater Sampling Event and Deep Aquifer Investigation", dated April 29, 2015. In a June 25, 2015 email, the MPCA notified Douglas that the Agency had reviewed the April 29, 2015 Groundwater Work Plan (Plan) submitted by Douglas on June 2, 2015, and requested Douglas to submit a revised Plan to investigate the vertical extent of groundwater contamination. In addition, the email referenced the laboratory results of the groundwater samples collected from six push-probe borings on May 27, 2015, and stated that "These two rounds of results indicate that Douglas has adequately defined the current lateral (downgradient/eastward) extent of perfluorochemical (PFC) and chromium groundwater contamination in the shallow (Quaternary) aquifer."

Douglas' contractor (Liesch) submitted a revised Plan to the MPCA on August 4, 2015. The revised Plan proposed two additional permanent monitoring wells at the same location as MW-3 (see Figure 2 and Exhibit 1). The two additional wells were proposed to monitor two deeper

portions of the glacial drift (Quaternary) aquifer as an attempt to define the vertical extent of groundwater contamination. MPCA approved the Plan with several modifications on August 12, 2015.

Douglas' drilling contractor (Traut) completed the installation of the two deeper Quaternary aquifer monitoring wells (MW-3B and MW-3C) on August 31 and September 1, 2015. The three nested well [MW-3A (previously MW-3), MW-3B and MW-3C] were sampled by Douglas' subcontractor (MVTL) on September 9, 2015. Split samples were collected by Douglas' subcontractor and by the MPCA for PFC analysis at the TestAmerica and MDH laboratories.

Laboratory results of groundwater samples from the MW-3 well nest indicated that split samples from all three wells contained detectable PFOS. Samples from MW-3A (screened from 9-19 feet below ground surface)) and MW-3C (screened from 57-67 feet below ground surface) contained PFOS concentrations that exceeded the HRL of 0.3 ug/L for PFOS.

On October 14, 2015, MPCA discussed the results from the MW-3 nest with Douglas. MPCA requested that Douglas collect a second round of (confirmatory) samples from the MW-3 well nest as soon as possible.

On November 23, 2015, the MPCA collected a second round of samples from the MW-3 well nest. Based on the MDH laboratory results for the second round of samples collected by the MPCA on November 23, 2015, the data confirm that the deepest well (MW-3C) is contaminated with PFOS, at concentrations that exceed the HRL for PFOS (0.3 ug/L).

On April 4-5, 2016, Douglas installed one additional groundwater monitoring well into the bedrock at the MW-3 location. This bedrock (St. Peter Sandstone aquifer) monitoring well is to be sampled on April 20, 2016, and is a first step to define the vertical depth of groundwater contamination. Additional bedrock wells will be required as part of the Groundwater Investigation and Monitoring Plan described in Section II below.

II. Investigation of the Scope and Extent of Groundwater Contamination.

Within 60 days after the Effective Date of the Schedule of Compliance, Douglas shall submit to the MPCA for review and approval a Groundwater Investigation and Monitoring Plan (Investigation Work Plan). The purpose of the Investigation Work Plan is to define the extent and magnitude, of groundwater contamination at and from the Facility. Specifically, Douglas is required to define both the horizontal and vertical extent of PFC and chromium groundwater contamination in the shallow (i.e., glacial drift) and deep (i.e., bedrock) aquifers. The Investigation Work Plan shall include, at a minimum:

- a description, in detail, of how the investigation will be conducted to define the extent and magnitude of the groundwater contamination;

- a plan to conduct a well receptor survey in the area downgradient (south and east) of the Facility;
- a well monitoring plan describing how monitoring wells currently installed and monitoring wells installed in the future will be monitored, maintained, and sampled, including collection of groundwater elevation measurements prior to the sampling of each of the monitoring wells;
- a Sampling and Analysis Plan (SAP) in accordance with the MPCA Sampling and Analysis Plan Development Guidance, dated September 2005 (https://www.pca.state.mn.us/sites/default/files/p-eao2-01.pdf)
- a timeline for implementation and completion of each of the activities in the Investigation Work Plan, including submittal of reports to the MPCA describing the results of the investigation.

Groundwater samples shall be analyzed for total chromium, hexavalent chromium and PFCs. Samples analyzed for total chromium and hexavalent chromium shall be analyzed by a MDH-certified lab. Samples analyzed for PFCs shall be analyzed at a lab certified by MDH for analysis of PFCs or other laboratory approved in writing by the MPCA for analysis of PFCs. In addition, the Regulated Party shall comply with all laboratory sample collection, sample preservation, and holding time requirements.

The MPCA will utilize data from this groundwater investigation to determine potential risks to nearby/downgradient groundwater wells and to evaluate whether Douglas has adequately defined the extent and magnitude of groundwater contamination downgradient of the Facility. PFCs to be analyzed and reported in groundwater samples shall, at a minimum, include perfluorooctanoic acid (PFOA), perfluorooctane sulfonate (PFOS), perfluorobutanoic acid (PFBA), perfluorobutane sulfonate (PFBS) and perfluorohexane sulfonate (PFHxS). The analytical laboratory's reporting limits for analyzing these PFCs in groundwater samples shall be at least as low as the corresponding MDH health-risk limits or health-based values for PFOA, PFBA, PFBS, and PFHxS. The laboratory's detection limits for these PFCs shall be concomitantly lower than the laboratory's reporting limits.

After MPCA approves the Investigation Work Plan, the Regulated Party shall implement the Investigative Work Plan in accordance with its time schedules.

Douglas shall submit to the MPCA, for review and approval, a report within 30 days after the receipt of the laboratory results of each sampling event. The report shall include a summary table of the analytical results, a map showing well locations, the laboratory report or reports, conclusions drawn from the data, and recommendations for any additional action.

Douglas shall submit to the MPCA for review and approval a final report that summarizes the results of the investigation. The final report of the investigation shall include a description of the work that was completed, a summary table of all analytical results, a map showing well

locations, any laboratory report or reports not previously submitted to the MPCA, conclusions drawn from the investigation, and recommendations for any additional investigations.

Douglas' implementation of the MPCA-approved Investigation Work Plan and submittal of the final report are required activities within the groundwater portion of the Remedial Investigation, as described in Part 7.e of the Schedule of Compliance. Part 7.e also describes the Feasibility Study and Remedial Design/Response Action activities that are also required under this Schedule of Compliance.

MPCA's process for evaluating the extent and magnitude of groundwater contamination, evaluating possible remedial technologies for contaminated groundwater, selecting a remedy if necessary, and overseeing the implementation of any selected remedy shall follow the MPCA's process for implementation of response actions under the Minnesota Environmental Response and Liability Act, Minn. Stat. §§ 115B.01 to 115B.20 ("MERLA"), which is attached hereto as Exhibits 1 and 2 to this Attachment B and made a part hereof and a part of the Schedule of Compliance. Exhibits 1 and 2 are attached only for the purpose of describing the MERLA process. The actual scope of the groundwater investigation and monitoring for the RI is set forth in Attachment B.