

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN

UNITED STATES OF AMERICA,)
)
 Plaintiff,)
)
 v.)
)
 DOW SILICONES CORPORATION,)
)
 Defendant.)

Civil No. 19-cv-11880

CONSENT DECREE

TABLE OF CONTENTS

I. JURISDICTION AND VENUE.....4

II. APPLICABILITY5

III. DEFINITIONS8

IV. CIVIL PENALTY24

V. CLEAN AIR ACT COMPLIANCE REQUIREMENTS.....26

VI. EPCRA/CERCLA COMPLIANCE REQUIREMENTS69

VII. RCRA COMPLIANCE REQUIREMENTS71

VIII. CLEAN WATER ACT COMPLIANCE REQUIREMENTS78

IX. REPORTING REQUIREMENTS.....113

X. PERMIT SUBMISSIONS118

XI. APPROVAL OF DELIVERABLES120

XII. SUPPLEMENTAL ENVIRONMENTAL PROJECTS124

XIII. STIPULATED PENALTIES131

XIV. FORCE MAJEURE.....152

XV. DISPUTE RESOLUTION155

XVI. INFORMATION COLLECTION AND RETENTION.....158

XVII. EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS160

XVIII. COSTS.....163

XIX. NOTICES163

XX. EFFECTIVE DATE166

XXI. RETENTION OF JURISDICTION167

XXII. MODIFICATION.....167

XXIII. TERMINATION167

XXIV. PUBLIC PARTICIPATION.....170

XXV. SIGNATORIES/SERVICE170

XXVI. INTEGRATION171

XXVII. FINAL JUDGMENT.....172

XXVIII. 26 U.S.C. SECTION 162(f)(2)(A)(ii) IDENTIFICATION 172

XXIX. APPENDICES173

WHEREAS, Plaintiff the United States of America (“United States”), on behalf of the United States Environmental Protection Agency (“EPA”), has filed a complaint against Defendant Dow Silicones Corporation (“Defendant” or “DSC”), formerly known as Dow Corning Corporation, concurrently with the lodging of this Consent Decree;

WHEREAS, DSC owns a chemical manufacturing facility (the “Facility”), the headquarters of which is located at 3901 South Saginaw Road, Midland, Michigan, and various chemicals are manufactured, formulated, or otherwise processed at this Facility;

WHEREAS, the Complaint alleges that DSC violated Sections 111 and 112 of the Clean Air Act (“CAA”), 42 U.S.C. §§ 7411 and 7412, and the following implementing regulations at the Facility: 40 C.F.R. Part 60, Subpart Db (New Source Performance Standards for Industrial-Commercial-Institutional Steam Generating Units); 40 C.F.R. Part 61, Subpart V (National Emission Standard for Equipment Leaks (Fugitive Emission Sources)); 40 C.F.R. Part 61, Subpart FF (National Emission Standard for Benzene Waste Operations); 40 C.F.R. Part 63, Subpart FFFF (National Emission Standard for Hazardous Air Pollutants for Miscellaneous Organic Chemical Manufacturing); 40 C.F.R. Part 63, Subpart HHHHH (National Emission Standards for Miscellaneous Coating Manufacturing); 40 C.F.R. Part 63, Subpart MMM (National Emission Standards

for Pesticide Active Ingredient Production); 40 C.F.R. Part 63, Subpart EEEE (National Emissions Standards for Organic Liquids Distribution); and the requirements of DSC's Renewable Operating Permit issued pursuant to Title V of the CAA, 42 U.S.C. § 7661 *et seq.*;

WHEREAS, the Complaint also alleges that Defendant discharged pollutants in violation of the terms and conditions of the National Pollutant Discharge Elimination System ("NPDES") permit issued to DSC for the Facility under Section 402 of the CWA, 33 U.S.C. § 1342, including the failure to implement a Stormwater Pollution Prevention Plan properly ("SWPPP");

WHEREAS, the Complaint further alleges that Defendant violated Section 3008 of the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6928, by failing to characterize hazardous waste adequately and failing to maintain secondary containment areas adequately;

WHEREAS, the Complaint alleges that DSC failed to notify response authorities in a timely manner regarding reportable releases of hazardous substances in violation of Section 304 of the Emergency Planning and Community Right-to-Know Act ("EPCRA"), 42 U.S.C. § 11004, and Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA"), 42 U.S.C. § 9603;

WHEREAS, DSC does not admit any liability to the United States arising out of the transactions or occurrences alleged in the Complaint and nothing in the Complaint, nor in this Consent Decree, nor in the execution and implementation of this Consent Decree, shall be treated as an admission of any violation of federal or state statutes or regulations in any litigation or forum whatsoever, except that the terms of this Consent Decree, and DSC's failure to comply with the terms and conditions thereof, may be used by the United States in any action or dispute resolution proceeding to enforce the terms of this Consent Decree or as otherwise permitted by law;

WHEREAS, in the course of the negotiations of this Consent Decree, without any admission of liability or of violation of law, DSC undertook numerous actions to address the allegations in the Complaint and the Findings and Notices of Violation (as defined in Paragraph 9.m), including, but not limited to, installation of required control devices; recalculating emissions estimations; monitoring components that previously had not been included in a leak detection and repair ("LDAR") program; revising the Facility's SWPPP; and implementing a waste characterization process and containment management system; and

WHEREAS, the United States and DSC ("Parties") recognize, and this Court by entering this Consent Decree finds, that this Consent Decree has been

negotiated by the Parties in good faith and will avoid litigation between the Parties, and that this Consent Decree is fair, reasonable, and in the public interest.

NOW, THEREFORE, before the taking of any testimony, without the adjudication or admission of any issue of fact or law except as provided in Section I, and with the consent of the Parties, IT IS HEREBY ADJUDGED, ORDERED, AND DECREED as follows:

I. JURISDICTION AND VENUE

1. This Court has jurisdiction over the subject matter of this action, pursuant to 28 U.S.C. §§ 1331, 1345, and 1355; Section 113(b) of the CAA, 42 U.S.C. § 7413(b); Sections 309 and 402 of the CWA, 33 U.S.C. §§ 1319 and 1342; Section 3008 of RCRA, 42 U.S.C. § 6928; Section 325 of EPCRA, 42 U.S.C. § 11045; and Sections 103 and 113 of CERCLA, 42 U.S.C. §§ 9603 and 9613, and over the Parties. Venue lies in this District pursuant to 28 U.S.C. §§ 1391(b) and (c) and 1395(a), because the violations alleged in the Complaint are alleged to have occurred in, and Defendant conducts business in, this judicial district. This venue is consistent with Section 113(b) of the CAA, 42 U.S.C. § 7413(b); Section 309(b) and (d) of the CWA, 33 U.S.C. § 1319(b) and (d); Section 3008(a) of RCRA, 42 U.S.C. § 6928(a); Section 325(b)(3) and (c)(4) of EPCRA, 42 U.S.C. § 1045(b)(3) and (c)(4); and Sections 103 and 113 of CERCLA, 42 U.S.C. §§ 9603 and 9613. For purposes of this Decree, or any action to enforce this Decree, Defendant

consents to the Court's jurisdiction over this Decree and any such action and over Defendant and consents to venue in this judicial district.

2. For purposes of this Consent Decree, DSC does not contest that the Complaint states claims upon which relief may be granted pursuant to the CAA, 42 U.S.C. § 7401 *et seq.*; the CWA, 33 U.S.C. § 1311 *et seq.*; Section 325 of EPCRA, 42 U.S.C. § 11045; RCRA, 42 U.S.C. § 6901 *et seq.*; and Section 109 of CERCLA, 42 U.S.C. § 9609.

II. APPLICABILITY

3. The obligations of this Consent Decree apply to and are binding upon the United States, and upon Defendant and any successors, assigns, or other entities or persons otherwise bound by law.

4. No transfer of ownership or operation of the Facility, or a portion of the Facility that is subject to this Consent Decree, whether in compliance with the procedures of this Paragraph or otherwise, shall relieve Defendant of its obligation to ensure that the terms of the Decree are implemented, unless (1) the transferee agrees to undertake the obligations required by this Decree and to be substituted for the Defendant as a Party under the Decree and thus be bound by the terms thereof, and (2) the United States consents to relieve Defendant of its obligations. The United States' decision to refuse to approve the substitution of the transferee for the Defendant shall not be subject to judicial review. The United States may

refuse to approve the substitution of the transferee for Defendant if it determines that the proposed transferee does not possess the requisite financial and technical ability to assume the Consent Decree's obligations. At least thirty (30) Days prior to such transfer, Defendant shall provide a copy of this Consent Decree to the proposed transferee and provide written notice (as further described later in this Paragraph) of the prospective transfer, together with a copy of all portions of the proposed written transfer agreement between Defendant and the prospective transferee related to compliance under federal and state environmental laws, permits, and this Consent Decree, to EPA Region 5, and the United States Department of Justice, in accordance with Section XIX (Notices). The written notice shall describe the nature and extent of the transfer. If the Defendant intends to ask to be relieved of some or all obligations under this Decree, the written notice shall so indicate, and shall identify the relevant obligations. Information in support of the request for relief from obligations under this Decree shall be included in the written notice if available at that time. If the information in support of the request for relief is not available at that time, it shall be provided in writing within thirty (30) Days after completion of the transfer. Any attempt to transfer ownership or operation of the Facility or any portion of the Facility that is subject to this Consent Decree without complying with this Paragraph constitutes a violation of this Decree.

5. Defendant shall provide a copy of this Consent Decree to all officers, employees, and agents whose duties might reasonably include compliance with any provision of this Decree, as well as to any contractor retained to perform work required under this Consent Decree. The foregoing requirement may be satisfied by hard copy, electronic copy, or by providing on-line access with notice to the affected personnel. Defendant shall condition any such contract upon performance of the work in conformity with the applicable terms of this Consent Decree.

6. In any action to enforce this Consent Decree, Defendant shall not raise as a defense the failure by any of its officers, directors, employees, agents, or contractors to take any actions necessary to comply with the provisions of this Consent Decree.

7. Purpose. It is the express purpose of the Parties in entering this Consent Decree to further the objectives of the CAA, CWA, RCRA, EPCRA, and CERCLA. All plans, reports, construction, maintenance and other obligations in this Consent Decree or resulting from the activities required by this Consent Decree shall have the objective of causing Defendant to come into and/or remain in compliance with the terms of its applicable permits and the CAA, CWA, RCRA, EPCRA, and CERCLA.

III. DEFINITIONS

8. Terms used in this Consent Decree that are defined in the CAA, CWA, CERCLA, EPCRA and RCRA or in federal and state regulations promulgated pursuant to the CAA, CWA, CERCLA, EPCRA and RCRA shall have the meaning assigned to them in the CAA, CWA, CERCLA, EPCRA and RCRA or such regulations, unless otherwise provided in this Decree.

9. Whenever the terms set forth below are used in this Consent Decree, the following definitions shall apply:

- a. “Annual” or “annually” shall mean a calendar year, except as otherwise provided in applicable LDAR provisions;
- b. “Average” shall mean the arithmetic mean;
- c. “CAP” shall mean the Corrective Action Plan described in Paragraph 52 of this Consent Decree;
- d. “Complaint” shall mean the Complaint filed by the United States in this action;
- e. “Consent Decree” or “Decree” shall mean this Consent Decree and all appendices attached hereto, but in the event of any conflict between the text of this Consent Decree and any Appendix, the text of this Consent Decree shall control;

f. “Date of Lodging of this Consent Decree” or “Date of Lodging” shall mean the date that the United States files a “Notice of Lodging” of this Consent Decree with the Clerk of this Court for the purpose of providing notice and comment to the public in accordance with 28 C.F.R. § 50.7;

g. Except as provided in Paragraph 12.d, “Day” shall mean a calendar day unless expressly stated to be a business day. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the close of business of the next business day;

h. “Defendant” shall mean Dow Silicones Corporation;

i. “DSC” shall mean Dow Silicones Corporation;

j. “Effective Date” shall have the meaning given in Section XX (Effective Date);

k. “EPA” shall mean the United States Environmental Protection Agency and any of its successor departments or agencies;

l. “Facility” shall mean DSC’s contiguous chemical manufacturing and research site, referred to by DSC as the “Midland Plant Site,” located at 3901 South Saginaw Road, Midland, Michigan;

- m. “Findings and Notices of Violations” shall mean the following findings and notices of violations issued by EPA Region 5: EPA-5-12-MI-03 (CAA) (March 30, 2012) and RCRA Notice of Violation (April 29, 2015);
- n. “Interest” shall mean the rate specified by 28 U.S.C. § 1961;
- o. “MDEQ” shall mean the Michigan Department of Environmental Quality, and any successor department or agency;
- p. “Month” or “monthly” shall mean calendar month, except as otherwise provided in applicable LDAR provisions;
- q. “Paragraph” shall mean a portion of this Decree identified by an Arabic numeral;
- r. “Parties” shall mean the United States and DSC;
- s. “Point of Generation” or “POG” means the point in time when or the location where the intended use of a material has ceased and it begins to accumulate or is sent for disposal, reuse, or reclamation. For example, the POG is where a waste exits a manufacturing process unit (tank, reaction vessel, *etc.*) prior to placement in a waste accumulation unit;
- t. “Quarter” or “quarterly” shall mean a calendar quarter (January through March, April through June, July through September, October through December), except as otherwise provided in applicable LDAR provisions;

u. “Section” shall mean a portion of this Decree identified by an upper case Roman numeral;

v. “Subparagraph” shall mean a portion of a Paragraph of this Consent Decree that is identified by a sequential lower case letter or by a parenthetical numeral;

w. “Subsection” shall mean a portion of a Section of this Consent Decree that has a heading identified by a capital letter;

x. “United States” shall mean the United States of America, acting on behalf of EPA; and

y. “Week” or “weekly” shall mean the standard calendar period, except as otherwise provided in applicable LDAR provisions.

10. Whenever the following terms related to the compliance obligations in Section VI (EPCRA/CERCLA Compliance Requirements) are used in this Consent Decree, the following definitions shall apply:

a. “CERCLA hazardous substances” shall mean the list of chemicals published at 40 C.F.R. Part 302;

b. “EPCRA extremely hazardous substances” shall mean the list of chemicals published at 40 C.F.R. Part 355;

c. “LEPC” shall mean local emergency planning committee;

d. “Midland County” shall mean the Midland County Local Emergency Planning Committee;

e. “SERC” shall mean the Michigan SARA Title III Program within the Michigan Department of Environmental Quality;

f. “Spill/Release Reporting Policy” shall mean DSC’s written standard operating procedures for complying with the requirements of Section 103 of CERCLA, 42 U.S.C. § 9603, and Section 304 of EPCRA, 42 U.S.C. § 11004, as revised in accordance with the requirements of Section VI (EPCRA/CERCLA Compliance Requirements).

11. Whenever the following terms related to the compliance obligations in Section VIII (Clean Water Act Compliance Requirements) are used in this Consent Decree, the following definitions shall apply:

a. “Chemical Sewer System” or “Chemical Sewer” shall mean all pipes, interceptors, force mains, gravity sewer lines, Pump Stations, manholes, and/or associated appurtenances that contain or convey Wastewater to the WWTP, and related equipment that DSC uses, owns, operates, and/or maintains on and adjacent to the Facility such as lift station T123;

b. “Containment Dikes” shall mean the secondary containment structures at the Facility that historically have been referred to by DSC as “spill

ponds” that may be receptacles for Stormwater and/or Wastewater and that may be evacuated to the Storm Sewer System and/or the Chemical Sewer System;

c. “4705 Detention Basin” or “Detention Basin” shall mean the basin that is located at the south end of the Facility, also referred to by DSC as a detention and/or a retention pond, which has a capacity of approximately 12 million gallons and discharges into Lingle Drain;

d. “Discharge” shall have the meaning assigned in Section 502(16) of the CWA, 33 U.S.C. § 1362(16);

e. “Fire Water” shall mean the unused, non-potable, industrial grade water that DSC uses to extinguish fires and as a primary backup water source for certain operations and processes at the Facility (*e.g.*, emergency scrubbers, condensers, hydrochloric acid tanks, cleaning and hydro testing, and emergency cooling). After Fire Water has been used, it is considered Wastewater;

f. “Lingle Drain” shall have the same meaning as in the 2015 NPDES Permit;

g. “NPDES” shall mean the National Pollutant Discharge Elimination System permit program described in Section 402 of the CWA, 33 U.S.C. § 1342, and in other provisions of the CWA;

h. “2015 NPDES Permit” shall mean the NPDES General Industrial Stormwater Permit No. MIS420000 issued under COC No. MIS420040

by MDEQ on behalf of the State of Michigan on March 20, 2015, and expiring on April 1, 2019 that authorizes DSC to Discharge Stormwater Associated With Industrial Activity to Lingle Drain for the duration of the COC;

i. “Point Source” shall have same meaning as defined in Section 502(14) of the CWA, 33 U.S.C. § 1362(14);

j. “Pollutant” shall have the meaning assigned in Section 502(6) of the CWA, 33 U.S.C. § 1362(6);

k. “Process Wastewater” shall have the meaning assigned at 40 C.F.R. § 122.2;

l. “Pump Station” shall mean all equipment, including pumps and other related electrical, mechanical, and structural systems, which function to lift Wastewater and/or Stormwater to a higher hydraulic elevation or function to convey Wastewater and/or Stormwater under pressure from one location to another location;

m. “Release” shall mean the exit of any of the contents of the Chemical Sewer System from the Chemical Sewer System to any portion of the Facility that is not used to contain and/or convey Wastewater to the WWTP for treatment, and that has the potential to come into contact with Stormwater or the Storm Sewer System. A Release, which includes but is not limited to a Discharge,

may occur by spilling, leaking, pumping, pouring, emitting, emptying, injecting, escaping, leaching, dumping, or disposing;

n. “Stormwater” shall mean stormwater runoff, snow melt runoff, surface runoff and drainage;

o. “Stormwater Discharge Associated With Industrial Activity” or “Stormwater Associated With Industrial Activity” shall have the meaning assigned in 40 C.F.R. § 122.26(b)(4);

p. “Stormwater Pollution Prevention Plan” or “SWPPP” shall mean the plan (including all maps, attachments, and appendices) DSC has developed and continues to update to meet the requirements of the 2015 NPDES Permit, and any successor NPDES permits issued to DSC by MDEQ on behalf of the State of Michigan, which the 2015 NPDES Permit identifies as a SWPPP;

q. “Stormwater Sewer System” or “Storm Sewer System” shall mean all pipes, interceptors, force mains, gravity sewer lines, Pump Stations, manholes, and all associated appurtenances and equipment, that contain and/or convey Stormwater and/or any permitted non-Stormwater as identified in Section I.D.3 of the 2015 NPDES Permit or any successor NPDES permit issued to DSC by MDEQ;

r. “Wastewater” shall mean any water and all material conveyed with that water that contains Process Wastewater, discarded material, non-contact

cooling and/or heating water, boiler blowdown, sanitary sewage, and/or any Pollutants;

s. “Wastewater Treatment Plant” or “WWTP” shall mean the wastewater treatment plant to which DSC sends its Wastewater, at the Michigan Operations, Midland Site of The Dow Chemical Company, the headquarters of which is located at 1790 Building, Washington Street, Midland, Michigan, 48674; and

12. Whenever the following terms related to the LDAR Program required by this Consent Decree or other CAA-related compliance obligations in Section V (Clean Air Act Compliance Requirements) are used in this Consent Decree, the following definitions shall apply:

a. “BWSP” shall mean the “Benzene Waste Sampling Plan” to be developed by DSC pursuant to Paragraphs 55 - 59 to ensure comprehensive and accurate Total Annual Benzene calculations following procedures defined at 40 C.F.R. § 61.355(a);

b. “Covered Process Units” shall mean those process units at the Facility that contain “Covered Equipment;”

c. “Covered Equipment” shall mean all valves (except pressure relief valves), pumps, agitators, and OELs in light liquid or gas/vapor service that

are regulated under any equipment leak provisions of 40 C.F.R. Part 61 or 63 or similar state or local LDAR statutory or regulatory provision;

d. “Day” shall have the meaning defined in Subparagraph 9.g of this Consent Decree for purposes of implementing the LDAR Program.

Notwithstanding the above, for purposes of complying with any applicable LDAR provisions, “day” shall have the meaning provided in the applicable LDAR provisions;

e. “DOR” shall mean Delay of Repair;

f. “Environmental Mitigation Projects” shall mean the requirements in Paragraphs 69 - 75 (Acetylene Vents 322 Building Project and Thermal Oxidizer Reliability Improvement Project) to mitigate the alleged environmental harm resulting from alleged noncompliance at Defendant’s Facility;

g. “Existing Valves” shall mean valves subject to the LDAR Program, with unique identification numbers, broken down by Covered Process Unit, that are in existence as of the Effective Date of this Consent Decree;

h. “Extension,” for purposes of Subparagraphs 12.p(1) and 12.p(2), shall mean that: (i) the tested and untested valves were produced by the same manufacturer to the same or essentially equivalent quality requirements; (ii) the characteristics of the valve that affect sealing performance (*e.g.*, type of valve, stem motion, tolerances, surface finishes, loading arrangement, and stem and body

seal material, design, and construction) are the same or essentially equivalent as between the tested valve and the untested valve; and (iii) the temperature and pressure ratings of the tested valve are at least as high as the temperature and pressure ratings of the untested valve;

i. “First Maintenance Shutdown” shall mean the first Maintenance Shutdown that occurs no sooner than fifteen months after the Effective Date of this Consent Decree;

j. “LDAR” or “Leak Detection and Repair” shall mean the leak detection and repair activities required by any “equipment leak” provisions of 40 C.F.R. Part 61 or 63. LDAR also shall mean any state or local equipment leak provisions that: (i) require the use of Method 21 to monitor for equipment leaks and also require the repair of leaks discovered through such monitoring; and (ii) are intended to minimize emissions of hazardous air pollutants or other substances identified on the basis of toxicity (*e.g.*, toxic air contaminants).

k. “LDAR Audit Commencement Date” or “Commencement of an LDAR Audit” shall mean the first day of the on-site inspection that accompanies an LDAR audit;

l. “LDAR Audit Completion Date” or “Completion of an LDAR Audit” shall mean the date that is four (4) months after the LDAR Audit Commencement Date;

m. “LDAR Personnel” shall mean all DSC contractors and employees who perform LDAR monitoring, LDAR data input, maintenance of LDAR monitoring devices, leak repairs on equipment subject to LDAR, and/or any other field duties generated by LDAR requirements;

n. “LDAR Program” shall mean the provisions set forth at Paragraphs 17 - 54 of this Decree, including measures required by 40 C.F.R. Part 61, Subpart V, 40 C.F.R. Part 63, Subpart FFFF, or any applicable state or local equipment leak requirements, and measures required to mitigate alleged environmental harm resulting from alleged noncompliance at the Covered Process Units and Covered Equipment (including “action levels” requirements in Paragraphs 23 and 24, “repair attempt for valves” requirement in Paragraph 27, “drill and tap” requirements in Paragraphs 28 - 30, and the “valve replacement and improvement” requirements in Paragraphs 32 - 42);

o. “Low Emissions Packing” or “Low E Packing” shall mean either (1) or (2) as follows:

(1) A valve packing product, independent of any specific valve, for which the manufacturer has issued a written warranty that the packing will not emit fugitives at greater than 100 parts per million (ppm), and that, if it does so emit at any time in the first five (5) years, the manufacturer will replace the product; provided, however, that no packing product shall qualify as “Low E” by

reason of written warranty unless the packing first was tested by the manufacturer or a qualified testing firm pursuant to generally accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or

(2) A valve packing product, independent of any specific valve, that has been tested by the manufacturer or a qualified testing firm pursuant to generally accepted good engineering practices for testing fugitive emissions, and that, during the test, at no time leaked at greater than 500 ppm, and on Average, leaked at less than 100 ppm;

p. “Low Emissions Valve” or “Low E Valve” shall mean either (1) or (2) as follows:

(1) A valve (including its specific packing assembly) for which the manufacturer has issued a written warranty that it will not emit fugitives at greater than 100 ppm, and that, if it does so emit at any time in the first five (5) years, the manufacturer will replace the valve; provided, however, that no valve shall qualify as “Low E” by reason of written warranty unless the valve (including its specific packing assembly) either:

(a) First was tested by the manufacturer or a qualified testing firm pursuant to generally accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or

(b) Is as an Extension of another valve that qualified as “Low E” under Subparagraph 12.p(1)(a); or

(2) A valve (including its specific packing assembly) that:

(a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on Average, leaked at less than 100 ppm; or

(b) Is an Extension of another valve that qualified as “Low E” under Subparagraph 12.p(2)(a);

q. “Lower Flammability Limit” shall mean the level or threshold at which the constituents in the line will become flammable or combustible;

r. “Maintenance Shutdown” shall mean a shutdown of a Covered Process Unit that is done either for the purpose of scheduled maintenance or lasts longer than fourteen (14) calendar days;

s. “Method 21” shall mean the test method found at 40 C.F.R. Part 60, Appendix A, Method 21. To the extent that the Covered Equipment is subject to regulations that modify Method 21, those modifications shall be applicable. To the extent that insulated valves that are Covered Equipment meet the criteria of the EPA-approved alternative monitoring method issued to The Dow Chemical Company on August 14, 2008, that alternative shall be applicable;

t. “New Valves” shall mean valves that are installed and/or become subject to the requirements of LDAR after the Effective Date of the Consent Decree;

u. “OEL” or “Open-Ended Line” shall mean any valve, except pressure relief valves, having one side of the valve seat in contact with process fluid and one side open to atmosphere, either directly or through open piping;

v. “OELCD” shall mean an open-ended valve or line at the closure device;

w. “OMP” shall mean an Operation and Maintenance Plan detailing the inspection schedule, potential corrective actions, and plans to review trends relating to the continuous emission monitoring units (# 27897AE, #27899AE, and #2514_CEMS, respectively) at Boiler #12, Boiler #13, and the Throx;

x. “Point of waste generation” or “POWG” shall mean the location where the waste stream exits the process unit component or storage tank prior to handling or treatment in an operation that is not an integral part of the production process, or in the case of waste management units that generate new wastes after treatment, the location where the waste stream exits the waste management unit component, as defined at 40 C.F.R. § 61.341;

y. “Renewable Operating Permit” shall mean the operating permit for the Facility issued by MDEQ pursuant to Michigan’s approved Title V permit program, known as the “renewable operating permit program,” codified at MAC R. 336.1210 through R 336.1219;

z. “Repair Verification Monitoring” shall mean the utilization of monitoring (or other method that indicates the relative size of the leak) within one (1) calendar day after each attempt at repair of a leaking piece of equipment in order to ensure that the leak has been eliminated or is below the applicable leak definition in the LDAR Program set forth in Section V (Clean Air Act Requirements);

aa. “Screening Value” shall mean the highest emission level that is recorded at each piece of equipment as it is monitored in compliance with Method 21;

bb. “TAB” shall mean the Total Annual Benzene quantity, as defined in 40 C.F.R. § 61.355, which prescribes a detailed procedure for calculating the TAB;

cc. “Throx” shall mean the thermal oxidizer with heat recovery unit consisting of a burner (thermal oxidizer), boiler, quencher, absorber, ionized wet scrubber(s), and stack; and

dd. “Waste Stream” shall mean the waste generated by a particular process unit, product tank, or waste management unit. The characteristics of the waste stream (*e.g.*, flow rate, benzene concentration, water content) are determined at the point of waste generation. Examples of a waste stream include Process Wastewater, product tank drawdown, sludge and slop oil removed from waste management units, and landfill leachate, as defined as 40 C.F.R. § 61.341.

IV. CIVIL PENALTY

13. Within thirty (30) Days after the Effective Date, Defendant shall pay the sum of \$4.55 million as a civil penalty, together with Interest accruing from the date on which the Consent Decree is lodged with the Court, at the rate determined as of the Date of Lodging, of which \$6,313 (plus Interest on that amount) will be paid to the EPA Hazardous Substances Superfund.

14. Defendant shall pay the civil penalty due by FedWire Electronic Funds Transfer (“EFT”) to the U.S. Department of Justice account, in accordance with instructions provided to Defendant by the Financial Litigation Unit (“FLU”) of the United States Attorney’s Office for the Eastern District of Michigan after the Effective Date. The payment instructions provided by the FLU will include a Consolidated Debt Collection System (“CDCS”) number, which Defendant shall use to identify all payments required to be made in accordance with this Consent Decree. The FLU will provide the payment instructions to:

Mr. Joe Jachens
The Dow Chemical Company
1255 Building
Midland, MI 48667
(989) 638-6489
jjachens@dow.com

on behalf of Defendant. Defendant may change the individual to receive payment instructions on its behalf by providing written notice of such change to the United States and EPA in accordance with Section XIX (Notices). At the time of payment, DSC shall send notice that payment has been made: (i) to EPA via email at cinwd_acctsreceivable@epa.gov or via regular mail at EPA Cincinnati Finance Office, 26 W. Martin Luther King Drive, Cincinnati, Ohio 45268; and (ii) to the United States via email or regular mail in accordance with Section XIX (Notices); and (iii) to EPA in accordance with Section XIX (Notices). Such notice shall state that the payment is for the civil penalty owed pursuant to the Consent Decree in *United States v. Dow Silicones Corporation* and shall reference the civil action number, CDCS Number and DOJ case numbers 90-5-2-1-10469 and 90-5-2-1-10469/1.

15. Defendant shall not deduct any penalties paid under this Decree pursuant to this Section or Section XIII (Stipulated Penalties) in calculating its federal income tax.

V. CLEAN AIR ACT COMPLIANCE REQUIREMENTS

16. DSC shall comply with Sections 111 and 112 of the CAA, 42 U.S.C. §§ 7411 and 7412, and the following implementing regulations at the Facility: 40 C.F.R. Part 61, Subpart V (National Emission Standard for Equipment Leaks (Fugitive Emission Sources)); 40 C.F.R. Part 61, Subpart FF (National Emission Standard for Benzene Waste Operations); 40 C.F.R. Part 63, Subpart FFFF (National Emission Standard for Hazardous Air Pollutants for Miscellaneous Organic Chemical Manufacturing); 40 C.F.R. Part 63, Subpart HHHHH (National Emission Standard for Miscellaneous Coating Manufacturing); 40 C.F.R. Part 63, Subpart MMM (National Emission Standard for Pesticide Active Ingredient Production); and 40 C.F.R. Part 63, Subpart EEEE (National Emissions Standards for Organic Liquids Distribution).

A. Applicability of the LDAR Program

17. The requirements of this LDAR Program set forth in Paragraphs 17 - 54 shall apply to all Covered Equipment at the Facility. The requirements of this LDAR Program are in addition to, and not in lieu of, the requirements of any other LDAR regulation that may be applicable to a piece of Covered Equipment. If there is a conflict between an LDAR regulation and this LDAR Program, DSC shall follow the more stringent of the requirements.

B. Facility-Wide LDAR Document

18. By no later than December 31, 2018, or ninety (90) Days after the Effective Date of this Consent Decree, whichever is earlier, DSC shall develop a Facility-wide document that describes: (i) the existing Facility-wide LDAR program (*e.g.*, applicability of regulations to process units and/or specific equipment; leak definitions; monitoring frequencies); (ii) a tracking program (*e.g.*, Management of Change) that ensures that new pieces of equipment added to the Facility or process changes made for any reason are integrated into the LDAR program and that pieces of equipment that are taken out of service are removed from the LDAR program; (iii) the roles and responsibilities of all LDAR Personnel; (iv) how the number of LDAR Personnel is sufficient to satisfy the requirements of the LDAR program and this LDAR Program; and (v) how the Facility plans to implement this LDAR Program required by this Consent Decree. DSC shall review this document on an annual basis and update it as needed by no later than December 31 of each year.

C. Monitoring Frequency and Equipment

19. Beginning no later than six (6) months after the Effective Date, for all Covered Equipment, DSC shall comply with the following periodic monitoring frequencies unless: (i) more frequent monitoring is required by federal, state, or

local laws or regulations; or (ii) the relevant Covered Process Unit has been permanently shut down:

a. Valves – Quarterly;

b. Pumps/Agitators – Monthly, except that monitoring shall not be required for pumps and agitators that are seal-less or that are equipped with a dual mechanical seal system that complies with the requirements of 40 C.F.R.

§ 63.1026(e) or 1028(e); and

c. Open-Ended Lines – Quarterly (monitoring shall be done at the closure device; if the closure device is a valve, monitoring shall be done in the same manner as any other valve, but also shall include monitoring at the end of the valve or line that is open to the atmosphere).

d. Compliance with the monitoring frequencies in this Paragraph 19 is not required when a specific applicable LDAR provision excludes or exempts, fully or partially, monitoring at a periodic frequency (*e.g.*, an exemption for equipment that is designated as unsafe-to-monitor or difficult-to-monitor or an exemption for pumps that have no externally actuated shaft), provided that DSC satisfies all applicable conditions and requirements for the exclusion or exemption set forth in the regulation. Further, if an applicable LDAR provision excludes or exempts monitoring at a periodic frequency for a valve, then that same exemption also applies to the OELCD associated with that valve.

20. Valves that Have Been Replaced, Repacked, or Improved Pursuant to Subsection G. For valves that have been replaced, repacked, or improved pursuant to Subsection G (Valve Replacement and Improvement Program), DSC may elect to monitor any or all such equipment at the most stringent monitoring frequency required by any LDAR regulation that applies to the piece of equipment, rather than the frequency specified in Paragraph 19 above. If any such piece of equipment is found to have a Screening Value above the leak definitions in Table 1 of Paragraph 23 (Leak Detection and Repair Action Levels), DSC shall monitor that piece of equipment monthly until the piece of equipment shows no leaks at or above the leak definition levels in Table 1 of Paragraph 23 for twelve consecutive months. At that time, DSC may commence monitoring at the frequency for that type of equipment set forth in either Paragraph 19 or Subparagraph 21.a.

21. Alternative Monitoring Frequencies for Valves and Open-Ended Lines after Two Years. At any time after two (2) consecutive years of monitoring valves and open-ended lines pursuant to the requirements of Paragraph 19, Defendant may elect to comply with the monitoring frequencies set forth in this Paragraph 21 in lieu of those set forth in Paragraph 19 by notifying EPA no later than three (3) months prior to changing to the monitoring frequency specified under this Paragraph. DSC may elect to comply with the monitoring requirements of this Paragraph for one or more of the Covered Process Units, but may not make

this election for anything less than all pieces of Covered Equipment of the same type (*i.e.*, valves or OELs) in one entire Covered Process Unit. An election to comply with the monitoring requirements of Subparagraph 21.a (for valves and/or OELs) must include an election to comply with Subparagraph 21.b; Defendant may not elect to comply with Subparagraph 21.a without also complying with Subparagraph 21.b.

a. For Valves and Open-Ended Lines that Have Not Leaked at any Time for at Least Two Consecutive Years of Monitoring. For valves and open-ended lines that have not leaked at any time for at least the two (2) years prior to electing this alternative, DSC shall monitor valves and open-ended lines one (1) time per year. If any leaks are detected during this alternative monitoring schedule or during an LDAR audit or a federal, state or local audit or inspection, DSC immediately shall start monitoring the leaking components pursuant to the requirements of Subparagraphs 19.a and 19.c.

b. For Valves and Open-Ended Lines that Have Leaked at any Time in the Prior Two Years of Monitoring. For valves and open-ended lines that have leaked at any time in the prior two (2) years of monitoring, DSC shall monitor each piece of equipment monthly until the piece of equipment shows no leaks for twelve consecutive months, at which time DSC may commence

monitoring at the frequency for that type of equipment set forth in

Subparagraphs 19.a and 19.c.

22. Beginning no later than six (6) months after the Effective Date, for all Covered Equipment, DSC shall comply with Method 21 in performing LDAR monitoring, using an instrument attached to a data logger (or an equivalent instrument), which directly electronically records the Screening Value detected at each piece of equipment, the date and time that each Screening Value is taken, and the identification numbers of the monitoring instrument and technician. Defendant shall transfer this monitoring data to an electronic database on at least a weekly basis for recordkeeping purposes. If, during monitoring in the field, a piece of Covered Equipment is discovered that is not listed in the data logger, DSC is permitted to monitor the piece of Covered Equipment and record, by any means available, the Screening Value, the date and time of the Screening Value, and the identification number of the technician. In such an instance, the failure initially to record the information electronically, in the data logger, does not constitute a violation of this Paragraph's requirement to record the required information electronically, provided that DSC thereafter adds the piece of Covered Equipment and the information regarding the monitoring event to the LDAR database within seven (7) Days.

D. Leak Detection and Repair Action Levels

23. Action Levels

a. Beginning no later than six (6) months after the Effective Date of this Consent Decree, for all leaks from Covered Equipment detected at or above the leak definitions listed in Table 1 below for the specific equipment type, DSC shall perform repairs in accordance with Paragraphs 25 through 30.

Table 1: Leak Definitions by Equipment Type

Equipment Type	Lower Leak Definition (ppm)
Valves	250
Pumps	500
Agitators	1000
OELs (at the Closure Device)	250

b. For purposes of these lower leak definitions, Defendant may elect to adjust or not to adjust the monitoring instrument readings for background pursuant to any applicable LDAR requirements that address background adjustment, provided that DSC complies with the requirements for doing so or not doing so.

24. Beginning no later than one hundred eighty (180) Days after the Effective Date of this Consent Decree, for all Covered Equipment and all valves, pumps, agitators, and OELs in heavy liquid service, at any time, including outside

of periodic monitoring, that evidence of a potential leak is detected through audio, visual, or olfactory sensing, DSC shall comply with all applicable regulations and, if repair is required, with Paragraphs 25 through 30.

E. Repairs

25. Except as provided in Subparagraph 37.d.1, by no later than five (5) days after detecting a leak on a piece of Covered Equipment, DSC shall perform a first attempt at repair. By no later than fifteen (15) days after leak detection, DSC shall perform a final attempt at repair or may place the piece of equipment on the Delay of Repair list provided that DSC has complied with all applicable regulations and with the requirements of Paragraphs 26 through 28. If a Screening Value for a piece of equipment shows a ppm level at or above the leak definition in Paragraph 23, but below the leak definition of any applicable maximum achievable control technology (“MACT”) standard under 40 C.F.R. Part 63, and after a repair attempt the piece of equipment is at or above the applicable MACT leak rate definition, the repair deadlines in this Paragraph apply only to the first detected leak.

26. Except as provided in Subparagraph 37.d, DSC shall perform Repair Verification Monitoring.

27. Repair Attempt for Valves (other than Control Valves) with Screening Values greater than or equal to 100 ppm but less than 250 ppm. For any valve,

excluding control valves, that has a Screening Value greater than or equal to 100 ppm but less than 250 ppm, DSC shall make an initial attempt to repair the valve and eliminate the leak by no later than five (5) days after detecting the leak. Repair Verification Monitoring shall be performed to determine if the repair has been successful. If, upon Repair Verification Monitoring, the Screening Value is less than 250 ppm, no further actions shall be required for that monitoring event for that valve. If, upon Repair Verification Monitoring, the Screening Value is greater than or equal to 250 ppm, DSC shall undertake the requirements for repair required by this Consent Decree (and all deadlines for such requirements shall be based on the date of the failed Repair Verification Monitoring), but DSC shall not be required to replace or repack the valve pursuant to Subsection G.

28. Drill and Tap for Valves (other than Control Valves)

a. Except as provided in Subparagraph 28.b, for leaking valves (other than control valves), when other repair attempts have failed to reduce emissions below the applicable leak definition and DSC is not able to remove the leaking valve from service, DSC shall attempt at least one drill-and-tap repair (with a second injection of an appropriate sealing material if the first injection is unsuccessful at repairing the leak) before placing the valve (other than provisionally, as set forth in Subparagraph 28.c), on the DOR list.

b. Drill-and-tap is not required: (i) when Subparagraph 37.d.1 applies; or (ii) when there is a major safety, mechanical, product quality, or environmental issue with repairing the valve using the drill-and-tap method, in which case, DSC shall document the reason(s) why any drill-and-tap attempt was not performed prior to placing any valve on the DOR list.

c. If a drill-and-tap attempt can reasonably be completed within the fifteen-day repair period, Defendant shall complete the drill-and-tap attempt in that time period. If a drill-and-tap attempt cannot reasonably occur within the fifteen-day repair period (*e.g.*, if DSC's drill-and-tap contractor is not local and must mobilize to the Facility), DSC provisionally may place the valve on the DOR list pending attempting the drill-and-tap repair as expeditiously as practicable. In no event (other than as provided in Subparagraph 28.b) may DSC take more than thirty (30) days from the initial monitoring to attempt a drill-and-tap repair. If drill-and-tap is successful, the valve shall be removed from the provisional DOR list.

29. Except as provided in Subparagraph 37.d.1, Defendant shall record the following information for each leak: the date of all repair attempts; the repair methods used during each repair attempt; the date and Screening Values for all re-monitoring events; and, if applicable, documentation of compliance with Paragraphs 28 and 30 for Covered Equipment placed on the DOR list.

30. Nothing in Paragraphs 27 through 29 is intended to prevent DSC from taking a leaking piece of Covered Equipment out of service; provided however, that prior to placing the leaking piece of Covered Equipment back in service, DSC must repair the leak or must comply with the requirements of Subsection F (Delay of Repair) to place the piece of Covered Equipment on the DOR list.

F. Delay of Repair

31. Beginning no later than the Effective Date of this Consent Decree for the requirements in Subparagraphs 31.b and 31.c(i), and beginning no later than ninety (90) Days after the Effective Date of this Consent Decree for the other requirements set forth below in this Paragraph 31, for all Covered Equipment placed on the DOR list, DSC shall:

- a. Require sign-off from the relevant process unit supervisor or person of similar authority that the piece of Covered Equipment is technically infeasible to repair without a process unit shutdown;
- b. Undertake periodic monitoring of the Covered Equipment placed on the DOR list at the frequency required under this Consent Decree for other pieces of Covered Equipment of that type in the process unit; and
- c. Either (i) repair the piece of Covered Equipment within the time frame required by the applicable LDAR provision; or, (ii) if applicable under

Subsection G, replace, repack, or improve the piece of Covered Equipment by the timeframes set forth in Subsection G below.

G. Valve Replacement and Improvement Program

32. Commencing no later than one hundred eighty (180) Days after the Effective Date of this Consent Decree, Defendant shall implement the program set forth in Paragraphs 33 - 41 to improve the emissions performance of the valves that are Covered Equipment in each Covered Process Unit. All references to “valves” in Paragraphs 33 - 39 exclude pressure relief valves.

33. List of all Existing Valves in the Covered Process Units. In the first Annual Report required under Paragraph 42 and Section IX (Reporting Requirements), provided that it is due at least one hundred eighty (180) Days after the Effective Date of this Consent Decree, and otherwise in the second Annual Report, DSC shall include a list of the tag numbers of all valves subject to this LDAR Program, broken down by Covered Process Unit, that are in existence as of the Effective Date (“Existing Valves”).

34. Proactive Initial Valve Tightening Work Practices Relating to each New Valve that is Installed and each Existing Valve that is Repacked. DSC shall undertake the work practices set forth in Paragraph 35 with respect to each New Valve that is subject to LDAR that is installed (whether the New Valve replaces an

Existing Valve or is newly added to a Covered Process Unit) and each Existing Valve that is repacked.

35. Upon installation (or re-installation in the case of repacking), Defendant shall tighten the valve's packing gland nuts or their equivalent (*e.g.*, pushers) to: (i) the manufacturer's recommended gland nut or packing torque; or (ii) any appropriate tightness that will minimize the potential for fugitive emission leaks of any magnitude. This practice shall be implemented prior to the valve's exposure (or re-exposure, in the case of repacking) to process fluids. Not less than three (3) days nor more than two (2) weeks after a New Valve that has been installed or an Existing Valve that has been repacked first is exposed to process fluids at operating conditions, DSC shall recheck the load on the valve packing and, if necessary, shall tighten the packing gland nuts or their equivalent (*e.g.*, pushers) to: (i) the manufacturer's recommended gland nut or packing torque; or (ii) any appropriate tightness that will minimize the potential for fugitive emission leaks of any magnitude.

36. Installing New Valves. Except as provided in Subparagraphs 36.a, 36.b, 36.c, or Paragraph 38, DSC shall ensure that each New Valve (other than a valve that serves as the closure device on an open-ended line) that it installs in each Covered Process Unit and that, when installed, will be regulated under LDAR, either is a Low-E Valve or is fitted with Low-E Packing. This requirement applies

to entirely New Valves that are added to a Covered Process Unit and to Existing Valves that are replaced for any reason in a Covered Process Unit.

a. This Paragraph 36 shall not apply in emergencies or exigent circumstances requiring immediate installation or replacement of a valve where a Low-E Valve or Low-E Packing is not available on a timely basis. Any such instance shall be reported in the Annual Report required by Paragraph 42 and Section IX (Reporting Requirements).

b. This Paragraph 36 shall not apply to valves that are installed temporarily for a short-term purpose and then removed (*e.g.*, valves connecting a portion of the Covered Process Unit to a testing device).

c. This Paragraph 36 shall not apply for new valve installations where a Low-E Valve is not commercially available and a vendor does not offer installation of Low-E Packing in the commercially available non-Low-E valve. In this circumstance, DSC is not required to replace the packing of the new non-Low-E valve with Low-E Packing.

37. Replacing or Repacking Existing Valves that Have Screening Values at or above 250 ppm with Low-E Valves or Low-E Packing.

a. Existing Valves Required to Be Replaced or Repacked. Except as provided in Paragraph 39, for each Existing Valve that has a Screening Value at or above 250 ppm during any two (2) monitoring events over the duration of this

LDAR Program, DSC shall either replace or repack the Existing Valve with a Low-E Valve or Low-E Packing.

b. Timing: If Replacing or Repacking Does Not Require a Process Unit Shutdown. If replacing or repacking does not require a process unit shutdown, DSC shall replace or repack the Existing Valve by no later than thirty (30) days after the monitoring event that triggers the replacing or repacking requirement, unless DSC complies with the following:

(1) Prior to the deadline, DSC must take all actions necessary to obtain the required valve or valve packing, including all necessary associated materials, as expeditiously as practical, and retain documentation of the actions taken and the date of each such action;

(2) If, despite DSC's efforts to comply with Subparagraph 37.b, the required valve or valve packing, including all necessary associated materials, is not available in time to complete the installation within one (1) month, DSC must take all reasonable actions to minimize emissions from the valve pending completion of the required replacing or repacking. Examples include:

- (a) Repair;
- (b) More frequent monitoring, with additional repairs as needed; or

(c) Where practical, interim replacing or repacking of a valve with a valve that is not a Low-E Valve or with packing that is not Low-E Packing; and

(3) DSC must promptly perform the required replacing or repacking after Defendant's receipt of the valve or valve packing, including all necessary associated materials.

c. Timing: If Replacing or Repacking Requires a Process Unit Shutdown. If replacing or repacking requires a process unit shutdown, DSC shall replace or repack the Existing Valve during the first Maintenance Shutdown that follows the monitoring event that triggers the requirement to replace or repack the valve, unless DSC documents that insufficient time existed between the monitoring event and that Maintenance Shutdown to enable DSC to purchase and install the required valve or valve packing technology. In that case, DSC shall undertake the replacing or repacking at the next Maintenance Shutdown that occurs after DSC's receipt of the valve or valve packing, including all necessary associated materials.

d. Actions Required Pending Replacing or Repacking Pursuant to Subparagraphs 37.a-37.c.

(1) Actions Required Pursuant to Subsection V.E. DSC shall not be required to comply with Subsection E (Repairs) pending replacing or repacking pursuant to Subparagraphs 37.a-37.c if DSC completes the replacing or

repacking by the date that is no later than thirty (30) days after detecting the leak. If DSC does not complete the replacing or repacking within thirty (30) days, or if, at the time of the leak detection, DSC reasonably can anticipate that it might not be able to complete the replacing or repacking within thirty (30) days, DSC shall comply with all applicable requirements of Subsection E (Repairs).

(2) Actions Required Pursuant to Applicable Regulations.

For each Existing Valve that has a Screening Value at or above 500 ppm, DSC shall comply with all applicable regulatory requirements, including repair and “delay of repair,” pending replacing or repacking pursuant to Subparagraphs 37.a-37.c.

38. Provisions Related to Low-E Valves and Low-E Packing.

a. “Low-E” Status Not Affected by Subsequent Leaks. If, during monitoring after installation, a Low-E Valve or a valve using Low-E Packing has a Screening Value at or above 250 ppm, the leak is not a violation of this Decree, does not invalidate the “Low-E” status or use of that type of valve or packing technology, and does not require replacing other, non-leaking valves or packing technology of the same type.

b. Repairing Low-E Valves. If, during monitoring after installation, a Low-E Valve or a valve using Low-E Packing has a Screening Value at or above 250 ppm, Paragraphs 21, 22, and 26 shall apply.

c. Replacing or Repacking Low-E Valves. On any occasion when a Low-E Valve or a valve that utilizes Low-E Packing has a Screening Value at or above 250 ppm but below 500 ppm, DSC shall not be required to replace or repack it. On any occasion when a Low-E Valve or a valve that utilizes Low-E Packing has a Screening Value at or above 500 ppm, Defendant shall replace or repack it pursuant to the requirements of Paragraph 37.

39. Commercial Unavailability of a Low-E Valve or Low-E Packing. Defendant shall not be required to utilize a Low-E Valve or Low-E Packing to replace or repack a valve if a Low-E Valve or Low-E Packing is commercially unavailable. The factors relevant to the question of commercial unavailability and the procedures that DSC must follow to assert that a Low-E Valve or Low-E Packing is commercially unavailable are set forth in Appendix A.

40. Records of Low-E Valves and Low-E Packing. Prior to installing any Low-E Valve or Low-E Packing, or if not possible before installation, then as soon as possible after installation, DSC shall secure from each manufacturer documentation that demonstrates that the proposed valve or packing technology meets the definition of “Low-E Valve” and/or “Low-E Packing.” DSC shall make the documentation available upon request.

41. Nothing in Paragraphs 36 - 38 requires DSC to utilize any valve or valve packing technology that is not appropriate for its intended use in a Covered Process Unit.

42. In each Annual Report due under Section IX (Reporting Requirements) of this Decree, DSC shall include a separate section in the Report that: (i) describes the actions it took to comply with this Subsection G (Valve Replacement and Improvement Program), including identifying each piece of equipment that triggered a requirement in Subsection G, the Screening Value for that piece of equipment, the type of action taken (*i.e.*, replacement, repacking, or improvement), and the date when the action was taken; (ii) identifies any required actions that were not taken and explains why; and (iii) identifies the schedule for any known, future replacements, repacking, improvements, or eliminations.

H. Management of Change

43. To the extent not already done, beginning no later than ninety (90) Days after the Effective Date of this Consent Decree, DSC shall ensure that each valve, pump, agitator, and OEL added to the Covered Process Units for any reason is evaluated to determine if it is subject to LDAR requirements. DSC also shall ensure that each valve, pump, agitator, and OEL that was subject to the LDAR program is eliminated from the LDAR program if it is physically removed from a

Covered Process Unit. This evaluation shall be a part of Defendant's Management of Change protocol.

I. Training

44. By no later than two hundred seventy (270) Days after the Effective Date of this Consent Decree, DSC shall develop a training protocol (or, as applicable, require its contractor to develop a training protocol for the contractor's employees) and shall ensure that all LDAR Personnel have completed training on all aspects of LDAR that are relevant to the person's duties. Once per calendar year starting in the calendar year after completion of initial training, DSC shall ensure that refresher training is performed with respect to each employee or contractor; provided, however, that refresher training is not required if an individual's employment at the Facility ceases prior to the end of the calendar year or no longer involves duties relevant to LDAR. Beginning no later than the Effective Date of this Consent Decree, DSC shall ensure (or as applicable, require its contractor to ensure for the contractor's employees) that new LDAR Personnel are sufficiently trained prior to any field involvement (other than supervised involvement for purposes of training) in the Facility's LDAR program.

J. Quality Assurance (QA)/Quality Control (QC)

45. Daily Certification by Monitoring Technicians. Commencing by no later than thirty (30) Days after the Effective Date of this Consent Decree, on each

day that monitoring occurs, at the end of such monitoring, Defendant shall ensure that each monitoring technician certifies that the data collected accurately represents the monitoring performed for that day by requiring the monitoring technician to sign a form that includes the following certification:

On [insert date], I reviewed the monitoring data that I collected today and to the best of my knowledge and belief, the data accurately represent the monitoring that I performed today.

46. Commencing by no later than the first full calendar quarter after the Effective Date of this Consent Decree, at times that are not announced to the LDAR monitoring technicians, an LDAR-trained employee or contractor of DSC, who does not serve on a routine basis as an LDAR monitoring technician at the Facility, shall undertake the following no less than once per calendar quarter:

- a. Verify that equipment was monitored at the appropriate frequency;
- b. Verify that proper documentation and sign-offs have been recorded for all equipment placed on the DOR list;
- c. Ensure that repairs have been performed in the required periods;
- d. Review monitoring data and equipment counts (*e.g.*, number of pieces of equipment monitored per day) for feasibility and unusual trends;

- e. Verify that proper calibration records and monitoring instrument maintenance information are maintained;
- f. Verify that other Facility LDAR program records are maintained as required; and
- g. Observe in the field each LDAR monitoring technician who is conducting leak detection monitoring to ensure that monitoring during the quarterly QA/QC is being conducted as required.

DSC promptly shall correct any deficiencies detected or observed. DSC shall maintain a log that: (i) records the date that the reviews, verifications, and observations required by this Paragraph are undertaken; and (ii) describes the nature and timing of any corrective actions taken.

K. LDAR Audits and Corrective Action

47. LDAR Audit Schedule. DSC shall undertake annual LDAR audits of all Covered Process Units at the Facility in accordance with the following schedule: (i) for the first LDAR audit, the LDAR Audit Commencement Date shall be no later than three (3) months after the Effective Date of this Consent Decree and the LDAR Audit Completion Date shall occur within four (4) months of the LDAR Audit Commencement Date; and (ii) for each subsequent LDAR audit, the LDAR Audit Completion Date shall occur within the same calendar

quarter (of the subsequent year) that the first LDAR Audit Completion Date occurred.

48. Requirements Related to Persons Conducting LDAR Audits. For the first, third and fifth LDAR audits conducted under this Consent Decree, DSC shall retain and utilize a third party with experience in conducting LDAR audits. DSC shall select a different company from the Facility's regular LDAR contractor to perform the third-party audit and DSC may not hire that company as the Facility's regular LDAR contractor during the life of this Consent Decree. The second and fourth audits may be either third-party audits or audits using (alone or in combination with third-party personnel) personnel of DSC's subsidiaries/parent company from other facilities or from centralized DSC (and/or subsidiary or parent company) functions that do not primarily serve the Facility. All such internal audits must be conducted by personnel familiar with LDAR requirements and this LDAR Program.

49. For each Covered Process Unit, each LDAR audit shall include:

- (i) reviewing compliance with all applicable LDAR provisions, including such requirements related to valves, pumps, agitators and OELs in heavy liquid service;
- (ii) reviewing and/or verifying, as applicable, the same items that are required to be reviewed and/or verified in Subparagraphs 46.a - 46.f;
- (iii) reviewing whether any pieces of equipment that are required to be in the LDAR program are not included;

and (iv) “comparative monitoring” as described in Paragraph 50. LDAR audits after the first audit also shall include reviewing the Facility’s compliance with this LDAR Program.

50. Comparative Monitoring. Comparative monitoring during LDAR audits shall be undertaken as follows:

a. Calculating a Comparative Monitoring Audit Leak Percentage.

Covered Equipment shall be monitored in order to calculate a leak percentage for each Covered Process Unit, broken down by equipment type (*i.e.*, valves, pumps, agitators, and OELCDs). For descriptive purposes under this Section, the monitoring that takes place during the audit shall be called “comparative monitoring” and the leak percentages derived from the comparative monitoring shall be called the “Comparative Monitoring Audit Leak Percentages.” DSC shall undertake comparative monitoring at all Covered Process Units in each audit. In undertaking Comparative Monitoring, DSC shall not be required to monitor every component in each Covered Process Unit.

b. Calculating the Historic, Average Leak Percentage from Prior

Periodic Monitoring Events. For each Covered Process Unit, the historic, Average leak percentage from prior periodic monitoring events, broken down by equipment type (*i.e.*, valves (excluding pressure relief valves), pumps, agitators, and except as provided in Subparagraph d below, OELCDs) shall be calculated. The following

number of complete monitoring periods immediately preceding the comparative monitoring shall be used for this purpose: valves - 4 periods; pumps and agitators - 12 periods; and, except as provided in Subparagraph d below, OELCDs - 4 periods.

c. Calculating the Comparative Monitoring Leak Ratio. For each Covered Process Unit and each type of Covered Equipment, the ratio of the Comparative Monitoring Audit Leak Percentage from Subparagraph a of this Paragraph to the historic, Average leak percentage from Subparagraph b shall be calculated. This ratio shall be called the “Comparative Monitoring Leak Ratio.” If the denominator in this calculation is “zero,” it shall be assumed (for purposes of this calculation but not for any other purpose under this Consent Decree or under any applicable laws and regulations) that one leaking piece of equipment was found in the process unit through routine monitoring during the 12-month period before the comparative monitoring.

d. In only the first LDAR audit, DSC shall not be required to undertake comparative monitoring on OELCDs or calculate a Comparative Monitoring Leak Ratio for OELCDs because of the unavailability of historic, Average leak percentages for OELCDs.

51. When More Frequent Periodic Monitoring is Required. If a Comparative Monitoring Audit Leak Percentage calculated pursuant to

Subparagraph 50.a triggers a more frequent monitoring schedule under any applicable federal, state, or local law or regulation than the frequencies listed in the applicable Paragraph in Subsection C (Monitoring Frequency and Equipment) – that is, Paragraph 19, 20, or 21 – for the equipment type in that Covered Process Unit, DSC shall monitor the affected type of equipment at the greater frequency unless and until less frequent monitoring is again allowed under the specific federal, state, or local law or regulation. At no time may DSC monitor at intervals less frequently than those listed in the applicable Paragraph in Subsection V.C (Monitoring Frequency and Equipment).

52. Corrective Action Plan (“CAP”)

a. Requirements of a CAP. By no later than thirty (30) Days after each LDAR Audit Completion Date, Defendant shall develop a preliminary Corrective Action Plan (“CAP”) if: (i) the results of an LDAR audit identify any deficiencies in the Facility’s LDAR Program; or (ii) a Comparative Monitoring Leak Ratio calculated pursuant to Subparagraph 50.c is 3.0 or higher *and* the Comparative Monitoring Audit Leak Percentage calculated pursuant to Subparagraph 50.a is greater than or equal to 0.5 percent. The preliminary CAP shall describe the actions that Defendant has taken or shall take to address: (i) the deficiencies and/or (ii) the causes of a Comparative Monitoring Leak Ratio that is 3.0 or higher and the Comparative Monitoring Audit Leak Percentage is at or

above 0.5 percent. DSC shall include a schedule by which actions that have not yet been completed shall be completed. DSC shall complete each corrective action item promptly with the goal of completing each action within the date that is ninety (90) Days after the LDAR Audit Completion Date. If any action is not completed or not expected to be completed within ninety (90) Days after the LDAR Audit Completion Date, DSC shall explain the reasons and propose a schedule for prompt completion in the final CAP to be submitted under Subparagraph 52.b.

b. Submission of the Final CAP to EPA. By no later than one hundred twenty (120) Days after the LDAR Audit Completion Date, Defendant shall submit the final CAP to EPA, together with a certification of the completion of each item of corrective action. If any action is not completed at the time of submittal of the final CAP, DSC shall explain the reasons, together with a proposed schedule for prompt completion. DSC shall submit a supplemental certification of completion by no later than thirty (30) Days after completing all actions.

c. EPA Comment on CAP. EPA may submit comments on the CAP. Except for good cause, EPA may not request DSC to modify any action within the CAP that already has been completed or is in progress at the time of EPA's comments. Within the date that is thirty (30) Days after receipt of any comments from EPA, DSC shall submit a reply. Disputes arising with respect to

any aspect of a CAP shall be resolved in accordance with the dispute resolution provisions of Section XV (Dispute Resolution) of this Consent Decree.

d. Extension of Completion Dates. For any corrective action item for which DSC must propose a schedule for completion in the final CAP submitted to EPA, DSC may request an extension from EPA for good cause of no more than one (1) year of the deadline. An extension is not effective unless agreed to by EPA in writing. EPA's decision regarding a request for extension is subject only to Defendant's right to invoke Dispute Resolution (Section XV). Defendant may request an extension of more than one (1) year for good cause, but such an extension would be subject to the approval of the United States and the Court pursuant to Section XXII (Modification).

L. Certification of Compliance

53. Within one hundred eighty (180) Days after the initial LDAR Audit Completion Date, DSC shall certify to EPA that, to the signer's best knowledge and belief formed after reasonable inquiry: (i) except as otherwise identified, the Facility is in compliance with all applicable LDAR provisions and this LDAR Program; (ii) DSC has completed all corrective actions, if applicable, or is in the process of completing all corrective actions pursuant to a CAP; and (iii) all equipment at the Facility that is regulated under LDAR has been identified and included in the Facility's LDAR Program. To the extent that DSC cannot make the

certification in all respects, it shall specifically identify any deviations from items (i)-(iii).

M. LDAR Program Recordkeeping

54. DSC shall keep all records required by this LDAR Program, including each LDAR audit report, to document compliance with the requirements of this LDAR Program for at least one (1) year after termination of this Consent Decree. Upon request by EPA, DSC shall make all such documents available to EPA and shall provide, in electronic format if so requested, all LDAR monitoring data generated during the life of this Consent Decree.

N. Benzene Waste

55. By no later than one (1) year after the Effective Date of the Consent Decree, DSC shall submit a Benzene Waste Sampling Plan (“BWSP”) to EPA for approval in accordance with Section XI (Approval of Deliverables).

56. The BWSP shall include the following:

- a. A list of all Waste Streams that contributed 0.05 Mg/yr or more of benzene at the POWG to the previous year’s TAB calculations;
- b. Sampling locations as defined at 40 C.F.R. § 61.341, including process flow diagrams identifying the POWG;

c. Procedure(s) for annually updating the POWG list of Waste Streams containing benzene, and for updating the BWSP for any stream(s) now containing 0.05 Mg/yr or more of benzene;

d. Detailed procedures for collecting three samples from each POWG and methods for analysis of representative samples, following 40 C.F.R. § 61.355(a). Acceptable sampling methods shall include: EPA SW-846 Method 5030, Purge-and-Trap for Aqueous Samples and EPA SW-846 Method 8260, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), or EPA Method 624, Purgeables; and

e. Methods for calculating flow for semi-annual and annual TAB calculations.

57. Commencing no later than one (1) year after the Effective Date of the Consent Decree and continuing on an annual basis thereafter, Defendant shall determine the TAB at the Facility in accordance with the most recently EPA-approved BSWP and 40 C.F.R. § 61.355(a).

58. Defendant shall include in the Annual Reports submitted in accordance with Section IX (Reporting Requirements) all sampling results and TAB calculations.

59. No later than ninety (90) Days after DSC updates the BWSP, in accordance with Paragraph 56.c, DSC shall submit a revised BWSP to EPA for approval in accordance with Section XI (Approval of Deliverables).

O. Continuous Emission Monitoring

60. Operation and Maintenance Plan. By no later than one hundred eighty (180) Days after the Effective Date of the Consent Decree, DSC shall submit to EPA for approval pursuant to Section XI (Approval of Deliverables) an Operation and Maintenance Plan (“OMP”) for the continuous emission monitoring units (#27897AE, #27899AE and #2514_CEMS, respectively) at Boiler #12, Boiler #13, and the Throx.

61. Commencing no later than thirty (30) Days after EPA approval and continuing thereafter, Defendant shall implement the OMP required by Paragraph 60, as approved by EPA, for the continuous emission monitoring units identified in Paragraph 60 above.

62. The OMP shall include the following:

- a. Schedule for monthly inspections;
- b. Unit inspection procedures and/or checklist, including calibration gas review; and
- c. Corrective action process to address any instances of deviations from operating parameter requirements, including identifying the root cause of

each deviation and ensuring that corrective actions are taken to address such deviations. Each root cause analysis must include:

- (1) Description of corrective actions taken in response to the deviation or, alternatively, an explanation of why no actions were taken;
- (2) Description of actions taken by DSC to prevent future deviations from the same or similar root cause(s); and
- (3) When the root cause is unknown, a description of efforts undertaken by DSC to determine the root cause.

63. OMP Plan Report. By no later than sixty (60) Days after two (2) years of implementation of the OMP, DSC shall submit a report to EPA (“OMP Plan Report”) that includes a summary and analysis of all root cause analyses performed under the OMP, and identifies any trends or commonalities among the root cause analyses. If a trend or commonality exists among the root causes that is within the control of DSC to correct, DSC shall include a proposal for corrective action in the OMP Plan Report to address the underlying causes and provide a proposed schedule for implementing such corrective action. DSC shall implement the proposed corrective action in accordance with the OMP Plan Report.

P. Thermal Oxidizer (Throx) Automated Alert System

64. By no later than eighteen (18) months after the Effective Date of the Consent Decree, Defendant shall develop and thereafter continuously operate,

consistent with technological limitations, manufacturers' specifications, and good engineering and maintenance practices, an automated alert system to notify process operators who work in buildings containing processes that are controlled by the Throx when the Throx stops operating for any reason ("downtime events"). The automated alert system shall meet the requirements of Subparagraphs 64.a and 64.b.

a. The automated alert system shall notify all process operators before planned downtime events, and immediately after unplanned downtime events occur. Short-duration events, which would not provide sufficient time to allow initiation of secondary controls before the Throx returns to operation, do not need to be communicated to the process operators.

b. Until the automated alert system is in operation, Defendant shall continue to operate its existing method of notifying process unit control room personnel when the Throx is not operating by following both its THROX Alerts Procedure and THROX Alerts Procedure Supplement. Under these procedures, environmental personnel evaluate the Throx outage and, if the duration warrants, initiate a site-wide alert message; process unit control room personnel are required to respond to the alert, and security personnel follow up if one or more process unit control rooms fail to respond; and process unit control room personnel are notified at the end of the Throx outage event.

65. The relevant building process operator shall start to operate and continue operating the secondary controls identified in the Renewable Operating Permit (*e.g.*, condensers, water scrubbers) throughout the duration of each Throx downtime event to ensure the required level of control at the affected process units as follows:

a. For unplanned Throx downtime events, as soon as practicable after being notified of such event through the automated alert system identified in Paragraph 64; and

b. For a planned Throx downtime event, by the date scheduled for such event.

66. By no later than ninety (90) Days after the installation of the automated alert system and continuing thereafter as necessary to train new employees, DSC shall provide training to personnel responsible for processes that are affected by Throx downtime events about the alert system and required follow-up actions as set forth in Paragraphs 64 and 65.

67. DSC shall notify personnel responsible for processes that are affected by Throx downtime events within twenty-four (24) hours of any changes to the alert system, and DSC shall train such personnel on any new procedures within ninety (90) Days of any changes.

68. DSC shall inform EPA of the dates of completion for the installation and implementation of the automated alert system and training as required by Paragraphs 64 through 66 in the first Annual Report required by Section IX (Reporting Requirements) after installation. DSC shall inform EPA of the completion of required training as required by Paragraph 66 in the Annual Reports required by Section IX (Reporting Requirements).

Q. Environmental Mitigation: Acetylene Vents 322 Building Project

69. By no later than thirty-six (36) months after the Effective Date of the Consent Decree and continuing thereafter, DSC shall route two process vents that contain acetylene at the 322 Building to the Throx through carbon steel piping. This is designed to achieve emissions reductions of approximately 60,000 pounds per year of acetylene based on 2016 production rates (“Acetylene Vents 322 Building Project”). These two vents are from the HP6 and HP7 processes.

70. As part of the routing project described in Paragraph 69, DSC shall monitor the new carbon steel process vent lines for the presence of oxygen to ensure the composite mixture remains below the lower flammability limit for that mixture. DSC shall install automated valves, oxygen monitors, pressure sensors, and flow sensors at the 322 Building prior to or contemporaneously with installing the new process lines required by Paragraph 69, to ensure the safety of the equipment. At all times when the Throx is out of operation or when total or partial

diversion of one or both vents is necessary for any safety-related or operational reason (*e.g.*, start-ups, shutdowns, process upsets, Throx maintenance issues, detection of high oxygen), DSC shall route emissions from vents at the 322 Building that contain acetylene to the 322 Building water scrubber 22452. Short-duration events of fewer than thirty (30) minutes, which would not provide sufficient time to allow re-routing to the water scrubber before the Throx returns to operation, are exempt from this requirement.

71. DSC shall obtain all required CAA permit(s) related to the Acetylene Vents 322 Building Project, including, but not limited to, an appropriate permit pursuant to CAA Subchapter I and pursuant to the applicable Michigan State Implementation Plan (“SIP”) provisions implementing CAA Subchapter I.

72. DSC shall describe the status of each of the actions required by Paragraphs 69 through 71, including the completion date for each action that has been completed, in the second Annual Report submitted in accordance with Section IX (Reporting Requirements). For any required actions that have not yet been completed prior to submittal of the second Annual Report, DSC shall explain the reason for the delay and include an estimated date by when each action shall be completed. DSC shall report the status of the uncompleted actions in the following Annual Report(s) until all actions have been completed.

R. Environmental Mitigation: Thermal Oxidizer (Throx) Reliability Improvement Project

73. By no later than eighteen (18) months after the Effective Date of the Consent Decree, DSC shall complete the following measures designed to prevent or limit the number of downtime events at the Throx:

- a. Install an electronic variable frequency drive in each of the two Throx blowers;
- b. Add one (1) bleed point on the outlet of each of the two Throx blowers;
- c. Install a drain and/or another mechanism to each of the two Throx blowers to allow DSC staff to monitor the amount of condensation in the line;
- d. Install one (1) redundant pressure transmitter in an appropriate location in relation to the existing pressure transmitter that has been subject to rainfall-derived infiltration and inflow;
- e. Conduct an assessment of all equipment associated with the 12 wet vent lines and 14 dry vent lines at the Throx. DSC must identify all stainless steel bolts, check valves and pressure gauges and any equipment that shows signs of stress cracking; and

f. Replace with the carbon steel equivalent all stainless steel bolts, check valves and pressure gauges, and any equipment that shows signs of stress cracking.

74. Defendant shall obtain any and all required CAA permit(s) related to the Throx Reliability Improvement Project described in Paragraph 73, above, including, but not limited to, an appropriate permit pursuant to CAA Subchapter I and pursuant to the applicable Michigan SIP provisions implementing CAA Subchapter I.

75. Defendant shall describe the status of each of the actions required by Paragraph 73, including the completion date for each action that has been completed, in the second Annual Report required by Section IX (Reporting Requirements). For any required actions that have not yet been completed prior to submittal of the second Annual Report, DSC shall explain the reason for the delay and include an estimated date by which each action shall be completed. DSC shall report the status of the uncompleted actions in the following Annual Report(s) until all actions have been completed.

S. Clean Air Act Compliance Plan

76. During the course of negotiations regarding this Consent Decree, DSC conducted a compliance review and audit at the Facility (“Audit”), consisting of an evaluation of approximately 1,400 products or other materials and their associated

process units or distribution operations to determine whether the process units or distribution operations were subject to 40 C.F.R. Part 63, and, if so, which subpart. As part of this Audit, DSC retained a third party consultant(s) experienced in MACT applicability determinations. The consultant prepared and implemented a multi-step process to identify the presence of hazardous air pollutants (“HAPs”) in each of the approximately 1,400 materials. Prior to the Audit, DSC: (i) did not consider the process units, products, and distribution operations referenced below to be subject to 40 C.F.R. Part 63; (ii) considered them to be subject to a different subpart of 40 C.F.R. Part 63; or (3) did not consider certain HAPs to be part of the process units or distribution operations and therefore not subject to Part 63. After completing the Audit, DSC has determined the following:

- a. Forty-five (45) process units are subject to 40 C.F.R. Part 63, Subpart FFFF;
- b. Thirty-seven (37) products are subject to 40 C.F.R. Part 63, Subpart HHHHH;
- c. Two (2) products are subject to 40 C.F.R. Part 63, Subpart MMM;
- d. Twenty-seven (27) process units previously identified as subject to 40 C.F.R. Part 63, Subpart FFFF, also contain one or more HAPs not previously evaluated for compliance under the regulations; and

e. Twenty-six (26) buildings with distribution operations are subject to 40 C.F.R. Part 63, Subpart EEEE.

77. By October 31, 2018, DSC shall either: (i) confirm that the list in Paragraph 76 is final; or (ii) submit to EPA a corrected list in accordance with Section XIX (Notices).

78. By April 30, 2019, DSC shall submit to EPA pursuant to Section XIX (Notices) the following information:

a. A list of all products and other materials that were evaluated as part of the Audit;

b. A detailed description of the Audit performed by DSC and all recommendations for corrective action made by the third party consultant(s); and

c. Identify each product, process unit, and distribution operation referenced in Paragraph 76 or 77 and the corresponding subpart of 40 C.F.R. Part 63 applicable to that product, process unit, or distribution operation, along with supporting rationale for DSC's determination as to the applicable subpart.

79. By April 30, 2019, DSC shall submit to EPA for approval pursuant to Section XI (Approval of Deliverables) a plan ("CAA Compliance Plan") with a proposed schedule, including milestones, for all process units, products, and distribution operations to achieve compliance with 40 C.F.R. Part 63. The

proposed schedule in the CAA Compliance Plan shall be as expeditious as practicable. The CAA Compliance Plan shall include:

a. Identification of each process change, control device, equipment modification or other corrective action necessary for each product, process unit, and distribution operation to achieve and maintain compliance with 40 C.F.R. Part 63, including:

(1) Selection, purchase, and installation of all necessary control devices, process changes, equipment modifications, and other corrective actions;

(2) All required performance testing to demonstrate compliance; and

(3) Identification of all MDEQ permits necessary for installation and operation of new control devices, process changes, equipment modifications, and other corrective actions identified in this Subparagraph a.

(4) DSC shall submit to EPA pursuant to Section XIX (Notices) copies of all permit applications submitted to MDEQ referenced in this Paragraph quarterly, within thirty (30) Days after the end of each calendar quarter.

b. For each process change, control device, equipment modification, and other corrective action referenced in Subparagraph a, a proposed

schedule including milestones by which DSC will provide the corresponding estimated capital and annual operating costs.

c. For any corrective action recommended by the third party consultant as part of the Audit that DSC proposes not to implement, an explanation as to why DSC does not plan to implement such recommended corrective action.

80. DSC shall implement the CAA Compliance Plan required by this Subsection V.S as approved by EPA pursuant to Section XI (Approval of Deliverables).

81. DSC shall submit to EPA pursuant to Section XIX (Notices) all performance testing notifications for tests to be performed as part of the CAA Compliance Plan at least ten (10) Days prior to the scheduled performance test. Within sixty (60) Days of completion of any such performance tests, DSC shall submit to EPA pursuant to Section XIX (Notices) the final report for the test, including a summary of results and all data from the testing.

82. Extension of Completion Dates. For any corrective action item for which DSC must propose a schedule for completion in the CAA Compliance Plan, DSC may later request an extension of time from EPA of no more than one (1) year of the deadline if DSC demonstrates that an unanticipated problem(s) prevented completion according to the originally proposed schedule and DSC notifies EPA of this problem promptly upon its discovery. An extension is not

effective unless agreed to by EPA in writing. EPA's decision regarding a request for extension is subject only to Defendant's right to invoke Dispute Resolution (Section XV). Defendant may request an extension of more than one (1) year for good cause, but such an extension would be subject to the approval of the United States and the Court pursuant to Section XXII (Modification).

83. CAA Compliance Plan Report. By no later than one hundred twenty (120) Days after completion of implementation of the CAA Compliance Plan, DSC shall submit to EPA for approval pursuant to Section XI (Approval of Deliverables) a final report describing implementation of the CAA Compliance Plan ("CAA Compliance Plan Report"). The CAA Compliance Plan Report shall contain the following:

- a. Description of implementation of the requirements listed in Subparagraphs 79.a and 79.b above and any problems encountered during implementation of each requirement; and
- b. A Notification of Compliance Status ("NOCS"), or a revised NOCS for any NOCS submitted prior to the Date of Lodging, for each of the products, process units, and distribution operations identified pursuant to Paragraph 78.

VI. EPCRA/CERCLA COMPLIANCE REQUIREMENTS

84. DSC shall comply with the requirements of Section 304 of EPCRA, 42 U.S.C. § 11004, and Section 103(a) of CERCLA, 42 U.S.C. § 9603.

85. Spill/Release Reporting Policy. By September 30, 2018, DSC shall implement a Spill/Release Reporting Policy (“Spill/Release Reporting Policy”) that incorporates the following provisions:

- a. DSC shall develop an emergency-release notification form.

This form shall include:

- (1) The date and time of the release;
- (2) The chemical(s) involved and the quantity(ies) released to the extent known at the time of reporting;
- (3) Telephone numbers for the National Response Center (“NRC”);
- (4) Telephone numbers and names of contacts for the Michigan SERC and the Midland County LEPC;
- (5) An area on the form to identify when (the dates and times) the following entities are orally notified of a reportable release: the Midland County LEPC, the Michigan SERC, and the NRC;

(6) An area on the form to identify the dates that the written follow-up reports are sent to the Michigan Midland County LEPC and the Michigan SERC; and

(7) An area on the form to include the date and time when the released quantity has been determined by the Facility.

b. The Spill/Release Reporting Policy shall require reporting of reportable quantity releases, including during startup, shutdown, and malfunctions, “immediately” within the meaning of Section 103 of CERCLA, 42 U.S.C. § 9603(a), and Section 304 of EPCRA, 42 U.S.C. § 11004, upon obtaining knowledge of exceeding the reportable quantity, and may impose a voluntary standard of: (i) reporting releases prior to obtaining knowledge of a reportable quantity; and (ii) reporting releases that do not exceed the reportable quantity.

86. The Spill/Release Reporting Policy shall require: (i) immediate notification to the LEPC, the SERC, and the NRC when DSC has knowledge that a reportable quantity of any chemical is released, and (ii) a written follow-up report to the SERC and LEPC within thirty (30) Days of a notification of the release of a reportable quantity.

87. Root Cause Analysis. For each release of a reportable quantity of a CERCLA hazardous substance or an EPCRA extremely hazardous substance that occurs after the Effective Date, DSC shall conduct a root cause analysis of the

event, and implement corrective actions for the identified root causes, in accordance with the policy which is attached as Appendix C, known as the L3G Investigations Policy. Within thirty (30) Days of each release of a reportable quantity that is not reported by sixty (60) minutes after discovery, DSC shall submit a timeline event report that describes the sequence of events leading to the release and the immediate notification for the release. The report shall also describe any additional corrective actions taken in response to the release, beyond those described in the written follow-up report for the release.

88. Training. By December 31, 2018, DSC shall revise its training procedures to reflect the requirements of Paragraphs 85 to 87. Within one hundred eighty (180) Days of the Effective Date of the Consent Decree and annually thereafter, DSC shall conduct training for all relevant personnel in accordance with the revised training procedures.

VII. RCRA COMPLIANCE REQUIREMENTS

A. Waste Characterization

89. Defendant shall comply with 40 C.F.R. Part 261 and Michigan Administrative Code (“MAC”) R. 299.9307 and R. 299.9302 at the Facility.

90. Defendant shall comply with Part II.A.I of its RCRA Operating License and ensure that each waste, as that term is defined in MAC R. 299.9202 (40 C.F.R. § 261.2), generated and managed at the Facility is properly

characterized to determine if it is a hazardous waste pursuant to the procedures at MAC R. 299.9302 (40 C.F.R. § 262.11). For each waste generated or managed on site, Defendant shall:

a. Determine if the waste is excluded from regulation pursuant to the provisions of MAC R. 299.9204(1) or (2) (40 C.F.R. § 261.4). If the waste is not excluded, Defendant shall determine if the waste is listed as hazardous pursuant to the provisions of MAC R. 299.9213 and MAC R. 299.9214 (40 C.F.R. Part 261, Subpart D); and

b. For the purposes of complying with the provisions of 40 C.F.R. Part 268, or if the waste is not listed as a hazardous waste, Defendant shall determine if the waste meets one of the characteristics of hazardous waste pursuant to the provisions of MAC R. 299.9212 (40 C.F.R. Part 261, Subpart C) by doing either of the following:

(1) Testing the waste according to the methods set forth in the provisions of MAC R. 299.9212 (40 C.F.R. Part 261, Subpart C) or according to an equivalent method approved by the Director of MDEQ pursuant to the provisions of MAC R. 299.9215 (40 C.F.R. § 260.21); or

(2) Applying knowledge of the hazardous characteristics of the waste in light of the materials or processes used.

c. In cases where the character of a waste changes due to changes in the materials or processes involved in its generation, the hazardous waste determination process will be repeated to the extent necessary by Defendant beginning at Subparagraph a above prior to further disposal of the waste.

91. In complying with the procedures in Paragraph 90, Defendant shall characterize each waste at the Point of Generation, as defined in Subparagraph 9.s, to determine if it is a hazardous waste. Where multiple wastes are commingled into a composite waste, Defendant shall characterize each waste at its individual Point of Generation prior to becoming part of the composite waste. Defendant shall also separately characterize the composite waste to determine if it is a hazardous waste.

92. Within three (3) years of the Effective Date, Defendant must complete a waste characterization form (referred to as a “Process Knowledge form” by DSC) for each waste generated or managed on site.

a. By September 30, 2018, Defendant shall submit for approval pursuant to Section XI (Approval of Deliverables) a plan outlining the steps DSC will take to complete the Process Knowledge forms within the deadline provided in this Paragraph 92, including interim milestones.

b. Defendant shall submit a progress report listing the number of Process Knowledge forms completed and those yet to be completed in each Annual Report submitted under Section IX (Reporting Requirements).

93. Defendant may request an extension for good cause of no more than one (1) year of the deadline in Paragraph 92 above from the EPA RCRA program contact listed in Section XIX (Notices). An extension is not effective unless agreed to by EPA in writing. EPA's decision regarding a request for extension is subject only to Defendant's right to invoke Dispute Resolution (Section XV). Defendant may request an extension of more than one (1) year for good cause, but such an extension would be subject to the approval of the United States and the Court pursuant to Section XXII (Modification).

94. Beginning on the Effective Date, for each waste generated or managed on site that has been determined to be a hazardous waste, Defendant shall record the following information on the Process Knowledge form:

a. A source description for the waste including:

(1) The name(s) of the process unit, plant or facility (*e.g.*, maintenance shop, garage, *etc.*) that generates the waste;

(2) A description of the process unit as applicable, including the materials used in the process that generates the waste, the product(s) produced, and any other pertinent information;

(3) A description of how the waste is generated;

(4) A description of the Point of Generation, including the equipment where the material becomes a waste, a description of the process phase or step within the process occurring when the waste is generated, and any other pertinent information;

b. The hazardous waste codes assigned to each hazardous waste;

c. The internal tracking code assigned (*e.g.*, “Q8” or “WPN” code) to each hazardous waste, if used;

d. The date that Defendant made the hazardous waste determination;

e. How the hazardous waste will be accumulated and stored prior to on-site or off-site treatment or disposal (*e.g.*, less-than-90-day accumulation tanks, 55-gallon drums or fiberpacks stored in a less-than-90-day storage area, discharged to chemical sewer, *etc.*). Defendant shall keep a list of all less-than-90-day storage areas on site and provide this list upon request by EPA; and

f. The method used to determine that the waste was hazardous (process and/or material knowledge or laboratory analysis). If process or material knowledge is used, a description of how the waste composition was determined.

95. Defendant shall retain the information required by Paragraph 94 for each hazardous waste for as long as it is generated or managed on site (or for the

period identified in Section XVI of this Decree (Information Collection and Retention), whichever period is longer). The information must be retained by Defendant in an electronic waste characterization database (DSC's current "WCTool" or an equivalent system) and must be accessible at all times. If a hazardous waste is no longer generated or managed on site, Defendant shall retain the information in Paragraph 94 consistent with the record retention requirements included in Section XVI of this Decree (Information Collection and Retention).

B. Secondary Containment

96. For each structure acting as secondary containment for Defendant's less-than-90-day hazardous waste accumulation tanks, within nine (9) months of the Effective Date, Defendant shall:

a. Provide those structures with an impermeable coating or lining that is compatible with the accumulated hazardous waste contained in any such tanks and that will prevent migration of the waste from the tanks into the underlying containment structure (*e.g.*, concrete); or

b. Request and obtain approval from MDEQ for the use of an equivalent device within the meaning of 40 C.F.R. § 265.193(d) and ensure that:

(1) All exposed aggregate and minor and major cracks observed in secondary containment structures are identified and fixed within twenty (20) business days of identification;

(2) If weather or other conditions exist that prevent exposed aggregate or cracks from being repaired within twenty (20) business days, the exposed aggregate or crack is repaired as soon as practicable after the condition causing delay has passed;

(3) For any repair extending past twenty (20) business days, that the condition(s) causing the delay as well as the date the repair occurred are documented;

(4) Employees are trained in identifying exposed aggregate and minor and major cracks and initiating work orders for their repair; and

(5) Documentation is maintained showing the compatibility of secondary containment construction material with the accumulated hazardous waste.

c. Should Defendant exercise the option in Subparagraph b of this Paragraph, it shall provide EPA copies of the approval letter from MDEQ for use of the equivalent device within thirty (30) Days of receipt.

97. As part of its daily or weekly inspection of all secondary containment systems for its less-than-90-day hazardous waste accumulation tanks, whichever is applicable, Defendant shall ensure that the following actions are taken and information recorded as part of its inspection record:

- a. Record the presence of any debris (liquid, solid, plant matter, *etc.*) within the secondary containment structure that obscures part or all of the containment structure from a full visual inspection;
- b. Take corrective actions within fifteen (15) Days to remedy the visual obstruction(s) so as to ensure the containment structures are adequately inspected, except that, if the presence of snow or ice in the secondary containment structure prevents a full visual inspection and removal of the snow or ice could potentially damage the secondary containment system and/or the liner, the Defendant shall complete as thorough an inspection as possible, and shall note the presence of snow or ice on the inspection form for that inspection; and
- c. Confirm that any visual obstruction(s) that were identified have been corrected, and record the corrective action taken and date of the corrective action(s) was taken.

VIII. CLEAN WATER ACT COMPLIANCE REQUIREMENTS

98. DSC shall comply with the terms and conditions of the 2015 NPDES Permit for the Facility and any successor NPDES permit applicable to the Facility, including the terms and conditions related to updating and amending the SWPPP, and Section 301 of the CWA, 33 U.S.C. § 1311.

A. Grated Sewer Manhole Remedy

99. By no later than fourteen (14) Days after the Effective Date, Defendant shall notify EPA pursuant to Section XIX (Notices) which of the following two remedies Defendant elects to implement for each of the grated Chemical Sewer manhole covers:

a. Installation of elevated manhole structures or verification that existing elevated manhole structures are sufficiently elevated to meet the conditions of Subparagraphs 100.a and 100.b.; or

b. Installation of impermeable manhole covers and, where necessary, elevated riser pipes.

100. For each manhole for which Defendant elects the remedy identified in Subparagraph 99.a, Defendant shall complete implementation of this remedy at such manhole within six (6) months of the Effective Date. The implementation of this remedy shall be comprised of the installation of new elevated manhole structures, or verification that existing manhole structures at grated Chemical Sewer manhole covers meet the following requirements:

a. The elevation of the top of each elevated manhole structure (*i.e.*, rim elevation of the manhole) shall be at least one (1) foot above the elevation of the highest point of the center of the Facility road closest to each manhole; and

b. The elevations of each manhole structure and associated Facility road shall be determined based upon field-surveyed data that Defendant has collected since October 1, 2018.

101. For each manhole at which Defendant elects the remedy identified in Paragraph 99.b, Defendant shall complete implementation of this remedy at such manhole within six (6) months of the Effective Date. The implementation of this remedy shall be comprised of the replacement of grated Chemical Sewer manhole covers with impermeable manhole covers and, where necessary, elevated riser pipes such that:

a. The contents in the Chemical Sewer cannot readily Release from the Chemical Sewer through the manhole covers without compromising the integrity of the manhole structures;

b. Stormwater cannot enter the Chemical Sewer through the manhole covers;

c. The top elevation of each riser pipe shall be at least one (1) foot above the elevation of the highest point of the center of the Facility road closest to each manhole; and

d. The elevations of the riser pipes and associated Facility road shall be determined based upon field-surveyed data that Defendant has collected since October 1, 2018.

102. Within forty-five (45) Days of Defendant's completion of the remedy pursuant to Paragraphs 99 through 101 at all manhole covers subject to the requirements of those Paragraphs, Defendant shall submit to EPA for review and comment pursuant to Section XIX (Notices) a sewer manhole remedy report containing the following:

- a. A description of the completed work at each manhole;
- b. Photos of each grated sewer manhole cover that has been remedied, including all remedy components;
- c. A map that displays the location of each grated sewer manhole cover remedied; and
- d. All relevant elevations, listed in feet and including the reference vertical datum, and the date(s) on which Defendant measured such elevations.

B. Stormwater Capacity and Pollutant Evaluation

103. Within thirty-six (36) months of the Effective Date, DSC shall complete a Stormwater Capacity and Pollutant Evaluation that includes the following components: (i) a Containment Dike Assessment as set forth in Paragraph 104; (ii) a Detention Basin Assessment as set forth in Paragraph 105; (iii) a Chemical Sewer Capacity Study, Phase II, as set forth in Paragraphs 106 through 110; (iv) a Detention Basin Monitoring Study as set forth in Paragraphs

111 through 117; and (v) a Containment Dike Monitoring Program Plan as set forth in Paragraphs 118 through 121.

104. Containment Dike Assessment. Defendant shall conduct a Containment Dike Assessment (“CDA”) that: (i) identifies the Containment Dikes at the Facility; (ii) identifies all solid and liquid matter that is conveyed to, conveyed from, and/or contained in each Containment Dike; (iii) describes all solid or liquid matter that is conveyed to, conveyed from, and/or contained in each Containment Dike; and (iv) describes the structure and volumetric capacity of each Containment Dike at the Facility.

a. Containment Dike Identification: Defendant shall identify and describe the Containment Dikes at the Facility by all names to which each Containment Dike is referred in any operational or regulatory documents in use at the Facility as of the Effective Date. Defendant shall describe how each Containment Dike at the Facility is used and any associated policies or practices for that use.

b. Containment Dike Contents Identification: Defendant shall identify all Stormwater and known non-Stormwater sources that are conveyed to, conveyed from, and/or contained in each Containment Dike (“Containment Dike Contents”), as solid or liquid matter, identified pursuant to Subparagraph 104.a,

and shall evaluate and identify, if applicable, the following potential non-Stormwater sources to any Containment Dike:

- (1) Process Wastewater or other production-related solid or liquid matter that is related to DSC's processes at the Facility;
- (2) Fire Water and/or any fire suppression material (*e.g.*, foam) used during any circumstances, including, but not limited to, the following:
 - (i) fire emergencies; (ii) Fire Water and/or any fire suppression system testing; or
 - (iii) training of Facility personnel, including contractor personnel, as appropriate;
- (3) Condensate from equipment including, but not limited to, compressors and air conditioners;
- (4) Non-contact cooling water;
- (5) Maintenance wash-down water from any location or equipment on the Facility;
- (6) Groundwater sources including, but not limited to, the following: (i) landfill leachate; or (ii) any solid or liquid matter that is conveyed to or from and/or contained in the Facility's site interceptor system;
- (7) Any other identified permitted non-Stormwater as set forth in Section I.D.3 of the 2015 NPDES Permit; and
- (8) Any other known non-Stormwater sources at the Facility not listed otherwise in this Paragraph, including known non-Stormwater

originating from any Containment Dike-associated primary containment or other unplanned, non-routine, and/or emergency sources.

c. Containment Dike Contents Characterization: Defendant shall describe all Containment Dike Contents in terms of the following: (i) physical origin of all Containment Dike Contents; (ii) quality of all Containment Dike Contents; and (iii) quantity of all Containment Dike Contents.

(1) Physical Origin: Defendant shall identify and describe the physical origin of all Containment Dike Contents. Defendant shall consider and include, if applicable, the following in the identification and description of the origin of all Containment Dike Contents for each Containment Dike: (i) Facility primary containment associated with each Containment Dike; (ii) Facility building (identified by the unique numeric identifier, name, and primary Facility operation) associated with each Containment Dike; (iii) Facility product supply chain associated with each Containment Dike; and (iv) all Facility locations and areas, identified with as much specificity as possible, from which Stormwater runs off and is conveyed to, conveyed from, and/or contained in each Containment Dike.

(2) Quality: Defendant shall describe the quality of all non-Stormwater Containment Dike Contents, identified pursuant to Subparagraph 104.b, based on the following: (i) hazardous substance designation, if any, as identified in 40 C.F.R. Part 116 pursuant to Section 311 of the CWA, and RCRA

hazardous waste classification, if any, including all appropriate hazardous waste codes; (ii) Clean Water Act Pollutant designation, if any (*e.g.*, conventional or toxic Pollutant), as identified in 40 C.F.R. Part 401 pursuant to Section 307 of the CWA; and (iii) if not already identified, the primary parameter type, if any (*e.g.*, bacteria, inorganic metal, inorganic non-metal, non-pesticide organic, pesticide, *etc.*).

(3) Quantity: Defendant shall identify and describe the maximum predictable volume of all non-Stormwater Containment Dike Contents that are conveyed to, conveyed from, and or contained in each Containment Dike. For all identified volumes of all non-Stormwater Containment Dike Contents, Defendant shall identify the following: (i) frequency that volume is conveyed to, conveyed from, and/or contained in each Containment Dike; and (ii) concentration of the non-Stormwater Containment Dike Contents contained in the volume at the frequency that volume is conveyed to, conveyed from, and/or contained in each Containment Dike. Defendant shall include the corresponding quantity information for all spills and Releases that have occurred between August 1, 2016 and the month preceding submission of the CDA Results Report required by Paragraph 104.f.

d. Containment Dike Physical Structure Characterization:

Defendant shall characterize the physical structure of each Containment Dike by

identifying and describing for each Containment Dike, at a minimum, the following:

- (1) Material composition of the Containment Dike (*e.g.*, concrete, earthen material, plastic, metal, *etc.*);
- (2) Presence or absence of any inner lining of the Containment Dike and the material composition of that lining;
- (3) Number of chambers, or compartments, within each Containment Dike and how solid or liquid matter is conveyed to and/or from one chamber, or compartment, to and/or from another chamber, or compartment;
- (4) Inner physical dimensions of each Containment Dike, and each chamber or compartment within each Containment Dike: (i) length; (ii) width; (iii) depth from the inner bottom of the Containment Dike to the top of the uppermost level of each Containment Dike such that any liquid and/or other material would be contained in the Containment Dike at this level; (iv) elevation above a reference datum, and identification of the value of that datum above sea level, of the uppermost level of each Containment Dike such that any liquid and/or other material would be contained in the Containment Dike at this level; (v) depth from the inner bottom of the Containment Dike to the invert (inner bottom) of the Containment Dike outlet pipe(s); and (vi) inner diameter of the Containment Dike outlet pipe(s);

- (5) Working volumetric capacity within each Containment Dike to contain any solid or liquid matter;
- (6) Count and location of all discrete inlets to each Containment Dike;
- (7) Count and location of all discrete outlets from each Containment Dike and the disposition of any solid or liquid matter conveyed from each Containment Dike through each discrete outlet;
- (8) Identification of any connecting Containment Dike(s) and the direction of conveyance of solid or liquid matter between the connecting Containment Dikes;
- (9) Identification of all physical connections to the Storm Sewer System and the Chemical Sewer System from each Containment Dike; and
- (10) Identification of the type, model, and capacity of all pumps used at each Containment Dike to pump the Containment Dike Contents to the Chemical Sewer System and/or the Storm Sewer System and the discharge disposition of each pump (*e.g.*, to the Chemical Sewer System, Storm Sewer System, different Containment Dike, *etc.*).

e. Containment Dike Emptying Operating Procedures: Defendant shall identify and describe, in detail, all procedures and practices at the Facility, whether documented (on paper or electronically) or undocumented, that the

Facility uses to determine what, when, why and how solid or liquid matter is conveyed, whether pumped, hauled or otherwise vacated, from each Containment Dike. If any procedures or practices involve collecting samples for analysis at a laboratory, the Defendant shall identify the parameter for which the analysis is conducted and the analytic method used for the analysis. Defendant shall include in the description of all procedures and practices, the identification and description of all equipment and other tools, including paper forms and electronic databases, that the Facility uses with all aforementioned procedures and practices as follows:

(1) For all forms (paper and electronic) and electronic databases, Defendant shall identify and describe the type (*e.g.*, paper form, electronic Excel spreadsheet, electronic Access database, *etc.*), title or name (*e.g.*, 313 Spill Containment Inspection Log, Spill Containment Facility Operation/inspection Log, *etc.*), and mode of data recording (*e.g.*, hand-written field entry, electronic field entry, hand-written office entry, *etc.*). If the Facility uses more than one of each form or database, Defendant shall identify each form or database by a unique name and/or number.

(2) For each piece of equipment, Defendant shall identify and describe the type of equipment (*e.g.*, pump, total organic carbon (“TOC”) monitoring device, data logger, pH meter, colorimeter, *etc.*). For each pump, Defendant shall identify the type of pump (*e.g.*, reciprocating, peristaltic,

submersible, *etc.*) and the pump size, capacity, and/or any other appropriate rating information. For each piece of monitoring equipment (*e.g.*, TOC monitoring device, data logger, pH meter, colorimeter, *etc.*), Defendant shall identify the following, if appropriate: (i) manufacturer; (ii) model; (iii) unique name (or number); (iv) frequency of calibration; (v) existence and type of calibration record; and (vi) unique name of paper forms and/or electronic databases as identified in Subparagraph 104.e(1) in which the Facility records the monitoring results obtained from the piece of equipment.

f. Containment Dike Assessment Results Report: Within six (6) months of the Effective Date, Defendant shall submit to EPA for review and comment pursuant to Section XIX (Notices) a report on the results of the Containment Dike Assessment (“CDA Results Report”). The CDA Results Report shall include, at a minimum, the following elements:

- (1) Tabular summaries of all information identified and described pursuant to this Paragraph 104 presented by each Containment Dike;
- (2) Current scaled map(s) of all Containment Dikes at the Facility that include labeled names of each Containment Dike identified pursuant to Subparagraph a of this Paragraph.

105. Detention Basin Assessment. Defendant shall conduct a Detention Basin Assessment (“DBA”) that: (i) identifies all solid and liquid non-Stormwater

sources that are conveyed to, conveyed from, and/or contained in the 4705 Detention Basin and that are not conveyed to, conveyed in, or contained in any of the Containment Dikes prior to conveyance to or from and/or containment in the 4705 Detention Basin; (ii) describes all liquid and solid matter identified under this Paragraph; and (iii) describes the structure of the 4705 Detention Basin. Within six (6) months of the Effective Date, Defendant shall complete the DBA and submit to EPA for review and comment pursuant to Section XIX (Notices) a summary report on the completed DBA, pursuant to the requirements set forth in Subparagraph e of this Paragraph.

a. Detention Basin Contents Identification: Defendant shall identify and list all Stormwater, Stormwater Associated With Industrial Activity, and solid and liquid non-Stormwater sources that are conveyed to, from, and/or contained in the 4705 Detention Basin and that are not conveyed to, from, and/or contained in any of the Containment Dikes prior to the conveyance to, from, or containment in the 4705 Detention Basin (“Detention Basin Contents”), and shall evaluate and identify, if applicable, the following as potential non-Stormwater sources to the 4705 Detention Basin:

(1) Process Wastewater or other production related solid or liquid matter that is related to DSC’s processes at the Facility;

(2) Fire Water and/or any fire suppression material (*e.g.*, foam) used during any circumstances, including, but not limited to, the following:

(i) fire emergencies; (ii) Fire Water and/or any fire suppression system testing; or (iii) training of Facility personnel, including contractor personnel, as appropriate;

(3) Condensate from equipment including, but not limited to, compressors and air conditioners;

(4) Non-contact cooling water;

(5) Maintenance wash-down water from any location or equipment at the Facility;

(6) Groundwater sources including, but not limited to, the following: (i) landfill leachate; or (ii) solid or liquid matter that is conveyed in the Facility's site interceptor system;

(7) Any other identified permitted non-Stormwater set forth in Section I.D.3 of the 2015 NPDES Permit; and

(8) Any other non-Stormwater sources at the Facility not listed in this Subparagraph 105.a, including unplanned, non-routine, and/or emergency sources.

b. Detention Basin Contents Characterization: Defendant shall describe all Detention Basin Contents in terms of the following: (i) physical origin

of all Detention Basin Contents; (ii) quality of all Detention Basin Contents; and (iii) quantity of all Detention Basin Contents.

(1) Physical Origin: Defendant shall identify and describe the physical origin of all Detention Basin Contents. Defendant shall consider and include, if relevant, the following in the identification and description of the origin of all Detention Basin Contents: (i) Facility location from which the non-Stormwater Detention Basin Contents originated; (ii) Facility building name (identified by the unique numeric identifier, name, and primary building operation and/or equipment operation) associated with specific non-Stormwater Detention Basin Contents; (iii) Facility product supply chain associated with the specific Detention Basin Contents; and (iv) all Facility locations and areas, identified with as much specificity as possible, from which Stormwater runs off and is conveyed to, conveyed from, and/or contained in the Detention Basin without prior conveyance to, conveyance from, and/or containment in any Containment Dike.

(2) Quality: Defendant shall describe the quality of all non-Stormwater Detention Basin Contents, identified pursuant to this Paragraph, based on the following: (i) hazardous substance designation, if any, as identified in 40 C.F.R. Part 116 pursuant to Section 311 of the CWA, and RCRA hazardous waste classification, if any, including all appropriate hazardous waste codes, if applicable; (ii) Clean Water Act Pollutant designation, if any (*e.g.*, conventional or

toxic Pollutants), as identified in 40 C.F.R. Part 401 pursuant to Section 307(a)(1) of the CWA; and, (iii) if not already identified pursuant to this Paragraph, primary parameter type, if any (*e.g.*, bacteria, inorganic metal, inorganic non-metal, non-pesticide organic, pesticide, *etc.*).

(3) Quantity: Defendant shall identify and describe the maximum predictable volume of all non-Stormwater Detention Basin Contents that are conveyed to, conveyed from, and/or contained in the Detention Basin. For all identified volumes of all non-Stormwater Detention Basin Contents, Defendant shall identify the following: (i) frequency that volume is conveyed to, conveyed from, and/or contained in the Detention Basin; and (ii) concentration of the non-Stormwater Detention Basin Contents contained in the volume at the frequency that volume is conveyed to, conveyed from, and/or contained in the Detention Basin without prior conveyance to, conveyance from, and/or containment in any Containment Dike. Defendant shall include the corresponding quantity information for all spills and/or Releases that occurred between August 1, 2016 and the month preceding submission of the DBA Results Report.

c. Detention Basin Physical Structure Characterization:

Defendant shall describe the physical structure of the Detention Basin by identifying and describing, at a minimum, the following information:

(1) Count and location of all discrete inlets to the Detention Basin;

(2) Count and location of all discrete outlets from the Detention Basin, including, but not limited to, the following: (i) NPDES permitted Discharge Point Source from the Detention Basin to Lingle Drain; (ii) location of any emergency overflows from the Detention Basin to Lingle Drain; and (iii) location of any bypasses and diversions, whether motorized or manually operated, from any structures at the Facility that are associated with the Detention Basin (*e.g.*, 4705 building);

(3) Count and location of all sampling points;

(4) Usable volumetric capacity of the Detention Basin, including the identified volume per foot of elevation of the Detention Basin;

(5) Identification and location of all pumps in any structure associated with the Detention Basin including the type, model, and capacity; and

(6) Identification and description of location of all flow control gates or other flow control structures at any location at the Detention Basin or any structure associated with the Detention Basin.

d. Detention Basin Discharge and Emptying Operating

Procedures: Defendant shall identify and describe, in detail, all procedures and practices at the Facility, whether documented (on paper or electronically) or

undocumented, that the Facility uses to determine what, when, why and how liquid or solid matter is conveyed from, whether pumped, hauled or otherwise vacated, from the 4705 Detention Basin. If any procedures or practices involve collecting samples for analysis at a laboratory, the Defendant shall identify the parameter for which the analysis is conducted and the analytic method used for the analysis. Defendant shall include in the description of all procedures and practices, the identification and description of all equipment and other tools, including paper forms and electronic databases, that the Facility uses with all aforementioned procedures and practices as follows:

(1) For all forms (paper and electronic) and electronic databases, Defendant shall identify and describe the type (*e.g.*, paper form, electronic Excel spreadsheet, electronic Access database, *etc.*), title or name (*e.g.*, 800 Block – 4705 Storm Water Retention Pond Log Sheet, 4705 Discharge Data), and mode of data recording (*e.g.*, hand-written field entry, electronic field entry, hand-written office entry, *etc.*). If the Defendant uses more than one of each form or database, Defendant shall identify each form or database by a unique name and/or number.

(2) For each piece of equipment, Defendant shall identify and describe the type of equipment (*e.g.*, pump, TOC monitoring device, data logger, pH meter, colorimeter, *etc.*). For each pump, Defendant shall identify the

type of pump (*e.g.*, reciprocating, peristaltic, submersible, *etc.*) and the pump size, capacity, and/or any other appropriate rating information. For each piece of monitoring equipment (*e.g.*, TOC monitoring device, data logger, pH meter, colorimeter, *etc.*), Defendant shall identify the following, if appropriate:

(i) manufacturer; (ii) model; (iii) unique name (or number); (iv) frequency of calibration; (v) existence and type of calibration record; and (vi) unique name of paper forms and/or electronic databases as identified in Subparagraph 105.e(1) in which the Facility records the monitoring results obtained from the piece of equipment.

e. Detention Basin Assessment Results Report: Within six (6) months of the Effective Date, Defendant shall submit to EPA for review and comment pursuant to Section XIX (Notices) a report on the results of the Detention Basin Assessment (“DBA Results Report”). The DBA Results Report shall include the following elements:

(1) All information identified and described pursuant to Subparagraphs a through d of this Paragraph;

(2) Current scaled map(s) of the Detention Basin at the Facility that include all locations identified pursuant to Subparagraph c of this Paragraph; and

(3) Current scaled cross-section diagram(s) of the Detention Basin that identifies elevations and distances and all relevant locations identified pursuant to Subparagraph c of this Paragraph.

106. Chemical Sewer Capacity Study, Phase II. Defendant shall conduct the second phase of the Chemical Sewer Capacity Study (“Chemical Sewer Study, Phase II”) to supplement DSC’s March 9, 2013 Chemical Sewer System Capacity Study (“2013 Chemical Sewer Study”) and the December 13, 2013 Addendum to the 2013 Chemical Sewer Study Chemical Sewer Capacity Study, Phase II.

a. Defendant shall evaluate the following items at the Facility as part of the Chemical Sewer Study, Phase II:

(1) Storage and conveyance capacity of the Chemical Sewer System as currently built and operating for all Wastewater at the Facility that is conveyed to, conveyed from, and/or contained in the Chemical Sewer System during non-wet weather and non-emergency conditions;

(2) Storage and conveyance capacity of the Chemical Sewer System as currently built and operating for all Wastewater and Stormwater at the Facility that is conveyed to, conveyed from, and/or contained in the Chemical Sewer System during wet weather, non-emergency conditions;

(3) Storage and conveyance capacity of the Storm Sewer System related to the following: (i) impact of any capacity deficiencies (*e.g.*,

surcharging Storm Sewer System catch basins during particular frequency storms) in the Storm Sewer System on the volume of Stormwater entering the Chemical Sewer System; and (ii) impact if Stormwater is redirected from the Chemical Sewer System to the Storm Sewer System; and

(4) Potential future remedial actions for all storage and conveyance capacity deficiencies that allow the Release of any contents from the Chemical Sewer System.

b. Defendant shall include the following activities in the Chemical Sewer Study, Phase II:

(1) Data collection: Defendant shall collect necessary system attribute information, rainfall data, and flow and hydraulic grade line (“HGL”) monitoring data at the Facility as part of the Chemical Sewer Study, Phase II.

(2) Data collection equipment installation: Defendant shall install the following equipment in representative locations at the Facility to facilitate data collection activities required pursuant to Subparagraph b(1) of this Paragraph: (i) one rain gauge, to supplement the existing rain gauge at the Salzburg Landfill, that shall have a rainfall data collection temporal resolution of 15 minutes (or more frequent) and a rainfall data collection sensitivity of 0.01 inch (or better); and (ii) area/velocity flow meters in the Chemical Sewer System and

the Storm Sewer System sufficient to perform the Chemical Sewer Study, Phase II as required by this Paragraph 106.

(3) Hydrologic and hydraulic model configuration:

Defendant shall configure the computer simulations representing the Facility's surface hydrology and Chemical Sewer System (hydrologic and hydraulic models) based upon the best available attribute information, including any new attribute information collected pursuant to Paragraphs 104 through 105 and Subparagraphs b(1) and b(2) of this Paragraph.

(4) Hydraulic model calibration and validation: Defendant

shall utilize the rainfall, HGL, and flow data collected pursuant to Subparagraphs b(1) and b(2) of this Paragraph to adjust appropriate model parameters to achieve a degree of calibration appropriate for the intended uses of the hydrologic and hydraulic models.

107. Within eight (8) months of the Effective Date, Defendant shall submit to EPA for approval pursuant to Section XI (Approval of Deliverables) a plan for completion of the Chemical Sewer Study, Phase II ("Chemical Sewer Study, Phase II Plan"), which shall include the following elements:

a. Schedule for completion of the Chemical Sewer Study, Phase II and submission of the final report on the completed Chemical Sewer Study, Phase II that shall be no longer than twenty (20) months, from EPA's approval the

Chemical Sewer Study, Phase II Plan. The schedule shall include identified dates by which the Defendant will conduct the following, at a minimum: (i) initiation and completion of all activities required by Subparagraph 106.b; and (ii) submission of a final report in accordance with the requirements of Paragraph 110;

b. Identification and description of all objectives, and methods to meet those objectives, of the Chemical Sewer Capacity Study, Phase II including the following: (i) detailed description of how the Defendant will evaluate the items required pursuant to Subparagraph 106.a; and (ii) detailed description of how the Defendant will conduct the activities required pursuant to Subparagraph 106.b;

c. Identification, description, and map(s) of the locations of the following: (i) data collection equipment installed, or to be installed, pursuant to Subparagraph 106.b(2); and (ii) any additional data collection equipment installed, or to be installed, to support data collection activities required by Subparagraph 106.b(1), including, but not necessarily limited to, the rain gauge at Salzburg Landfill;

d. Identification and description of the following information about each rain gauge Defendant will use during the Chemical Sewer Study, Phase II, including the rain gauge at Salzburg Landfill: (i) rainfall monitoring equipment

type; (ii) rainfall data collection temporal resolution; and (iii) rainfall data collection sensitivity;

e. Identification and description of the following information about each flow meter Defendant will use during the Chemical Sewer Study, Phase II: (i) type; (ii) manufacturer; (iii) model; and (iv) capability of each flow meter to manage low flow and surcharge conditions (*e.g.*, through the use of multiple level sensors, *etc.*);

f. Identification of all information Defendant intends to use in the Chemical Sewer Capacity Study, Phase II from the CDA (required pursuant to Paragraph 104) and the DBA (required pursuant to Paragraph 105);

g. Identification and description of all differences from the 2013 Chemical Sewer Study and any addenda to that study, and a detailed description of the ways in which the Chemical Sewer Study, Phase II will refine the findings of the 2013 Chemical Sewer Study and any addenda to that study;

h. Identification and description of Defendant's plan to evaluate the following in the Chemical Sewer Study, Phase II:

(1) Verification of all key attribute data, including, but not limited to: (i) pipe invert elevations at key locations; (ii) Containment Dike bottom elevations; and (iii) confirmation of pumping capacities (using flow monitoring or pump-down testing);

(2) Sump at 123 Building under varying conditions (*e.g.*, empty, partially filled, full, *etc.*);

(3) Characterization of sedimentation and/or blockages, partial and complete, or other types of obstructions in the Chemical Sewer System;

(4) All impacts of new sources of flow to the Chemical Sewer System since the completion of the 2013 Chemical Sewer Study and the December 13, 2013 Addendum, including, but not limited to, the non-foam deluge system;

(5) Identification and quantification of all flows into the Chemical Sewer System from all non-DSC sources, whether on-site or off-site at the Facility, and the location of the entry of those flows into the Chemical Sewer System;

(6) All capital improvements and other infrastructure and structural changes made at the Facility that impact the Chemical Sewer System since the completion of the 2013 Chemical Sewer Study and the December 13, 2013 Addendum;

(7) All current operations of the Containments Dikes and Detention Basin that impact the hydrologic and hydraulic models, including the details and description of how the models accurately capture the actual operation of the Containment Dikes and Detention Basin; and

(8) Identification and description of Defendant's plan to consider and model the capacity of the Storm Sewer System, including the Detention Basin and Facility as a whole during site-wide flooding, such that Defendant can evaluate the capacity of the Storm Sewer System related to the following: (i) impact of any capacity limitations in the Storm Sewer System on the volume of Stormwater entering the Chemical Sewer System; and (ii) possible addition to the Storm Sewer System of any Stormwater that could be redirected from the Chemical Sewer System to the Storm Sewer System.

i. Identification and description of the Defendant's plan to employ the capabilities of the hydrologic and hydraulic models, including, but not limited to, the following:

(1) Refinement of Process Wastewater and sanitary sewage baseflows, if appropriate;

(2) Use of hydrologic processes to simulate inflow and rainfall-derived infiltration and inflow ("RDII"), including consideration of the following: (i) variability of RDII in response to antecedent moisture conditions; and (ii) inflow through all grated Chemical Sewer manhole covers; and

(3) Application of the fully dynamic wave flow routing option for the modeling of all Chemical Sewer System flows, including the simulation of flows into and from all Containment Dikes at the Facility;

j. Identification of and statement of intended use of NOAA Atlas 14 as the source of rainfall data Defendant will use for the design storms;

k. Identification of one of the following: (i) description of the storm duration Defendant has determined results in the highest peak flows and/or HGLs (*i.e.*, the critical duration) at the locations in the Chemical Sewer System where the contents of the Chemical Sewer System exit the Facility and/or Releases from the Chemical Sewer System may occur, including the appropriate return frequency(ies) to be paired with the critical duration; or (ii) justification for the use of the 25-year, 24-hour and the 5-year, 6-hour storms, used in the 2013 Chemical Sewer Study, to evaluate the Chemical Sewer System's storage and conveyance capabilities;

l. Description of how Defendant will consider the potential for increasing annual precipitation occurring in the most intense rainfall events, on the Chemical Sewer System's capacity; and

m. If Defendant proposes to use rainfall, flow, or any other data, including, but not limited to, pump records collected prior to initiation of the Chemical Sewer Study, Phase II, it shall provide a detailed description of the proposed use of such data, and an explanation of why actual rainfall data are not sufficient to allow Defendant to comply with Subparagraph b of this Paragraph.

108. Within thirty (30) Days of EPA's approval of the Chemical Sewer Study, Phase II Plan, Defendant shall initiate implementation of the Plan as approved by EPA. Any proposed modifications to the approved Chemical Sewer Study, Phase II Plan must be agreed to in writing by EPA and Defendant.

109. During implementation of the approved Phase II Plan, EPA may:

- (i) grant extensions to the scheduled rainfall and flow monitoring period(s) contained in the approved Plan if insufficient rainfall events occur to meet the criteria specified in the approved Chemical Sewer Study, Phase II Plan; and/or
- (ii) allow DSC to use data collected prior to the initiation of the Chemical Sewer Study, Phase II pursuant to the approved Phase II Plan.

110. Within twenty (20) months of EPA's approval of the Chemical Sewer Study, Phase II Plan, Defendant shall complete the Chemical Sewer Study, Phase II pursuant to the approved Phase II Plan and shall submit to EPA for approval pursuant to Section XI (Approval of Deliverables) a final report ("Chemical Sewer Study, Phase II Final Report") that shall include, at a minimum, the following:

- a. Details and description of the Defendant's implementation of the approved Chemical Sewer Study, Phase II Plan, including the identification and description of all deviations from the Chemical Sewer Study, Phase II Plan and an explanation for all deviations;

- b. Details and description of the hydrologic and hydraulic models' calibration and demonstration of the degree of calibration attained;
- c. Results of the Chemical Sewer Study, Phase II including, but not limited to, the following: (i) areas identified in the Chemical Sewer System, at the Facility, and/or in the Storm Sewer System where DSC has determined that there are capacity limitations; and (ii) identification of the location and volume of predicted Releases from the Chemical Sewer System during specific storm events;
- d. All rainfall and flow data and calibration hydrographs for all key calibration locations, as appendices; and
- e. Identification and description of all operational, procedural, and structural changes Defendant intends to execute in the future, or has already executed, based upon the results of the Chemical Sewer Study, Phase II.

111. Detention Basin Monitoring Study. Defendant shall conduct a Detention Basin Monitoring Study in which Defendant shall monitor the quality and quantity of Discharges and Releases from the 4705 Detention Basin for not less than one (1) year and not more than eighteen (18) months.

112. Within eight (8) Months of the Effective Date, Defendant shall submit to EPA for approval pursuant to Section XI (Approval of Deliverables) a plan to implement the Detention Basin Monitoring Study ("Detention Basin Monitoring Study Plan").

113. Defendant shall develop the Detention Basin Monitoring Study Plan using the following:

- a. Information collected in the CDA pursuant to Paragraph 104 and contained in the CDA Results Report;
- b. Information collected in the DBA pursuant to Paragraph 105 and contained in the DBA Results Report; and
- c. All other relevant information not captured in Paragraphs 104 and 105 that will be necessary to develop and implement the Detention Basin Monitoring Study Plan.

114. The Detention Basin Monitoring Study Plan shall evaluate the following: (a) potential Pollutants that could be Discharged or Released from the Detention Basin, under a wide range of circumstances (including from overflows and bypasses), flows, and the quantity and quality of potential Pollutants; and (b) efficacy and appropriateness of all current monitoring conducted at the Detention Basin and at each Containment Dike prior to Discharge or Release into Lingle Drain from the Detention Basin.

115. Defendant shall include the following in the Detention Basin Monitoring Study Plan:

- a. Identification and description of methods Defendant will use to evaluate the requirements in Paragraphs 111 to 114;

b. Identification of all Pollutants and parameters, by name and chemical abstracts service registry number, if available, that Defendant will quantify in the Discharges and Releases from the Detention Basin during the Detention Basin Monitoring Study, which shall include: (i) the conventional Pollutants listed in 40 C.F.R. § 401.16; (ii) aluminum (total), antimony (total), arsenic (total), beryllium (total), cadmium (total), chromium (total), copper (total), cyanide (total), iron (total), lead (total), magnesium (total), mercury (total), nickel (total), selenium (total), silver (total), zinc (total), ammonia nitrogen, chemical oxygen demand, hardness (as calcium carbonate), nitrate plus nitrite nitrogen, total dissolved solids (*a.k.a.*, TDS or total dissolved residue), TOC, turbidity, all polychlorinated biphenyls (PCBs) listed as Priority Pollutants in Appendix A to 40 C.F.R. Part 423; and (iii) all additional Pollutants and parameters Defendant proposes to quantify in the Detention Basin Monitoring Study, which shall include all such Pollutants and parameters needed to meet the requirements of Paragraph 114. Defendant shall select the additional Pollutants and parameters referenced in (iii) above using the following sources: information obtained in the CDA pursuant to Paragraph 104; information obtained in the DBA pursuant to Paragraph 105; applicable information related to past and present manufacturing operations and supporting operations at the Facility; and parameters for which the Defendant has historically sampled and analyzed in the Discharges from the

Detention Basin on a quarterly frequency and pursuant to the requirements in the 2015 NPDES Permit.

c. A quality assurance project plan, also known as a QAPP, that conforms to EPA Guidance for Quality Assurance Project Plans, EPA QA/G-5, EPA 240-R-02-009 (Dec. 2002) and includes, at a minimum: (i) method detection limits; (ii) quantification (*a.k.a.*, quantitation) limits; (iii) basis for all quantification limits (*e.g.*, MDEQ rules, EPA industrial stormwater benchmark, RCRA groundwater monitoring limit, *etc.*); and (iv) the analytic method(s), which shall conform to 40 C.F.R. Part 136, Defendant will use to quantify each Pollutant and parameter.

d. Identification and description of all field equipment and procedures to be used during the Detention Basin Monitoring Study, including, but not limited to, the following: (i) flow measurement devices; (ii) sample collection equipment and tools; and (iii) field monitoring equipment and tools;

e. Identification and description of the frequencies that samples will be collected and by which personnel or contractors, identified by job titles; and

f. Identification and description of methods Defendant will use to evaluate the efficacy and appropriateness of current monitoring for pH and TOC at the Detention Basin (and at each Containment Dike if the monitoring is the same)

using the analytic results for pH and TOC and any other potential Pollutants for which Defendant will be monitoring in the Detention Basin Monitoring Study.

116. Within thirty (30) Days of EPA's approval of the Detention Basin Monitoring Study Plan, Defendant shall initiate implementation of the Detention Basin Monitoring Study pursuant to the approved Detention Basin Monitoring Study Plan. Any proposed modifications to the approved Detention Basin Monitoring Study Plan must be agreed to in writing by EPA and Defendant.

117. Within twenty (20) months of EPA's approval of the Detention Basin Monitoring Study Plan, Defendant shall complete the Detention Basin Monitoring Study pursuant to the approved Detention Basin Monitoring Study Plan and shall submit to EPA for approval pursuant to Section XI (Approval of Deliverables) a final report ("Detention Basin Monitoring Study Final Report") that shall include the following:

a. Details and description of Defendant's implementation of the approved Detention Basin Monitoring Study Plan, including the identification and description of all deviations from the Detention Basin Monitoring Study Plan and an explanation for all deviations;

b. Results of all qualitative and quantitative monitoring during the Detention Basin Monitoring Study: (i) tabular summaries of results for all parameters monitored, measured, and/or analyzed; (ii) copies of any field bench

sheets used during the Detention Basin Monitoring Study; and (iii) all laboratory-provided results;

c. Evaluation of the efficacy and appropriateness of all current monitoring of Discharges and Releases from the Detention Basin, and from each Containment Dike, as indicators of potential Pollutant Discharges and Releases and a proposal for alternate monitoring if the current monitoring is neither effective nor appropriate; and

d. Identification and description of all operational, procedural, and monitoring changes and/or future work that Defendant will be conducting based upon the results of the Detention Basin Monitoring Study Plan.

118. Containment Dike Monitoring Program. Within sixty (60) Days of EPA's approval of the Chemical Sewer Study, Phase II Final Report or the Detention Basin Monitoring Study Final Report, whichever is later, the Defendant shall submit to EPA for approval pursuant to Section XI (Approval of Deliverables) a program plan for remedying deficiencies in monitoring Discharges and Releases from the Containment Dikes ("Containment Dike Monitoring Program Plan") based upon the information identified, described, and documented in the Chemical Sewer Capacity Study, Phase II Final Report, the CDA Results Report, the DBA Results Report, and the Detention Basin Monitoring Study Final Report.

119. The Containment Dike Monitoring Program Plan shall include the identification and description of quantitative, qualitative, and programmatic deficiencies, if any, in the monitoring of the Discharges and Releases from the Containment Dikes to the Storm Sewer System as currently documented in the SWPPP and practiced on site by the Facility. Defendant shall identify the deficiencies, if any, based upon potential Pollutants that could enter Lingle Drain for which Defendant is not currently monitoring.

120. In addition to any deficiencies in current monitoring practices identified pursuant to Subparagraph 117.c, the Containment Dike Monitoring Program Plan shall include the following:

- a. Operational and/or Facility procedures that Defendant plans to change and the description of those changes;
- b. Field documentation Defendant plans to change and a description of the proposed changes;
- c. A schedule for implementing the Containment Dike Monitoring Program Plan;
- d. Identification of the sections of the SWPPP that Defendant will change to incorporate the details and results of the Containment Dike Monitoring Program developed pursuant to the Containment Dike Monitoring Plan; and

e. Any maps of the Containment Dikes at the Facility that have been changed since the submission of those maps with the CDA Results Report.

121. Within thirty (30) Days of EPA's approval of the Containment Dike Monitoring Program Plan, Defendant shall initiate implementation of the Containment Dike Monitoring Program at the Facility pursuant to the Containment Dike Monitoring Program Plan approved by EPA.

C. Stormwater Pollution Prevention Plan Update

122. Within sixty (60) Days of EPA's approval of the final deliverable required by the Stormwater Capacity and Pollutant Evaluation required by Paragraphs 103 - 121, Defendant shall submit to EPA for approval pursuant to Section XI (Approval of Deliverables) an updated SWPPP that: (i) meets all NPDES permit requirements; (ii) reflects and incorporates information obtained through the Stormwater Capacity and Pollutant Evaluation conducted pursuant to Paragraphs 103 - 121 above; and (iii) incorporates all SWPPP-related Facility changes, whether tangible or programmatic, made since the submission of the SWPPP to EPA dated August 31, 2017.

IX. REPORTING REQUIREMENTS

123. Within four (4) months of the end of each calendar year after the Date of Lodging of this Consent Decree, until termination of this Decree pursuant to Section XXIII (Termination), Defendant shall submit an annual report ("Annual

Report”) for the preceding calendar year period that shall include the status of any construction or compliance measures; completion of milestones; problems encountered or anticipated, together with implemented or proposed solutions; status of permit applications; reports to state agencies regarding deviations from CAA permits; copies of all notifications Defendant submits to MDEQ pursuant to the 2015 NPDES Permit and any successor permits, including notifications regarding any spills, upsets, bypasses, Releases, Discharges, and any noncompliance with the CWA permits, and all correspondence with MDEQ related to such notifications; and a discussion of Defendant’s progress in satisfying its obligations in connection with each SEP under Section XII (Supplemental Environmental Projects) including, at a minimum, a narrative description of activities undertaken; status of any construction or compliance measures, including the completion of any milestones set forth in the SEP Work Plan attached as Appendix B, and a summary of costs incurred since the previous report.

124. The Annual Report shall also include the following information regarding the LDAR Program:

a. The number of LDAR Personnel at the Facility (excluding Personnel whose functions are not related to monitoring or repairing leaks) and the approximate percentage of time each such person dedicated to performing his/her LDAR functions;

- b. The information required by Paragraph 33 of Subsection V.G (Valve Replacement and Improvement Program);
- c. A description of the training done in accordance with this Consent Decree (this information need only be provided in the first report due under this Paragraph, unless Defendant makes a significant change to the training program);
- d. Any deviations identified in the QA/QC performed under Subsection V.J (Quality Assurance (QA)/Quality Control (QC)), as well as any corrective actions taken under that Subsection;
- e. A summary of LDAR audit results, including specifically identifying all alleged deficiencies; and
- f. The status of all actions under any CAP that was submitted during the reporting period, unless the CAP was submitted less than one (1) month before the Annual Report. In that event, the status shall be reported in the next Annual Report.

125. The Annual Report shall also contain the following:

- a. Information required by Paragraph 58 in Section V.N (Benzene Waste);
- b. Information required by Paragraphs 66 and 68 of Section V.P (Thermal Oxidizer (Throx) Automated Alert System);

- c. Information required by Paragraph 72 of Section V.Q (Acetylene Vents 322 Building Project);
- d. Information required by Paragraph 75 of Section V.R (Thermal Oxidizer (Throx) Reliability Improvement Project); and
- e. A description of any noncompliance with the requirements of this Consent Decree and an explanation of the violation's likely cause and the remedial steps taken, or to be taken, to prevent or minimize such violation, unless such noncompliance has already been reported pursuant to Paragraph 126 below in which case the previous report regarding noncompliance may be referenced in or attached to the Annual Report.

126. If Defendant violates, or has reason to believe that it is likely to violate, any requirement of this Consent Decree, Defendant shall notify the United States of such violation and its likely duration, in writing, within ten (10) business days of the day Defendant first becomes aware of the violation, with an explanation of the violation's likely cause and of the remedial steps taken, or to be taken, to prevent or minimize such violation. If the cause of a violation cannot be fully explained at the time the report is due, Defendant shall so state in the report. Defendant shall investigate the cause of the violation and shall then submit an amendment to the report, including a full explanation of the cause of the violation, within thirty (30) Days of the Day Defendant becomes aware of the cause of the

violation. If at any time the provisions of this Consent Decree are included in a permit issued under Section 502 of the Clean Air Act, 42 U.S.C. § 7661a, consistent with the requirement for such inclusion in this Consent Decree, then the deviation reports required under any such permit may be referenced in the Annual Report, if desired. Nothing in this Paragraph or the following Paragraph relieves Defendant of its obligation to provide the notice required by Section XIV (Force Majeure).

127. Whenever any violation of this Consent Decree or of any applicable permits or any other event affecting Defendant's performance under this Decree, or the performance of its Facility, may pose an immediate threat to the public health or welfare or the environment, Defendant shall notify EPA orally or by electronic or facsimile transmission as soon as possible, but no later than twenty-four (24) hours after Defendant first knew of the violation or event. This procedure is in addition to the requirements set forth in the preceding Paragraph.

128. Each report submitted by Defendant under this Section shall be signed by an official of the Defendant or agent submitting on the Defendant's behalf and include the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted

is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

129. This certification requirement does not apply to emergency or similar notifications where compliance would be impractical.

130. All reports and any other submissions under this Consent Decree shall be submitted to EPA in accordance with Section XIX of this Consent Decree (Notices).

131. The reporting requirements of this Consent Decree do not relieve DSC of any reporting obligations required by the CAA, CWA, EPCRA, CERCLA, or RCRA or implementing regulations, or by any other federal, state, or local law, regulation, permit, or other requirement. The reporting requirements of this Section are in addition to any other reports, plans or submissions required by other Sections of this Consent Decree.

132. Any information provided pursuant to this Consent Decree may be used by the United States in any proceeding to enforce the provisions of this Consent Decree and as otherwise permitted by law.

X. PERMIT SUBMISSIONS

133. Where any compliance obligation under this Consent Decree requires Defendant to obtain a federal, state, or local permit or approval, Defendant shall

submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals. Defendant may seek relief under the provisions of Section XIV (Force Majeure) for any delay in the performance of any such obligation resulting from a failure to obtain, or a delay in obtaining, any permit or approval required to fulfill such obligation, if Defendant has submitted timely and complete applications and has taken all other actions necessary to obtain all such permits or approvals. This includes, but is not limited to: permits for any discharge of pollutants under the CWA; and all appropriate permits pursuant to Title I of the CAA and the applicable Michigan SIP provisions implementing Title I of the CAA related to the Acetylene Vents 322 Building Project described in Paragraphs 69 to 70 and the Throx Reliability Improvement Project described in Paragraphs 73 and 74.

134. Within eighteen (18) months after the Effective Date of this Consent Decree, DSC shall apply to include permanently the following requirements and limitations enumerated in this Consent Decree into a federally enforceable permit that will survive termination of this Consent Decree or request a site-specific amendment to the Michigan SIP, such that the requirements and limitations enumerated in this Consent Decree become and remain “applicable requirements” as that term is defined in 40 C.F.R. Part 70.2: the Operation and Maintenance Plan for the continuous emission monitoring units as described in Paragraphs 60 - 63,

and the Throx automated alert system requirements contained in Paragraphs 64 - 68.

135. Prior to termination of the Consent Decree, DSC shall submit complete applications to MDEQ to modify, amend, or revise the Renewable Operating Permit to incorporate all applicable requirements to which DSC is subject, including all applicable requirements of the MON at 40 C.F.R. Part 63, Subpart FFFF and the injunctive relief components identified in the immediately preceding Paragraph into the Renewable Operating Permit.

136. DSC shall provide the EPA Clean Air contacts in Section XIX (Notices) a copy of each CAA application for a permit or SIP amendment, as well as a copy of any permit or amendment proposed as a result of such application, to allow for timely participation in any public comment opportunity.

XI. APPROVAL OF DELIVERABLES

137. Submissions Subject to EPA Approval. After review of any plan, report, or other item that is required to be submitted for approval pursuant to this Consent Decree, EPA shall in writing: (a) approve the submission; (b) approve the submission upon specified conditions; (c) approve part of the submission and disapprove the remainder; or (d) disapprove the submission. If EPA fails to act on a submittal within ninety (90) Days, any subsequent milestone date dependent upon such action by EPA shall be extended by the number of Days beyond the 90-

Day period that EPA uses to act on the submittal, provided that: (i) Defendant notifies EPA in writing, at the time of its submittal, of the end date of the 90-Day review period; and (ii) if EPA fails to act within ninety (90) Days, Defendant notifies EPA within seven (7) Days following expiration of the 90-Day review period of any specific milestone dates that Defendant believes would be extended. This Paragraph does not apply to EPA review of, or actions taken with regard to, revisions to water quality standards, permits, or any matters other than submittals that Defendant is specifically required to submit for approval pursuant to this Consent Decree.

138. If the submission is approved pursuant to Paragraph 137, Defendant shall take all actions required by the plan, report, or other document, in accordance with the schedules and requirements of the plan, report, or other document, as approved. If the submission is conditionally approved or approved only in part pursuant to Subparagraph 137.b or 137.c, Defendant shall, upon written direction from EPA, take all actions required by the approved plan, report, or other item that EPA determines are technically severable from any disapproved portions, subject to Defendant's right to dispute only the specified conditions or the disapproved portions, under Section XV (Dispute Resolution).

139. If the submission is disapproved in whole or in part pursuant to Subparagraph 137.c or 137.d, Defendant shall, within forty-five (45) Days or such

other time as the Parties agree to in writing, correct all deficiencies and resubmit the plan, report, or other item, or disapproved portion thereof, for approval, in accordance with the preceding Paragraphs. If the resubmission is approved in whole or in part, Defendant shall proceed in accordance with the preceding Paragraph.

140. If a resubmitted plan, report, or other item, or portion thereof, is disapproved in whole or in part, EPA may again require Defendant to correct any deficiencies, in accordance with the preceding Paragraphs, or may itself correct any deficiencies subject to Defendant's right to invoke Dispute Resolution and the right of EPA to seek stipulated penalties as provided in the preceding Paragraphs.

141. Any stipulated penalties applicable to the original submission, as provided in Section XIII (Stipulated Penalties), shall accrue during the 45-Day period or other specified period, but shall not be payable unless the resubmission is untimely or is disapproved in whole or in part; provided that, if the original submission was so deficient as to constitute a material breach of Defendant's obligations under this Decree, the stipulated penalties applicable to the original submission shall be due and payable notwithstanding any subsequent resubmission.

142. Submissions Subject to EPA Comment

a. Unless otherwise provided herein, for submissions under any provision of this Consent Decree that are subject to EPA comment, EPA may provide written comments on the submission, in whole or in part, or may decline to comment. If EPA provides written comments within ninety (90) Days of receiving a submission, the Defendant shall within forty-five (45) Days of receiving such comments either: (i) alter and implement the submission consistent with EPA's written comments (or any revision of such comments agreed to by EPA in writing); or (ii) submit the matter for dispute resolution under Section XV (Dispute Resolution) of this Consent Decree.

b. Unless otherwise provided herein, after ninety (90) Days from the date of such submission, EPA may nonetheless thereafter provide written comments requiring changes to the submission which the Defendant shall implement unless implementation of the written comments would be unduly burdensome given the degree to which the Defendant has proceeded with implementing the deliverable or otherwise unreasonable. If the Defendant determines that implementation of the written comments is unduly burdensome or otherwise unreasonable, it shall invoke dispute resolution within sixty (60) Days of receiving EPA's comments.

XII. SUPPLEMENTAL ENVIRONMENTAL PROJECTS

143. DSC shall implement the Supplemental Environmental Projects (“SEPs”) listed below, in accordance with the schedules and requirements of this Section XII and Appendix B:

a. Enhanced Monitoring and Repair Project for Connectors.

Defendant shall use two different methods to monitor connectors for fugitive emissions and identify leaks and potential leaks from the connectors in accordance with this Section XII (Supplemental Environmental Projects) and Appendix B (“Enhanced Monitoring SEP”). First, Defendant shall monitor the connectors pursuant to Method 21, which is required for equipment subject to the Miscellaneous Organic Chemical Manufacturing National Emission Standards (“MON”) set forth at 40 C.F.R. § 63.2430 *et seq.* (Subpart FFFF). Next, Defendants shall use an optical gas imaging (“OGI”) camera (“FLIR Camera”), which provides infrared imaging for certain fugitive VOC and HAP emissions, to monitor the same connectors. Defendant shall then compare the results obtained from Method 21 and the FLIR Camera to determine the relative accuracy of the monitoring methods. The Enhanced Monitoring SEP provides for a pollution prevention assessment that will result in a systematic review and repair of connectors that are not subject to the MON. DSC shall make repairs on all leaking connectors, which should result in HAP and VOC emission reductions. The

Enhanced Monitoring SEP should also provide helpful information about the application of a FLIR camera to identifying leaks at chemical plants. DSC is expected to spend at least \$288,000 to implement the Enhanced Monitoring SEP.

b. LDAR Pump Upgrade SEP. DSC shall replace and upgrade eleven (11) pumps, located in buildings 505, 303, 306, 321, and 3104, that are currently being monitored as part of the Facility's LDAR program ("LDAR Pump Upgrade SEP"). DSC shall replace ten (10) gear pumps with seal-less mag drive pumps, and replace one (1) pump seal system with a double mechanical seal. The LDAR Pump Upgrade SEP should lead to lower emissions from eleven (11) pumps that have previously been identified as leaking despite repairs, and is expected to result in an annual reduction of 550 lbs of HAPs. DSC expects to spend at least \$320,000 to implement the LDAR Pump Upgrade SEP.

c. LDAR Agitator Upgrade SEP. Defendant shall replace and upgrade five (5) agitators in the 505 Building that are currently being monitored as part of the Facility's LDAR program ("LDAR Agitator Upgrade SEP"). Four (4) of the existing agitators shall be replaced with gas-sealed agitators, while the fifth shall receive a seal upgrade. The LDAR Agitator Upgrade SEP is expected to result in lower emissions from five (5) agitators that had previously been identified as leaking despite repairs, and is expected to lead to an annual reduction of

approximately 1,100 lbs of HAPs. DSC expects to spend at least \$566,000 to implement the LDAR Agitator SEP.

d. Lead Hazard Abatement SEP. Defendant shall implement a lead hazard abatement SEP (“Lead Hazard Abatement SEP”) designed to protect children from lead-based paint hazards in the following child-occupied facilities within a 50-mile radius of the Facility, as further described in Appendix B: public or commercial facilities, including day care centers, or facilities owned or operated by any qualified Internal Revenue Code Section 501(c)(3) tax-exempt organization. The Lead Hazard Abatement SEP shall be performed at qualifying facilities within a 50-mile radius of the Facility, with priority given to facilities where children aged six and under or pregnant women regularly visit. This SEP will reduce hazards presented by lead and includes, but is not limited to, the following: window replacement, using energy efficient windows that meet EPA Energy Star criteria; the removal of lead-based paint and dust; the permanent enclosure or encapsulation of lead-based paint; and the replacement of lead-based painted surfaces or fixtures. Both VOCs and NO_x can contribute to the accelerated deterioration of lead-based paint, resulting in increased lead exposure because lead is more easily transferred onto hands or other objects or ingested. This pollution reduction project is expected to reduce lead exposure to citizens in Midland,

Michigan and the surrounding area. DSC shall spend at least \$111,335 to implement the Lead Hazard Abatement SEP.

e. SAFER® Chemical Monitoring System Integration & Upgrade SEP. Defendant shall implement a SEP to upgrade the SAFER system at the Facility (“SAFER System SEP”), which includes hardware and software used by DSC to detect and model chemical releases to facilitate responses designed to protect human health and the environment. DSC shall merge the DSC and Dow Chemical SAFER systems into one integrated data management system covering both companies’ Midland facilities. DSC shall also upgrade monitoring equipment to portable units that can communicate with the SAFER system to enable real-time map plotting of projected plumes from vapor releases. Within ninety (90) Days of the Effective Date, Defendant shall purchase fourteen (14) portable detection units, known as AreaRAE monitors. Within thirty (30) Days of receiving the AreaRAE monitors, DSC shall donate four (4) portable AreaRAE monitors to the Midland County Office of Emergency Management in Midland County, Michigan. This SEP, which relates to emergency planning and preparedness, will enhance DSC’s ability to detect releases of chemicals, and to predict off-site exposure allowing for quicker, more effective responses to releases of chemicals from the Facility. The SEP will also provide local emergency responders enhanced tools to respond to

releases. DSC expects to spend at least \$326,165 to implement the SAFER System SEP.

144. Defendant is responsible for the satisfactory completion of the SEPs in accordance with the requirements of this Decree. Defendant may use contractors or consultants in planning and implementing the SEPs.

145. With regard to the SEPs, Defendant certifies the truth and accuracy of each of the following:

a. That all cost information provided to EPA in connection with EPA's approval of the SEP is complete and accurate, and that Defendant in good faith estimates that the total cost to implement the SEPs in this Section XII is \$1,611,500;

b. That, as of the date of executing this Decree, Defendant is not required to perform or develop any of the SEPs by any federal, state, or local law or regulation and is not required to perform or develop any of the SEPs by agreement, grant, or as injunctive relief awarded in any other action in any forum;

c. That the SEPs are not projects that Defendant was planning or intending to construct, perform, or implement other than in settlement of the claims resolved in this Decree;

d. That Defendant has not received and will not receive credit for any of the SEPs in any other enforcement action;

e. That Defendant will not receive any reimbursement for any portion of the SEPs from any other person; and

f. That Defendant is not a party to any open federal financial assistance transaction that is funding or could fund the same activity as any of the SEPs described in Paragraph 143.

146. SEP Completion Report. Within ninety (90) Days after the deadline for completion of each SEP, Defendant shall submit a SEP Completion Report for that SEP to the United States, in accordance with Section XIX (Notices). The SEP Completion Report shall contain the following information:

- a. A detailed description of the SEP as implemented;
- b. A description of any problems encountered in completing the SEP and the solutions thereto;
- c. An itemized list of all eligible SEP costs expended;
- d. Certification that the SEP has been fully implemented pursuant to the provisions of this Decree; and
- e. A description of the environmental and public health benefits resulting from implementation of the SEP (with a quantification of the benefits and pollutant reductions, if feasible); and
- f. A certification that Defendant has inquired of the SEP recipients and/or SEP implementers whether either is a party to an open federal

financial assistance transaction that is funding or could fund the same activity as the SEP and has been informed by the recipient and/or the implementer that neither is a party to such a transaction. For purposes of this certification and the certification in Subparagraph 145.f, the term “open federal financial assistance transaction” refers to a grant, cooperative agreement, loan, federally-guaranteed loan guarantee, or other mechanism for providing federal financial assistance whose performance period has not yet expired.

147. EPA may, in its sole discretion, require information in addition to that described in the preceding Paragraph, in order to evaluate Defendant’s completion report.

148. After receiving the SEP Completion Report, the United States shall notify Defendant whether or not Defendant has satisfactorily completed the SEP. If Defendant has not completed the SEP in accordance with this Consent Decree, stipulated penalties may be assessed under Section XIII (Stipulated Penalties).

149. Disputes concerning the satisfactory performance of the SEP and the amount of eligible SEP costs may be resolved under Section XV (Dispute Resolution). No other disputes arising under this Section shall be subject to Dispute Resolution.

150. Each submission required under this Section shall be signed by an official with knowledge of the SEP and shall bear the certification language set forth in Paragraph 128.

151. Any public statement, oral or written, in print, film, or other media made by Defendant making reference to a SEP under this Decree shall include the following language: “This project was undertaken in connection with the settlement of an enforcement action, *United States v. Dow Silicones Corporation*, taken on behalf of the U.S. Environmental Protection Agency under federal environmental laws.”

152. For federal income tax purposes, Defendant agrees that it will neither capitalize into inventory or basis nor deduct any costs or expenditures incurred in performing the SEPs.

XIII. STIPULATED PENALTIES

153. Defendant shall be liable for stipulated penalties to the United States for violations of this Consent Decree as specified below, unless excused under Section XIV (Force Majeure). A violation includes failing to perform any obligation required by the terms of this Decree, including any work plan or schedule approved under this Decree, according to all applicable requirements of this Decree and within the specified time schedules established by or approved under this Decree.

Table 2

CAA Violations		Stipulated Penalties	
a.	Failure to timely develop a Facility-wide LDAR Document as required by Paragraph 18 or failure to timely update the Facility-wide LDAR Document on an annual basis if needed pursuant to Paragraph 18.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 31 Days or more	<u>Penalty per Day of noncompliance</u> \$300 \$400 \$500
b.	Each failure to perform LDAR monitoring at the frequencies set forth in Paragraph 19 or, if applicable, Paragraphs 20, 21, Subparagraph 31.b, and Paragraph 51.	\$100 per component per missed monitoring event, not to exceed \$25,000 per month per Covered Process Unit	
c.	Each failure to comply with Method 21 in performing LDAR monitoring, in violation of Paragraph 22.	<u>Monitoring frequency for the component</u> Every 2 years Annual Semi-Annual Quarterly Monthly	<u>Penalty per monitoring event per Covered Process Unit</u> \$25,000 \$20,000 \$15,000 \$10,000 \$5,000

<p>d. For each failure to use a monitoring device that is attached to a datalogger and for each failure, during each monitoring event, to directly electronically record the Screening Value, date, time, identification number of the monitoring instrument, and the identification number of the technician, in violation of these requirements of Paragraph 22.</p>	<p>\$100 per failure per piece of equipment monitored</p>
<p>e. Each failure to transfer monitoring data to an electronic database on at least a weekly basis, in violation of this requirement in Paragraph 22.</p>	<p>\$150 per day for each Day that the transfer is late or has not occurred</p>
<p>f. Each failure to timely perform a first attempt at repair as required by Paragraph 25 or 27, unless not required to do so under Paragraph 37 or Subparagraph 38.c. For purposes of these stipulated penalties, the term “repair” includes the required re-monitoring in Paragraph 27 after the repair attempt; the stipulated penalties in Subparagraph i do not apply.</p>	<p>\$150 per Day for each Day late or without repair attempt, not to exceed \$1,500 per leak</p>

<p>g. Each failure to timely perform a final attempt at repair as required by Paragraph 25, unless not required to do so under Subparagraph 37.d.1 or 38.c. For purposes of these stipulated penalties, the term “repair” includes the required re-monitoring in Paragraph 27 after the repair attempt; the stipulated penalties in Subparagraph i do not apply.</p>	<p><u>Equipment Type</u></p> <p>Valves</p> <p>Pumps, agitators</p>	<p><u>Penalty per Component per Day late</u></p> <p>\$300</p> <p>\$1,200</p>	<p><u>Not to Exceed for Each Leak</u></p> <p>\$37,500</p> <p>\$150,000</p>
<p>h. Each failure to timely perform Repair Verification Monitoring as required by Paragraph 27 in circumstances where the first attempt to adjust, or otherwise alter, the piece of equipment to eliminate the leak was made within five (5) Days and the final attempt to adjust, or otherwise alter, the piece of equipment to eliminate the leak was made within fifteen (15) days.</p>	<p><u>Equipment Type</u></p> <p>Valves</p> <p>Pumps, agitators</p>	<p><u>Penalty per Component per Day late</u></p> <p>\$150</p> <p>\$600</p>	<p><u>Not to Exceed for Each Leak</u></p> <p>\$18,750</p> <p>\$75,000</p>
<p>i. Each failure to undertake the drill-and-tap method as required by Paragraph 28.</p>	<p><u>Period of Noncompliance</u></p> <p>1 - 15 Days</p> <p>16 - 30 Days</p> <p>31 Days or more</p>		<p><u>Penalty per component per Day of noncompliance</u></p> <p>\$200</p> <p>\$350</p> <p>\$500, not to exceed \$37,500 for each component</p>

j.	Each failure to record the information required by Paragraph 29.	\$100 per component per item of missed information		
k.	Each improper placement of a piece of Covered Equipment on the DOR list in violation of Paragraph 31 (<i>i.e.</i> , placing a piece of Covered Equipment on the DOR list even though it is feasible to repair it without a process unit shutdown).	<u>Equipment Type</u>	<u>Penalty per component per Day on list</u>	<u>Not to exceed for each component</u>
		Valves	\$300	\$75,000
		Pumps, Agitators	\$1,200	\$300,000
l.	Each failure to comply with the requirement in Paragraph 31.a that a relevant unit supervisor or person of similar authority sign off on placing a piece of Covered Equipment on the DOR list.	\$250 per piece of Covered Equipment		
m.	Each failure to comply with the requirements of Subparagraph 31.c(i).	Refer to the applicable stipulated penalties in Subparagraphs g and h		
n.	Each failure to comply with the requirements of Subparagraph 31.c (ii).	Refer to the applicable stipulated penalties in Subparagraphs q - v		
o.	Each failure to comply with the work practice standards in Paragraphs 34 and 35.	\$50 per violation per valve per Day, not to exceed \$30,000 for all valves in a Covered Process Unit per quarter		
p.	Each failure to install a Low-E Valve or a valve fitted with Low-E Packing when required to do so in accordance with Paragraph 36 and Subparagraph 37.a.	\$20,000 per failure, except as provided in Paragraph 153.ttt below		

q. Each failure, in violation of Subparagraph 37.b, to timely comply with the requirements relating to installing a Low-E Valve or Low-E Packing if a process unit shutdown is not required.	\$500 per Day per failure, not to exceed \$20,000, except as provided in Paragraph 153.ttt below
r. Each failure, in violation of Subparagraph 37.c, to install a Low-E Valve or Low-E Packing when required to do so during a Scheduled Maintenance.	\$20,000 per failure, except as provided in Paragraph 153.ttt below
s. Each failure to add a piece of Covered Equipment to the LDAR program when required to do so pursuant to the evaluation required by Paragraph 43 (Management of Change).	\$300 per piece of Covered Equipment (plus an amount, if any, due under Paragraph 153.b for any missed monitoring event related to a component that should have been added to the LDAR Program but was not)
t. Each failure to remove a piece of Covered Equipment from the LDAR program when required to do so pursuant to Paragraph 43.	\$150 per failure per piece of Covered Equipment
u. Each failure to timely develop a training protocol as required by Paragraph 44.	\$50 per Day late or not developed
v. Each failure to perform initial, refresher, or new personnel training as required by Paragraph 44.	\$1,000 per person per month late or not performed
w. Each failure of a monitoring technician to complete the certification required in Paragraph 45.	\$100 per failure per technician

x. Each failure to perform any of the requirements relating to QA/QC in Paragraph 46.	\$1,000 per missed requirement per quarter	
y. Each failure to conduct an LDAR audit in accordance with the schedule set forth in Paragraph 47.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 31 Days or more	<u>Penalty per Day per violation</u> \$300 \$400 \$500 Not to exceed \$100,000 per audit
z. For the first, third, and fifth audits, each failure to use a third party; each use of a third party auditor that is not experienced in LDAR audits; and each use of DSC's regular LDAR contractor to conduct the third party audit, in violation of Paragraph 48.	\$25,000 per audit	
aa. For the second and fourth LDAR audits, each audit that does not comply with the requirements in Paragraph 48.	\$10,000 per audit	
bb. Except for the requirement to undertake Comparative Monitoring, each failure to substantially comply with the LDAR audit requirements in Paragraph 49.	\$100,000 per audit	

cc.	Each failure to substantially comply with the Comparative Monitoring requirements of Paragraph 50.	\$50,000 per audit	
dd.	Each failure to timely submit a Corrective Action Plan that substantially conforms to the requirements of Paragraph 52.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 31 Days or more	<u>Penalty per Day per violation</u> \$100 \$250 \$500 Not to exceed \$100,000 per audit
ee.	Each failure to implement a corrective action within three (3) months after the LDAR Audit Completion Date or pursuant to the schedule that DSC must propose pursuant to Subparagraph 52.b if the corrective action cannot be completed in three (3) months or pursuant to an EPA-approved revised schedule pursuant to Subparagraph 50.d.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 31 Days or more	<u>Penalty per Day per violation</u> \$500 \$750 \$1,000 Not to exceed \$200,000 per audit
ff.	Each failure to timely submit a Certification of Compliance that substantially conforms to the requirements of Paragraph 53.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 31 Days or more	<u>Penalty per Day per violation</u> \$100 \$250 \$500 Not to exceed \$75,000

gg. Failure to implement a Benzene Waste Sampling Plan and submit updated TAB, as required by Paragraphs 55, 56, 57, and 59.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 31 Days or more	<u>Penalty per Day per violation</u> \$1,000 \$1,500 \$2,500
hh. Failure to implement the OMP for the continuous emission monitoring units at Boiler #12, Boiler #13, and the Throx, as required by Paragraphs 60 through 62.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 31 Days or more	<u>Penalty per Day per violation</u> \$1,000 \$1,500 \$2,500
ii. Failure to submit the root cause analysis report required by Paragraph 63.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 31 Days or more	<u>Penalty per Day per violation</u> \$100 \$250 \$500
jj. Failure to develop and implement an automated alert system to notify process operators who work in buildings containing processes that are controlled by the Throx, as required by Paragraphs 64 and 65.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 31 Days or more	<u>Penalty per Day per violation</u> \$300 \$400 \$500
kk. Failure to provide training and notification to personnel responsible for processes that are affected by Throx “downtime” events about the alert system and required follow-up actions, as required by Paragraphs 66 and 67.	\$1,000 per person per month late	

<p>ll. Failure to route the process vents that contain acetylene at the 322 Building to the Throx through carbon steel piping designed to achieve emission reductions of approximately 60,000 pounds per year of VOCs, as required by Paragraph 69.</p>	<p><u>Period of noncompliance</u></p> <p>1 - 15 Days 16 - 30 Days 31 Days or more</p>	<p><u>Penalty per Day per violation</u></p> <p>\$1,000 \$1,500 \$2,000</p>
<p>mm. Failure to route emissions from vents at the 322 Building that contain acetylene to the 322 Building water scrubber 22452, when required by Paragraph 70.</p>	<p><u>Period of noncompliance</u></p> <p>1 - 15 Days 16 - 30 Days 31 Days or more</p>	<p><u>Penalty per Day of noncompliance</u></p> <p>\$1,000 \$1,500 \$2,000</p>
<p>nn. Failure to install automated valves, oxygen monitors, pressure sensors, and flow sensors at the 322 Building, as required by Paragraph 70.</p>	<p><u>Period of noncompliance</u></p> <p>1 - 15 Days 16 - 30 Days 31 Days or more</p>	<p><u>Penalty per Day per violation</u></p> <p>\$300 \$400 \$500</p>
<p>oo. Failure to describe the status of the actions required by the Acetylene Vents 322 Building Project, including the completion date for each action that has been completed, in the fourth Annual Report required by Paragraph 72.</p>	<p><u>Period of noncompliance</u></p> <p>1 - 15 Days 16 - 30 Days 31 Days or more</p>	<p><u>Penalty per Day per violation</u></p> <p>\$100 \$250 \$500</p>

pp. Each failure to comply with the measures required in Paragraph 73 relating to the Throx Reliability Improvement Project.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 31 Days or more	<u>Penalty per Day per violation</u> \$300 \$400 \$500								
qq. Failure to identify pursuant to Paragraph 78 any product or process unit that DSC later determines is subject to 40 C.F.R. Part 63, unless that product or process unit begins production or operation after June 13, 2018.	\$75,000 per product or process unit missed									
rr. Failure to submit the CAA Compliance Plan, as required by Paragraph 79.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 31 Days or more	<u>Penalty per Day of noncompliance</u> \$100 \$250 \$500								
ss. Failure to complete elements specified in Subparagraphs 79.a(1) and 79.a(2) within the timeframes specified in the CAA Compliance Plan, as required by Paragraph 80.	The greater of 1.2 times the economic benefit, if any, of delayed compliance, or the amount calculated as shown below: <table border="1" data-bbox="769 1381 1422 1640"> <thead> <tr> <th><u>Period of noncompliance</u></th> <th><u>Penalty per Day per violation</u></th> </tr> </thead> <tbody> <tr> <td>1 - 15 Days</td> <td>\$1,000</td> </tr> <tr> <td>16 - 30 Days</td> <td>\$1,500</td> </tr> <tr> <td>31 Days or more</td> <td>\$2,500</td> </tr> </tbody> </table>		<u>Period of noncompliance</u>	<u>Penalty per Day per violation</u>	1 - 15 Days	\$1,000	16 - 30 Days	\$1,500	31 Days or more	\$2,500
<u>Period of noncompliance</u>	<u>Penalty per Day per violation</u>									
1 - 15 Days	\$1,000									
16 - 30 Days	\$1,500									
31 Days or more	\$2,500									
tt. Failure to submit CAA Compliance Plan Report, as required by Paragraph 83.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 31 Days or more	<u>Penalty per Day of noncompliance</u> \$100 \$250 \$500								

uu. For violation of any other term, condition, or requirement in Paragraphs 17 through 83 of Section V (Clean Air Act Compliance Requirements) and Section IX (Reporting Requirements) that does not have a specific stipulated penalty set forth above.	\$150 per violation per Day
---	-----------------------------

EPCRA/CERCLA Violations	Stipulated Penalties	
vv. Failure to implement the Spill/Release Reporting Policy that incorporates the provisions required by Paragraphs 85 - 86.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 61 Days or more	<u>Penalty per Day of noncompliance</u> \$100 \$250 \$500
ww. Failure to submit timeline report within the timeframe required by Paragraph 87.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 31 Days or more	<u>Penalty per Day of noncompliance</u> \$100 \$250 \$500
xx. Failure to revise training procedures within the timeframes required by Paragraph 88.	<u>Period of noncompliance</u> 1 - 15 days 16 - 30 days 31 days or more	<u>Penalty per Day of noncompliance</u> \$100 \$250 \$500
yy. Failure to conduct training within the timeframes required by Paragraph 88.	\$1,000 per person per month late	

<p>zz. For violation of any other term, condition, or requirement in Paragraphs 85 through 88 of Section VI (EPCRA/CERCLA Compliance Requirements) and Section IX (Reporting Requirements) that does not have a specific stipulated penalty set forth above.</p>	<p>\$150 per violation per day</p>
--	------------------------------------

<p>RCRA Violations</p>	<p>Stipulated Penalties</p>	
<p>aaa. Failure to submit to EPA by September 30, 2018 a plan outlining the steps Defendant will take to complete Process Knowledge forms for each waste generated or managed on site, as required by Subparagraph 92.a.</p>	<p><u>Period of noncompliance</u></p> <p>1 - 15 Days 16 - 60 Days 61 Days or more</p>	<p><u>Penalty per Day of noncompliance</u></p> <p>\$100 \$250 \$500</p>
<p>bbb. Failure to complete all Process Knowledge forms for each waste generated or managed on site within three (3) years of the Effective Date or to timely request an extension to complete Process Knowledge forms for each waste generated or managed on site, as required by Paragraphs 92 and 93.</p>	<p><u>Period of noncompliance</u></p> <p>1 - 30 Days 31 - 60 Days 61 Days or more</p>	<p><u>Penalty per Day of noncompliance</u></p> <p>\$750 \$1,000 \$2,000</p>

ccc. Failure to retain the required Process Knowledge forms, or information within a given Process Knowledge form, per the applicable retention requirements in Paragraph 95.	\$500 per missing or incomplete Process Knowledge form	
ddd. Failure to provide for each less-than-90-day hazardous waste accumulation tank secondary containment system an adequate coating or lining, or approval of the use of an equivalent device, as required by Subparagraphs 96.a and 96.b.	\$1,250 per instance of noncompliance	
eee. If applicable, failure to provide EPA within thirty (30) Days of receipt a copy of the MDEQ letter which approves the use of an equivalent device, as required by Subparagraph 96.c.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 60 Days 61 Days or more	<u>Penalty per Day of noncompliance</u> \$100 \$200 \$300
fff. Failure to record visual obstructions within DSC's inspection record and/or take necessary corrective action to remedy visual obstructions for less-than-90-day hazardous waste accumulation tank secondary containment systems, as required by Paragraph 97.	\$300 per day per tank for failure to record visual obstructions \$300 per day per tank, after 15-day period, to remedy visual obstructions (except as provided in Paragraph 97.b)	

ggg. For violation of any other term, condition or requirement in Paragraphs 90 through 97 of Section VII (RCRA Compliance Requirements) and Section IX (Reporting Requirements) that does not have a specific stipulated penalty set forth above.	\$150 per violation per Day
--	-----------------------------

Clean Water Act Violations	Stipulated Penalties	
hhh. Failure to submit by the specified deadlines any required deliverables, including notices, plans, reports, and a final SWPPP as set forth in Paragraphs 99 through 122.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 60 Days 61 Days or more	<u>Penalty per Day per violation</u> \$100 \$250 \$500
iii. Failure to implement any remedy, assessment, study, or program pursuant to the associated study plan or program plan as approved by EPA and/or pursuant to the requirements set forth in Paragraphs 99 through 122.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 31 Days or more	<u>Penalty per Day per violation</u> \$1,000 \$1,500 \$2,500
jjj. For violation of any other term, condition, or requirement in Paragraphs 99 through 122 of Section VIII (CWA Compliance Requirements) and Section IX (Reporting Requirements) that does not have a specific stipulated penalty set forth above.	\$150 per violation per Day per violation	

SEP Violations	Stipulated Penalties	
kkk. Failure to satisfactorily complete any SEP by the deadlines set forth in Appendix B.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 31 Days or more	<u>Penalty per Day per violation</u> \$250 \$500 \$1,000
lll. Failure to implement the Enhanced Monitoring SEP as required under Subparagraph 143.a or abandoning the Enhanced Monitoring SEP.	\$302,400	
mmm. Failure to implement the LDAR Pump Upgrade SEP as required under Subparagraph 143.b or abandoning the LDAR Pump Upgrade SEP.	\$336,000	
nnn. Failure to implement the LDAR Agitator Upgrade SEP as required under Subparagraph 143.c or abandoning the LDAR Agitator Upgrade SEP.	\$594,300	
ooo. Failure to implement the Lead Hazard Abatement SEP as required under Subparagraph 143.d or abandoning the Lead Hazard Abatement SEP.	\$116,902	

SEP Violations	Stipulated Penalties
ppp. Failure to implement the SAFER System SEP as required under Subparagraph 143.e or abandoning the SAFER System SEP.	\$342,300

Miscellaneous Provisions	Stipulated Penalties	
qqq. Failure to pay the civil penalty pursuant to Section IV (Civil Penalty) when due.	\$3,000 per day late	
rrr. Each failure to substantially comply with any recordkeeping, submission, or reporting requirement in Section V (Clean Air Act Compliance Requirements) or Section IX (Reporting Requirements) not otherwise specifically identified in this Table 2.	<u>Period of noncompliance</u> 1 - 15 Days 16 - 30 Days 31 Days or more	<u>Penalty per Day per violation</u> \$100 \$250 \$500

<p>Stipulated Penalties in Lieu of those in Subparagraphs 153.p, 153.q, and 153.r.</p>
<p>sss. For purposes of Subparagraphs 153.ttt and 153.uuu, the term “Non-Compliant Valve” means a valve that is either: (i) not a Low-E Valve; or (ii) not fitted with Low-E Packing. The term “Compliant Valve” means a valve that is either: (i) a Low-E Valve; or (ii) fitted with Low-E Packing.</p>

ttt. The stipulated penalties in Subparagraph 153.uuu are to be used instead of those in Subparagraphs 153.p, 153.q, or 153.r when all of the following requirements are met:

- (i) Defendant, and not a government agency, discovers the failure involved;
- (i) Defendant promptly reports the failure to EPA;
- (ii) In the report, Defendant sets forth a schedule for promptly replacing the Non-Compliant Valve with a Compliant Valve; provided however, that Defendant shall not be required to undertake an unscheduled shutdown of the affected Covered Process Unit in proposing the schedule unless Defendant so chooses;
- (iii) Defendant monitors the Non-Compliant Valve once a month from the time of its discovery until the valve is replaced with a Compliant Valve and no Screening Values above 100 ppm are recorded;
- (iv) Defendant replaces the Non-Compliant Valve with a Compliant Valve in accordance with the schedule set forth in Subparagraph 153.uuu(iii); and
- (v) Defendant demonstrates that in good faith it intended to install a Compliant Valve but inadvertently installed a Non-Compliant Valve.

uuu. The following stipulated penalties shall apply under the circumstances in Subparagraph 153.ttt:

- (i) In lieu of the penalty in Subparagraph 153.p, \$2000 per failure.
- (ii) In lieu of the penalty in Subparagraph 153.q, \$50 per day per failure, not to exceed \$2000.
- (iii) In lieu of the penalty in Subparagraph 153.r, \$2000 per failure.

154. Obligations Prior to the Effective Date. Upon the Effective Date of this Consent Decree, the stipulated penalty provisions of this Decree shall be retroactively enforceable with regard to any and all violations of Paragraphs 77,

78, 79, 85, 88, and 92.a that have occurred prior to the Effective Date of this Consent Decree, provided that stipulated penalties that may have accrued prior to the Effective Date may not be collected unless and until this Consent Decree is entered by the Court.

155. Except as provided in Paragraph 158, Defendant shall pay any stipulated penalty within sixty (60) Days of receiving a written demand by the United States. The written demand for the payment of stipulated penalties shall identify the particular violation(s) to which the stipulated penalty relates; the stipulated penalty amount (as can be best estimated) that the United States is demanding for each violation; the calculation method underlying the demand; and the grounds upon which the demand is based. Prior to issuing a written demand for stipulated penalties, the United States may, in its unreviewable discretion, contact Defendant for informal discussion of matters that the United States believes may merit stipulated penalties.

156. Stipulated penalties under this Section shall begin to accrue on the Day after performance is due or on the Day a violation occurs, whichever is applicable, and shall continue to accrue until performance is satisfactorily completed or until the violation ceases. Stipulated penalties shall accrue simultaneously for separate violations of this Consent Decree.

157. The United States may, in the unreviewable exercise of its discretion, reduce or waive stipulated penalties otherwise due it under this Consent Decree.

158. Stipulated penalties shall continue to accrue as provided in Paragraph 156, during any Dispute Resolution, but need not be paid until the following:

a. If the dispute is resolved by agreement of the Parties or by a decision of EPA that is not appealed to the Court, Defendant shall pay accrued penalties determined to be owing, together with Interest, to the United States within thirty (30) Days of the effective date of the agreement or the receipt of EPA's decision or order.

b. If the dispute is appealed to the Court and the United States prevails in whole or in part, Defendant shall pay all accrued penalties determined by the Court to be owing, together with Interest, within sixty (60) Days of receiving the Court's decision or order, except as provided in Subparagraph c below.

c. If any Party appeals the District Court's decision, Defendant shall pay all accrued penalties determined to be owing, together with Interest, within thirty (30) Days of receiving the final appellate court decision.

159. Defendant shall pay stipulated penalties owing to the United States in the manner set forth and with the confirmation notices required by Paragraph 14,

except that the transmittal letter shall state that the payment is for stipulated penalties and shall state for which violation(s) the penalties are being paid.

160. If Defendant fails to pay stipulated penalties according to the terms of this Consent Decree, Defendant shall be liable for Interest on such penalties, accruing as of the date payment became due. Nothing in this Paragraph shall be construed to limit the United States from seeking any remedy otherwise provided by law for Defendant's failure to pay any stipulated penalties.

161. The payment of penalties and Interest, if any, shall not alter in any way Defendant's obligation to complete the performance of the requirements of this Consent Decree.

162. Non-Exclusivity of Remedy. Stipulated penalties are not the United States' exclusive remedy for violations of this Consent Decree. Subject to the provisions of Section XVII (Effect of Settlement/Reservation of Rights), the United States expressly reserves the right to seek any other relief it deems appropriate for Defendant's violation of this Decree or applicable law, including, but not limited to, an action against Defendant for statutory penalties, additional injunctive relief, mitigation or offset measures, and/or contempt. However, the amount of any statutory penalty assessed for a violation of this Consent Decree shall be reduced by an amount equal to the amount of any stipulated penalty assessed and paid pursuant to this Consent Decree.

XIV. FORCE MAJEURE

163. “Force majeure,” for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of Defendant, of any entity controlled by Defendant, or of Defendant’s contractors, that delays or prevents the performance of any obligation under this Consent Decree despite Defendant’s best efforts to fulfill the obligation. The requirement that Defendant exercise “best efforts to fulfill the obligation” includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (i) as it is occurring and (ii) following the potential force majeure, such that the delay and any adverse effects of the delay are minimized. “Force majeure” does not include Defendant’s financial inability to perform any obligation under this Consent Decree.

164. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree, whether or not caused by a force majeure event, Defendant shall notify EPA in writing promptly but not later than fourteen (14) Days after the time Defendant first knew or should have known by the exercise of due diligence that the event might cause a delay. In the written notice, Defendant shall specifically reference this Paragraph of this Decree and shall provide, to the extent such information is available at the time, an explanation and description of the reasons for the delay; the anticipated duration of the delay;

all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Defendant's rationale for attributing such delay to a force majeure event if it intends to assert such a claim; and a statement as to whether, in the opinion of Defendant, such event may cause or contribute to an endangerment to public health, welfare or the environment. Defendant shall include with any notice all available documentation supporting the claim that the delay was attributable to a force majeure. Failure to comply with the notice requirements in this Paragraph shall preclude Defendant from asserting any claim of force majeure for that event for the period of time of such failure to comply, and for any additional delay caused by such failure, unless the United States, in its unreviewable discretion, permits Defendant to assert a force majeure claim with respect to the particular event. Defendant shall be deemed to know of any circumstance of which Defendant, any entity controlled by Defendant, or Defendant's contractors knew or should have known. The United States may, in its unreviewable discretion, extend the time within which notice may be given or waive deficiencies in the notice. No such extension or waiver shall be effective unless in writing.

165. If EPA agrees that the delay or anticipated delay is attributable to a force majeure event, the time for performance of the obligations under this Consent

Decree that are affected by the force majeure event will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure event shall not, of itself, extend the time for performance of any other obligation. However, Defendant may request that the time be extended for performance of any other obligation that is affected by the force majeure event, and the United States may, in its unreviewable discretion, grant such a request. EPA will notify Defendant in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure event.

166. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure event, EPA will notify Defendant in writing of its decision.

167. If Defendant elects to invoke the dispute resolution procedures set forth in Section XV (Dispute Resolution), it shall do so no later than forty-five (45) Days after receipt of EPA's notice. In any such proceeding, Defendant shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Defendant complied with the requirements of Paragraphs 163

and 164. If Defendant carries this burden, the delay at issue shall be deemed not to be a violation by Defendant of the affected obligation of this Consent Decree identified to EPA and the Court.

XV. DISPUTE RESOLUTION

168. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. Defendant's failure to seek resolution of a dispute under this Section shall preclude Defendant from raising any such issue as a defense to an action by the United States to enforce any obligation of Defendant arising under this Decree.

169. Informal Dispute Resolution. Any dispute subject to Dispute Resolution under this Consent Decree shall first be the subject of informal negotiations. The dispute shall be considered to have arisen when one party sends the other party a written Notice of Dispute. Such Notice of Dispute shall state clearly the matter in dispute. The period of informal negotiations shall not exceed sixty (60) Days from the date the dispute arises, unless that period is modified by written agreement. If the Parties cannot resolve a dispute by informal negotiations, then the position advanced by the United States shall be considered binding unless, within forty-five (45) Days after the conclusion of the informal negotiation period, Defendant invokes formal dispute resolution procedures as set forth below.

170. Formal Dispute Resolution. Defendant shall invoke formal dispute resolution procedures, within the time period provided in the preceding Paragraph, by serving on the United States a written Statement of Position regarding the matter in dispute. The Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting Defendant's position and any supporting documentation relied upon by Defendant. Defendant and the United States may hold additional discussions, which may, in the unreviewable discretion of each party, include higher-level representatives of one or both parties.

171. The United States shall serve its Statement of Position within forty-five (45) Days of receipt of Defendant's Statement of Position. The United States' Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by the United States. The United States' Statement of Position shall be binding on Defendant, unless Defendant files a motion for judicial review of the dispute in accordance with the following Paragraph.

172. Defendant may seek judicial review of the dispute by filing with the Court and serving on the United States, in accordance with Section XIX (Notices), a motion requesting judicial resolution of the dispute. The motion must be filed within sixty (60) Days of receipt of the United States' Statement of Position pursuant to the preceding Paragraph. The motion shall contain a written statement

of Defendant's position on the matter in dispute, including any supporting factual data, analysis, opinion, or documentation, and shall set forth the relief requested and any schedule within which the dispute must be resolved for orderly implementation of the Consent Decree.

173. The United States shall respond to Defendant's motion within the time period allowed by the Local Rules of this Court. Defendant may file a reply memorandum, to the extent permitted by the Local Rules.

174. Standard of Review. In any dispute brought under Paragraph 170, Defendant shall bear the burden of demonstrating that its position complies with this Consent Decree and the CAA, CWA, RCRA, EPCRA, or CERCLA, and that it is entitled to relief under applicable principles of law. The United States reserves the right to argue that its position is reviewable only on the administrative record and must be upheld unless arbitrary and capricious or otherwise not in accordance with law, and Defendant reserves the right to argue to the contrary.

175. The invocation of dispute resolution procedures under this Section shall not, by itself, extend, postpone, or affect in any way any obligation of Defendant under this Consent Decree, unless and until final resolution of the dispute so provides. Stipulated penalties with respect to the disputed matter shall continue to accrue from the first Day of noncompliance, but payment shall be stayed pending resolution of the dispute as provided in Paragraph 158. If

Defendant does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XIII (Stipulated Penalties).

XVI. INFORMATION COLLECTION AND RETENTION

176. The United States and its representatives, including attorneys, contractors, and consultants, shall have the right of entry into any facility covered by this Consent Decree, at all reasonable times, upon presentation of credentials, to:

- a. Monitor the progress of activities required under this Consent Decree;
- b. Verify any data or information submitted to the United States in accordance with the terms of this Consent Decree;
- c. Obtain samples under this Consent Decree and, upon request, splits of any samples taken by Defendant, its representatives, or contractors;
- d. Obtain documentary evidence under this Consent Decree, including photographs and similar data; and
- e. Assess Defendant's compliance with this Consent Decree.

177. Upon request, Defendant shall provide EPA or its authorized representatives splits of any samples taken by Defendant under this Consent Decree. Upon request, EPA shall provide Defendant splits of any samples taken by EPA.

178. Until three (3) years after the termination of this Consent Decree, Defendant shall retain, and shall instruct its contractors and agents to preserve, all non-identical copies of all documents, records, or other information (including documents, records, or other information in electronic form) in its or its contractors' or agents' possession or control, or that come into its or its contractors' or agents' possession or control, and that relate in any manner to Defendant's performance of its obligations under this Consent Decree. This information-retention requirement shall apply regardless of any contrary corporate or institutional policies or procedures. At any time during this information-retention period, upon request by the United States, Defendant shall provide copies of any documents, records, or other information required to be maintained under this Paragraph.

179. Prior to the conclusion of the information-retention period provided in the preceding Paragraph, Defendant shall notify the United States at least ninety (90) Days prior to the destruction of any documents, records, or other information subject to the requirements of the preceding Paragraph and, upon request by the United States, Defendant shall deliver any such documents, records, or other information to EPA. Defendant may assert that certain documents, records, or other information is privileged under the attorney-client privilege or any other privilege recognized by federal law. If Defendant asserts such a privilege, it shall

provide the following: (i) the title of the document, record, or information; (ii) the date of the document, record, or information; (iii) the name and title of each author of the document, record, or information; (v) the name and title of each addressee and recipient; (iv) a description of the subject of the document, record, or information; and (vi) the privilege asserted by Defendant. However, no documents, records, or other information created or generated pursuant to the requirements of this Consent Decree shall be withheld on grounds of privilege.

180. Defendant may also assert that information required to be provided under this Section is protected as Confidential Business Information (“CBI”) under 40 C.F.R. Part 2. As to any information that Defendant seeks to protect as CBI, Defendant shall follow the procedures set forth in 40 C.F.R. Part 2.

181. This Consent Decree in no way limits or affects any right of entry and inspection, or any right to obtain information, held by the United States pursuant to applicable federal laws, regulations, or permits, nor does it limit or affect any duty or obligation of Defendant to maintain documents, records, or other information imposed by applicable federal or state laws, regulations, or permits.

XVII. EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS

182. This Consent Decree resolves the civil claims of the United States for the violations alleged in the Complaint filed in this action through the Date of Lodging and the violations alleged in the March 30, 2012 CAA Notice and Finding

of Violation and April 15, 2015 RCRA Notice of Violation from the date those claims accrued through the Date of Lodging.

183. The United States reserves all legal and equitable remedies available to enforce the provisions of this Consent Decree. This Consent Decree shall not be construed to limit the rights of the United States to obtain penalties or injunctive relief under the CAA, CWA, CERCLA, EPCRA and RCRA or implementing regulations, or under other federal laws, regulations, or permit conditions, except as expressly provided in Paragraph 182. The United States further reserves all legal and equitable remedies to address any imminent and substantial endangerment to the public health or welfare or the environment arising at, or posed by, Defendant's Facility, whether related to the violations addressed in this Consent Decree or otherwise.

184. In any subsequent administrative or judicial proceeding initiated by the United States for injunctive relief, civil penalties, other appropriate relief relating to the Facility or Defendant's violations, Defendant shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been brought in the

instant case, except with respect to claims that have been specifically resolved pursuant to Paragraph 182.

185. This Consent Decree is not a permit, or a modification of any permit, under any federal, State, or local laws or regulations. Defendant is responsible for achieving and maintaining complete compliance with all applicable federal, State, and local laws, regulations, and permits; and Defendant's compliance with this Consent Decree shall be no defense to any action commenced pursuant to any such laws, regulations, or permits, except as set forth herein. The United States does not, by its consent to the entry of this Consent Decree, warrant or aver in any manner that Defendant's compliance with any aspect of this Consent Decree will result in compliance with the CAA, CWA, CERCLA, EPCRA, or RCRA, or with any other provisions of federal, State, or local laws, regulations, or permits.

186. This Consent Decree does not limit or affect the rights of Defendant or of the United States against any third parties, not party to this Consent Decree, nor does it limit the rights of third parties, not party to this Consent Decree, against Defendant, except as otherwise provided by law.

187. This Consent Decree shall not be construed to create rights in, or grant any cause of action to, any third party not party to this Consent Decree.

XVIII. COSTS

188. The Parties shall bear their own costs of this action, including attorneys' fees, except that the United States shall be entitled to collect the costs (including attorneys' fees) incurred in any action necessary to collect any portion of the civil penalty or any stipulated penalties due but not paid by Defendant.

XIX. NOTICES

189. Unless otherwise specified in this Decree, whenever notifications, submissions, or communications are required by this Consent Decree, they shall be made in writing and addressed to the Defendant, the United States, and EPA, as set forth below. If the relevant provision in the Consent Decree requires a submission only to EPA, and not to the United States, Defendant does not need to send notification to the Department of Justice. Defendant shall provide all submissions required by this Consent Decree to the mailing addresses listed below in electronic format on physical media such as compact disk, flash drive or other similar item. The e-mail addresses listed below are to permit the submission of courtesy copies. All submissions should be in Portable Document Format ("PDF") or similar format, unless otherwise noted. If the PDFs are scanned images, Defendant shall perform Optical Character Recognition for "image over text" to allow the document to be searchable. If data are submitted in electronic spreadsheet form, provide the data and corresponding information in editable Excel or Lotus format,

and not in image format. If Excel or Lotus formats are not available, then the format should allow for data to be used in calculations by a standard spreadsheet program such as Excel or Lotus. Notwithstanding the above, DSC may submit a request for an extension of a deadline by email only to the addresses below.

a. Notice or submission to the United States:

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
Box 7611, Ben Franklin Station
Washington, DC 20044-7611
Re: DOJ No. 90-5-2-1-10469

As to the United States by email:
eescdcopy.enrd@usdoj.gov
Re: DJ # 90-5-2-1-10469

b. Notice or submission to EPA:

Naeha Dixit
Office of Regional Counsel
EPA Region 5
77 West Jackson Blvd. (C-14J)
Chicago, IL 60604
dixit.naeha@epa.gov

and

(1) For Sections V (Clean Air Act Compliance Requirements), XII (Supplemental Environmental Projects), Subparagraphs 143.a through 143.e, IX (Reporting Requirements) and X (Permit Submissions):

Attn: Compliance Tracker, AE-18J

Air and Radiation Division
EPA Region 5
77 W. Jackson Blvd.
Chicago, IL 60604
R5AirEnforcement@epa.gov

With a copy by email to:
loukeris.kostsa@epa.gov

(2) For Sections VI (EPCRA/CERCLA Compliance Requirements), XII (Supplemental Environmental Projects), Subparagraph 143.e, and IX (Reporting Requirements):

James Entzminger
Superfund Division
EPA Region 5
77. W. Jackson Blvd. (SC-5J)
Chicago, IL 60604
entzminger.james@epa.gov

(3) For Sections VII (RCRA Compliance Requirements) and IX (Reporting Requirements):

Walt Francis
Land and Chemicals Division
EPA Region 5
77 W. Jackson Blvd (LR-17J)
Chicago, IL 60604
Francis.walt@epa.gov

(4) For Sections VIII (Clean Water Act Compliance Requirements), IX (Reporting Requirements)

Chief, Water Enforcement and Compliance Assurance Branch
EPA Region 5
77 W. Jackson Blvd (WC-15J)

Chicago, IL 60604
R5weca@epa.gov
Re: MIS410652, Dow Silicones Corporation Consent Decree

c. Notice or submission to DSC:

Reiner Roghmann
Site Leader
Dow Silicones Corporation, Midland Plant Site
c/o The Dow Chemical Company, Michigan Operations
1790 Building
Washington Street
Midland, Michigan 48674

and

Michigan Operations Counsel
The Dow Chemical Company
1790 Building
Washington Street
Midland, Michigan 48674

190. Any Party may, by written notice to the other Parties, change its designated notice recipient or notice address provided above.

191. Notices submitted pursuant to this Section shall be deemed submitted upon mailing, unless otherwise provided in this Consent Decree or by mutual agreement of the Parties in writing.

XX. EFFECTIVE DATE

192. The Effective Date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court or a motion to enter the Consent Decree is granted, whichever occurs first, as recorded on the Court's docket.

XXI. RETENTION OF JURISDICTION

193. The Court shall retain jurisdiction over this case until termination of this Consent Decree, for the purpose of resolving disputes arising under this Decree or entering orders modifying this Decree, pursuant to Sections XV (Dispute Resolution) and XII (Supplemental Environmental Projects), or effectuating or enforcing compliance with the terms of this Decree.

XXII. MODIFICATION

194. The terms of this Consent Decree, including any attached appendices, may be modified only by a subsequent written agreement signed by all the Parties. Where the modification constitutes a material change to this Decree, it shall be effective only upon approval by the Court.

195. Any disputes concerning modification of this Decree shall be resolved pursuant to Section XV (Dispute Resolution), provided, however, that, instead of the burden of proof provided by Paragraph 174, the Party seeking the modification bears the burden of demonstrating that it is entitled to the requested modification in accordance with Federal Rule of Civil Procedure 60(b).

XXIII. TERMINATION

196. Termination and Partial Termination

a. Termination. After Defendant has completed the compliance requirements of Sections V (Clean Air Act Compliance Requirements), VI

(EPCRA/CERCLA Compliance Requirements), VII (RCRA Compliance Requirements), and VIII (Clean Water Act Compliance Requirements); complied with all other requirements of this Consent Decree, including those relating to SEPs required by Section XII (Supplemental Environmental Projects); received new or amended Title I CAA permits and a Renewable Operating Permit based on the applications submitted by DSC as required under Section X (Permit Submissions); paid the civil penalty and any accrued stipulated penalties as required by this Consent Decree; and five (5) years have passed since the Effective Date of this Consent Decree, Defendant may send the United States a Request for Termination, stating that Defendant has satisfied those requirements, together with all necessary supporting documentation.

b. Partial Termination. If all the conditions specified in Subparagraph 196.a have been met except the receipt of new or amended Title I CAA permits and a Renewable Operating Permit, and Defendant submitted a timely and administratively complete application and has responded to any requests for further information regarding such permits, Defendant may send the United States a Request for Partial Termination, stating that Defendant has satisfied all requirements for partial termination, together with all necessary supporting documentation.

197. Following receipt by the United States of Defendant's Request for Termination or for Request for Partial Termination, the Parties shall confer informally concerning the Request and any disagreement that the Parties may have as to whether Defendant has satisfactorily complied with the requirements for termination or partial termination of this Consent Decree.

a. If the United States agrees that the Decree may be terminated, the Parties shall submit, for the Court's approval, a joint stipulation terminating the Decree.

b. If the United States agrees that the Decree may be partially terminated, the parties shall submit, for the Court's approval, a joint stipulation terminating all requirements contained in Subsections A (Applicability of the LDAR Program) through N (Benzene Waste) of Section V (Clean Air Act Compliance Requirements), and Sections VI (EPCRA/CERCLA Compliance Requirements), VII (RCRA Compliance Requirements), and VIII (Clean Water Act Compliance Requirements) of this Consent Decree.

198. If the United States does not agree that the Decree may be terminated or partially terminated, as relevant, Defendant may invoke Dispute Resolution under Section XV. However, Defendant shall not seek Dispute Resolution of any dispute regarding termination until ninety (90) Days after service of its Request for Termination.

199. Regardless of whether Defendant has requested termination of the Consent Decree pursuant to Paragraph 196, the United States may seek the Court's approval to terminate or partially terminate this Consent Decree based upon the United States' determination that Defendant has met the requirements for termination or partial termination, respectively, in accordance with this Section XXIII (Termination).

XXIV. PUBLIC PARTICIPATION

200. This Consent Decree shall be lodged with the Court for a period of not less than thirty (30) Days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations indicating that the Consent Decree is inappropriate, improper, or inadequate. Defendant consents to entry of this Consent Decree without further notice and agrees not to withdraw from or oppose entry of this Consent Decree by the Court or to challenge any provision of the Decree, unless the United States has notified Defendant in writing that it no longer supports entry of the Decree.

XXV. SIGNATORIES/SERVICE

201. Each undersigned representative of Defendant and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice or his designee certifies that he or she is fully authorized to

enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party he or she represents to this document.

202. This Consent Decree may be signed in counterparts, and its validity shall not be challenged on that basis. Defendant agrees to accept service of process by mail with respect to all matters arising under or relating to this Consent Decree and to waive the formal service requirements set forth in Rules 4 and 5 of the Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, but not limited to, service of a summons. Defendant need not file an answer to the complaint in this action unless or until the Court expressly declines to enter this Consent Decree, in which case the timing for filing an answer to the complaint shall begin running upon entry of the Court's order.

XXVI. INTEGRATION

203. This Consent Decree constitutes the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in the Decree and supersedes all prior agreements and understandings, whether oral or written, concerning the settlement embodied herein. Other than deliverables that are subsequently submitted and approved pursuant to this Decree, the Parties acknowledge that there are no representations, agreements, or understandings relating to the settlement other than those expressly contained in this Consent Decree.

XXVII. FINAL JUDGMENT

204. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment of the Court as to the United States and Defendant. The Court finds that there is no just reason for delay and therefore enters this judgment as a final judgment under Fed. R. Civ. P. 54 and 58.

XXVIII. 26 U.S.C. SECTION 162(f)(2)(A)(ii) IDENTIFICATION

205. For purposes of the identification requirement of Section 162(f)(2)(A)(ii) of the Internal Revenue Code, 26 U.S.C. § 162(f)(2)(A)(ii), performance of Section II (Applicability), Paragraph 5; Section V (Clean Air Act Compliance Requirements), Paragraphs 16 - 83, and related Appendix A (Factors to be Considered and Procedures to be Followed to Claim Commercial Unavailability), Sections II and III; Section VI (EPCRA/CERCLA Compliance Requirements), Paragraphs 84 - 88; Section VII (RCRA Compliance Requirements), Paragraphs 89 - 97; Section VIII (Clean Water Act Compliance Requirements), Paragraphs 98 - 122; Section IX (Reporting Requirements), Paragraphs 123 - 126 (except with respect to the SEPs), Paragraphs 128 - 130; Section X (Permit Submissions), Paragraphs 133 - 136; Section XI (Approval of Deliverables), Paragraphs 137 - 138 and 142; Section XVI (Information Collection and Retention), Paragraphs 176 - 179; and Section XIX (Notices), Paragraph 189, is restitution or required to come into compliance with law.

XXIX. APPENDICES

206. The following Appendices are attached to and part of this Consent Decree:

“Appendix A” is “Factors to be Considered and Procedures to be Followed to Claim Commercial Unavailability;”

“Appendix B” is “Supplemental Environmental Projects;” and

“Appendix C” is “Dow Silicones Corporation’s L3G Investigations Policy.”

Dated and entered this __ day of _____, 20__

UNITED STATES DISTRICT JUDGE

We hereby consent to the entry of the Consent Decree in the matter of *United States v. Dow Silicones Corporation*, subject to public notice and comment.

FOR THE UNITED STATES OF AMERICA

JONATHAN D. BRIGHTBILL
Principal Deputy Assistant Attorney General
Environment and Natural Resources Division
United States Department of Justice



CATHERINE BANERJEE ROJKO

Senior Counsel

BONNIE COSGROVE

Trial Attorney

Environmental Enforcement Section

Environment and Natural Resources Division

P.O. Box 7611, Ben Franklin Station

Washington, D.C. 20044-7611

(202) 514-5315, (202) 616-6584 (fax)

cathy.rojko@usdoj.gov

bonnie.cosgrove@usdoj.gov

MATTHEW SCHNEIDER

United States Attorney

Eastern District of Michigan

PETER A. CAPLAN

Assistant United States Attorney

Eastern District of Michigan

211 W. Fort St., Suite 2001

Detroit, MI 48226

(313) 226-9784, P-30643

peter.caplan@usdoj.gov

We hereby consent to the entry of the Consent Decree in the matter of *United States v. Dow Silicones Corporation*, subject to public notice and comment.

FOR THE UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY

Benjamin C. Frey

Acting for T. LEVERETT NELSON
Regional Counsel
U.S. Environmental Protection Agency
Region 5
Chicago, IL 60604

Kasey Barton

KASEY BARTON
Associate Regional Counsel
U.S. Environmental Protection Agency
Region 5
Chicago, IL 60604

We hereby consent to the entry of the Consent Decree in the matter of *United States v. Dow Silicones Corporation*.

FOR DOW SILICONES CORPORATION



REINER ROGHMANN

Site Leader

Michigan Operations

The Dow Chemical Company

1790 Building

Washington Street

Midland, Michigan 48674

APPENDIX A

APPENDIX A

Factors to be Considered and Procedures to be Followed To Claim Commercial Unavailability

This Appendix outlines the factors to be taken into consideration and the procedures to be followed for DSC to assert that a Low-E Valve or Low-E Packing is “commercially unavailable” pursuant to Paragraph 39 the Consent Decree.

I. FACTORS

A. Nothing in this Consent Decree or this Appendix requires DSC to utilize any valve or packing that is not suitable for its intended use in a Covered Process Unit.

B. The following factors are relevant in determining whether a Low-E Valve or Low-E Packing is commercially available to replace or repack an existing valve:

1. Valve type (*e.g.*, ball, gate, butterfly, needle) (this LDAR Program does not require consideration of a different type of valve than the type that is being replaced);
2. Nominal valve size (*e.g.*, 2 inches, 4 inches);
3. Compatibility of materials of construction with process chemistry;
4. Valve operating conditions (*e.g.*, temperature, pressure);
5. Service life;
6. Packing friction (*e.g.*, impact on operability of valve);
7. Whether the valve is part of a packaged system or not;
8. Retrofit requirements (*e.g.*, re-piping or space limitations);
9. Actual performance (*e.g.*, if a Low-E valve fails to operate as designed, it may subsequently be removed from the commercially available list); and
10. Other relevant considerations.

C. The following factors may also be relevant, depending upon the process unit or equipment where the valve is located:

1. In cases where the valve is a component of equipment that DSC is licensing or leasing from a third party, valve or valve packing specifications

identified by the lessor or licensor of the equipment of which the valve is a component; and

2. Valve or valve packing vendor or manufacturer recommendations for the relevant process unit components.

II. PROCEDURES THAT DSC SHALL FOLLOW TO ASSERT COMMERCIAL UNAVAILABILITY

A. DSC shall comply with the following procedures if it seeks to assert commercial unavailability under Paragraph 39 of the Consent Decree, except as provided in Section II.B below:

1. DSC must contact a reasonable number of vendors of valves or valve packing that DSC, in good faith, believes may have valves or valve packing suitable for the intended use taking into account the relevant factors listed in Section I above.

a. For purposes of this Consent Decree, a reasonable number of vendors presumptively shall mean no less than three (3).

b. If fewer than three vendors are contacted, the determination of whether such fewer number is reasonable shall be based on factors C.1 and C.2 above or on a demonstration that fewer than three (3) vendors offer valves or valve packing considering factors (1) – (9) in Section I above.

2. DSC shall obtain a written representation from each vendor, or equivalent documentation, that a particular valve or valve packing is not available as “Low-Emissions” from that vendor for the intended conditions or use.

a. “Equivalent documentation” may include e-mail or other correspondence or data showing that a valve or valve packing suitable for the intended use does not meet the definition of “Low-E Valve” or “Low-E Packing” in the Consent Decree or that the valve or packing is not suitable for the intended use; and

b. If the vendor does not respond or refuses to provide documentation, “equivalent documentation” may consist of records of DSC’s attempts to obtain a response from the vendor.

3. Each Annual Report required by Section IX (Reporting Requirements) of the Consent Decree shall identify each valve that DSC otherwise was required to replace or repack, but for which, during the time period covered by the Annual Report, DSC determined that a Low-E Valve and/or Low-E Packing was not commercially-available. DSC shall provide a complete explanation of the basis for its claim of commercial unavailability, including, as an attachment to the Annual Report, all relevant documentation. This report shall be valid for a period of twelve months from the date of the report for the specific valve involved and all other similar valves, taking into account the factors listed in Part I.

B. For one (1) year after the Effective Date of this Consent Decree, DSC may consider the valves identified as commercially unavailable during calendar year 2016 in accordance with the requirements of Appendix A in the Consent Decree *In re U.S. v. The Dow Chemical Company*, Civil Action No. 1:11-cv-13330-TLL-CEB, as commercially unavailable for purposes of Paragraph 39 of this Consent Decree.

III. OPTIONAL EPA REVIEW OF DSC'S ASSERTION OF COMMERCIAL UNAVAILABILITY

A. At its option, EPA may review an assertion by DSC of commercial unavailability. If EPA disagrees with DSC's assertion, EPA shall notify DSC in writing, specifying the Low-E Valve or Low-E Packing that EPA believes to be commercially available and the basis for its view that such valve or packing is appropriate taking into consideration the factors described in Part I. After DSC receives EPA's notice, the following shall apply:

1. DSC shall not be required to retrofit the valve or valve packing for which it asserted commercial unavailability (unless DSC is otherwise required to do so pursuant to another provision of the Consent Decree).

2. DSC shall be on notice that EPA will not accept a future assertion of commercial unavailability for: (i) the valve or packing that was the subject of the unavailability assertion; and/or (ii) a valve or packing that is similar to the subject assertion, taking into account the factors described in Part I.

3. If DSC disagrees with EPA's notification, DSC and EPA shall informally discuss the basis for the claim of commercial unavailability. EPA may thereafter revise its determination, if necessary.

4. If DSC makes a subsequent commercial unavailability claim for the same or similar valve or packing that EPA previously rejected, and the subsequent claim also is rejected by EPA, DSC shall retrofit the valve or packing with the commercially available valve or packing unless DSC is successful under Subsection III.B below.

B. Any disputes under this Appendix first shall be subject to informal discussions between DSC and EPA for a period not to exceed sixty (60) Days, after which point DSC may invoke the dispute resolution provisions of Section XV of the Consent Decree.

APPENDIX B

APPENDIX B

SUPPLEMENTAL ENVIRONMENTAL PROJECTS

I. Enhanced Monitoring and Repair Project for Connectors

A. DESCRIPTION

Under the Enhanced Monitoring and Repair Project for Connectors (“Enhanced Monitoring SEP”), DSC shall monitor fugitive emissions from connectors, a type of component that DSC is not required to monitor under the MON or any other federal, state, or local law. DSC shall repair all connectors found to be leaking (*i.e.*, emitting HAP above 500 parts per million (“ppm”)) as measured by Method 21. DSC shall use and compare two methods to monitor fugitive emissions and identify leaks or potential leaks: Method 21, which is required for equipment subject to the MON; and the optical gas imaging infrared (“OGI”) camera, which provides for visual imaging of certain fugitive VOC and HAP emissions and identification of potential leaks through infrared technology.

For purposes of this SEP, the term “Method 21” shall mean the test method at 40 C.F.R. Part 60, Appendix A, Method 21, and include any modifications to Method 21 allowed under the MON. The term “connector” shall mean those connectors that are not inaccessible or unsafe-to-monitor, as defined by 40 C.F.R. Part 63, Subpart UU, and are “in organic HAP service,” as defined in 40 C.F.R. § 63.1020. “Potential leaks” shall mean any emissions that are visible when using the OGI camera.

The Enhanced Monitoring SEP will result in pollution reduction of HAP and VOC emissions through the identification and repair of leaking connectors, which are not otherwise required to be monitored under DSC’s LDAR program. Additionally, this SEP requires DSC to make all appropriate repairs through the use of two different types of monitoring equipment.

B. SCOPE OF WORK

DSC shall complete two sets of Method 21 and OGI camera monitoring events known as Year One and Year Two. During Year One, DSC’s qualified LDAR contractor shall conduct Method 21 monitoring on all connectors by using flame ionization detectors. DSC shall then use an OGI camera to monitor the leaking connectors. During Year Two, DSC shall first monitor the connectors using the

OGI camera and then monitor those same connectors using Method 21 and repair any leaks.

1. First Set of Monitoring Events (Year One)

- a. DSC's third-party LDAR contractor shall conduct Method 21 monitoring on all connectors in process units that are subject to the MON. Each connector leaking at a rate of 500 ppm or greater shall be identified with a unique identification tag and documented. Documentation shall consist of the following: date of monitoring; unique tag number and corresponding process unit; and highest documented ppm reading for the component.
- b. Within five (5) days of identifying a leaking connector, DSC shall monitor the leaking connector using the OGI camera. Within fifteen (15) days of identifying the leaking connector, DSC shall repair the leaking connector, unless a process unit shutdown, as defined in 40 C.F.R. Part 63, Subpart UU, is required. If a process unit shutdown is required, DSC shall repair the connector prior to beginning operation of that unit.
- c. Within three (3) months of completion of the Year One OGI camera monitoring event, DSC shall develop a set of instructions for identifying leaking connectors with the OGI camera ("OGI Camera Connector Monitoring Instructions" or "Instructions"). The Instructions shall address how the OGI camera should be operated to monitor connectors at the Facility. The OGI Camera Connector Monitoring Instructions shall include: a process used to confirm equipment is in HAP service¹ during the monitoring event; appropriate weather conditions for monitoring; a step-by-step guide to operating the equipment and identifying potential leaks; and a form to be filled out if a potential leak is identified.

2. Second Set of Monitoring Events (Year Two)

- a. DSC shall monitor all connectors in process units that are subject to the MON in accordance with the OGI Camera Connector Monitoring

¹ Monitoring shall be performed when the equipment is in organic HAP service or is in use with any other detectable material.

Instructions. All connectors for which DSC observes emissions using the camera shall be identified with a unique identification tag and documented. Documentation shall consist of the: date of monitoring; unique tag number; and corresponding process unit.

- b. DSC, using its third-party LDAR contractor, shall conduct Method 21 monitoring on all connectors in process units that are subject to the MON, monitoring each connector within fifteen (15) days after it was monitored with the OGI camera. Within fifteen (15) days of monitoring a leaking connector using Method 21, DSC shall repair the leaking connector, unless a process unit shutdown, as defined in 40 C.F.R. Part 63, Subpart UU, is required. If a process unit shutdown is required, DSC shall repair the connector prior to beginning operation of that unit.

3. Final Report (Year Two)

By three (3) months after the end of Year Two under this Consent Decree, DSC shall develop and submit to EPA pursuant to Section XIX (Notices) a report summarizing the results of the two monitoring methods used for monitoring and identifying leaking connectors or potentially leaking connectors. The Final Report shall include:

- a. A copy of the OGI Camera Connector Monitoring Instructions, including any edits made to improve the Instructions following the second set of monitoring events;
- b. Leak rates (for Method 21) and potential leak rates (for OGI), including number of Method 21 leaks and OGI potential leaks and total number of connectors monitored, identified during each monitoring event for both OGI and Method 21, provided in Excel format;
- c. Repair logs for all identified leaks, including tag numbers and attempts; and
- d. A summary of leaking connectors (by Method 21) or potentially leaking connectors (by OGI camera) that were not identified by both the OGI camera and Method 21 and identification of any potential causes.

C. SCHEDULE

ACTION	DUE DATE
Order OGI Camera	Within four (4) months of the Effective Date
Train staff to use OGI camera	Within sixty (60) Days of receiving the OGI camera
Initiate project: Year One	Within thirty (30) Days of staff training
Continue project: Year One	Lasts one (1) year after initiation
Develop a set of instructions for identifying leaking connectors with the OGI camera	Within three (3) months of completion of the Year One OGI camera monitoring events
Continue project: Year Two	Begins one (1) year and three (3) months after initiation of Year One project, and ends one year after initiation of Year Two
Submit Final Report	Within three (3) months of the end of Year Two or sixty (60) months of the Effective Date, whichever is later

D. ESTIMATED COST

DSC expects to spend \$288,000 to implement this SEP.

APPENDIX B, Continued

SUPPLEMENTAL ENVIRONMENTAL PROJECT

II. LDAR Pump Upgrade SEP

A. DESCRIPTION

The project involves the replacement and upgrade of eleven (11) pumps in the buildings listed below in Section B that DSC monitors as part of the Facility's LDAR program. DSC selected these eleven (11) pumps because they have been identified as leaking, despite having been repaired several times in recent years. The replacement and upgrade of these pumps with better control technology will be more effective at reducing fugitive emissions than continuing to make repairs on older equipment, and is not otherwise required.

The LDAR Pump Upgrade SEP is a pollution prevention project designed to ensure VOCs and HAPs are reduced from the eleven (11) pump seals referenced below in Section B.

B. SCOPE OF WORK

DSC shall replace and upgrade eleven (11) pumps, which are located in the 505, 303, 306, 321, and 3104 buildings at the Facility. DSC shall replace ten (10) pumps with seal-less mag drive pumps, and replace one (1) pump seal system with a double mechanical seal.

C. SCHEDULE

ACTION	DUE DATE
Order new pumps and associated replacement equipment	Within one hundred twenty (120) Days of the Effective Date
Complete replacement and upgrade of selected equipment	Within twelve (12) months of arrival of the pumps and associated equipment or within thirty-six (36) months of the Effective Date, whichever is later

D. ESTIMATED COST

DSC expects to spend \$320,000 to implement this SEP.

APPENDIX B, continued**SUPPLEMENTAL ENVIRONMENTAL PROJECT****III. LDAR Agitator Upgrade SEP****A. DESCRIPTION**

The project involves the replacement and upgrade of five (5) agitators that DSC monitors as part of the Facility's LDAR program. DSC selected the five (5) agitators for the project because they have been identified as leaking, despite having been repaired several times in recent years. The replacement and upgrade of these agitators with better control technology will be more effective in reducing fugitive emissions than continuing to make repairs, and is not otherwise required.

The LDAR Agitator Upgrade SEP is a pollution prevention project designed to ensure emissions of VOCs and HAPs are reduced from specific agitator seals at the Facility.

B. SCOPE OF WORK

DSC shall replace four (4) of the agitators and perform a seal upgrade on one (1) agitator, which are located in the 505 building at the Facility.

C. SCHEDULE

ACTION	DUE DATE
Order new agitators and associated replacement equipment	Within one hundred twenty (120) Days of the Effective Date
Complete replacement and upgrade of selected equipment	Within twelve (12) months of arrival of the agitators and associated equipment or thirty-six (36) months after the Effective Date, whichever is later

D. ESTIMATED COST

DSC expects to spend \$566,000 to implement this SEP.

APPENDIX B, continued

SUPPLEMENTAL ENVIRONMENTAL PROJECT

IV. Lead Hazard Abatement SEP

A. DESCRIPTION

The Lead Hazard Abatement SEP is designed to protect children from lead-based paint hazards in the following child-occupied facilities in Midland, Michigan and the surrounding area: public or commercial facilities, including day care centers, or facilities owned or operated by any qualified Internal Revenue Code Section 501(c)(3) tax-exempt organization. This SEP may include, but is not limited to, the following: window replacement, using energy efficient windows that meet EPA Energy Star criteria; removal of lead-based paint and dust; permanent enclosure or encapsulation of lead-based paint; and replacement of lead-based painted surfaces or fixtures. The SEP will consist of lead-based paint abatement in child-occupied facilities that children aged six and under or pregnant women regularly visit.

B. SCOPE OF WORK

DSC shall implement this SEP in child-occupied facilities within a 50-mile radius of the Facility that young children and/or pregnant women regularly visit, and may include properties in Saginaw County, Bay County, and Midland County.

Nothing in this Consent Decree shall prevent DSC from using nonprofit organizations, contractors, or consultants in planning and implementing this SEP. In implementing this SEP, DSC shall ensure that the individuals or entities performing the work have experience in conducting lead-based paint abatement work. DSC also shall conduct the Lead Hazard Abatement SEP in accordance with all applicable federal and state work practice and notification requirements, and the United States Department of Housing and Urban Development's ("HUD's") Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing and the State of Michigan. "Eligible costs" shall mean the costs of conducting lead-based paint abatement work in compliance with the HUD Guidelines, such as lead inspections/risk assessments, remediation and clearance, purchase of materials, and costs allowed by the HUD Guidelines, except that up to ten (10) percent of total costs billed by any contractor retained by DSC may be overhead costs yet still be considered "Eligible Costs."

C. SCHEDULE

ACTION	DUE DATE
Select Contractor	Within three (3) months of the Effective Date
Fully fund an escrow account to pay for the project	Within two (2) months of the Effective Date
Complete project	Within twenty-four (24) months of the Effective Date, unless this date by extended by mutual agreement of DSC and EPA in writing for a period of no more than one hundred eighty (180) Days

D. ESTIMATED COST

DSC shall spend at least \$111,335 to implement this SEP.

APPENDIX B, continued

SUPPLEMENTAL ENVIRONMENTAL PROJECT

V. SAFER Chemical Monitoring System Integration & Upgrade SEP

A. DESCRIPTION

DSC shall implement the SAFER System SEP to merge and upgrade the DSC emergency system and the Dow Chemical SAFER® Chemical Monitoring System (“SAFER system”), which includes hardware and software used to detect and model chemical releases to facilitate responses to chemical releases. Under the SAFER System SEP, DSC shall merge the DSC and Dow Chemical SAFER systems into one integrated data management system covering both companies’ Midland, Michigan facilities. DSC shall upload site maps and data related to potential chemical releases, including all scenarios, chemicals, and readings from weather towers and sensors.

DSC shall also upgrade monitoring equipment to portable units that can communicate with the SAFER system to do real-time map plotting of projected plumes of vapor releases. DSC shall purchase fourteen portable detection units, known as AreaRAE monitors. AreaRAE monitors are wireless, transportable area monitors that can simultaneously detect toxic combustible gases, volatile organic chemicals, and meteorological factors that can affect the speed and direction of the gas. Each monitor can be equipped with up to six sensors for toxic and combustible gases. Over twenty different types of sensors exist at the Facility, and can be switched as needs change. DSC shall donate four (4) of these AreaRAE monitors to the Midland County Office of Emergency Management to assist local responders in effectively and quickly responding to releases.

This emergency planning preparedness SEP should allow DSC and The Dow Chemical Company personnel and local responders to obtain more information more quickly to understand the affected area better during a chemical release. It is also designed to allow for faster response to the affected areas, as well as for more informed communications to the local authorities regarding the concentration of a chemical and the expected pathway of the chemical plume.

B. SCOPE OF WORK

DSC shall purchase the following items:

ITEM	ESTIMATED COST
Fourteen (14) RAE AreaRAE Plus Monitors CSA/ISM 900MHZ/MESH/WI-FI/LEL/O2/Wind Sensor Module	\$129,780
Ten (10) PRORAE guardian TIE 3 Licenses	\$7,500
One (1) RAELink Kit that includes RAELink 3 900 MHZ Modem w/Bluetooth & GPS, Charging Adaptor with AC Cable, Alkaline Battery Pack, Coiled RS-232 Serial Cable for RAE Portable Products, RS-232 Serial Computer Interface Cable, RS-232 Serial to USB Adaptor, Whip Antenna, Magnet Mount Antenna with 12' Cable, Quick Reference Guide, Resource CD, and Hard Transport Case	\$2,550
One (1) PRORAE Guardian CD	\$80
Ten (10) Guaranteed Cost of Ownership/Warranties, 5 year, AreaRAE Plus	\$35,970
Four (4) SAFER System, LLC In-House Engineering Services – four (4) hour blocks	\$3,140
One (1) SAFER Systems, LLC On-Site Services Daily Rate – Includes completion of agreed-to scope of work and travel expenses	\$2,395
Five (5) SAFER One system software annual subscriptions	\$144,750

C. SCHEDULE

ACTION	DUE DATE
Order equipment	Within ninety (90) Days of the Effective Date
Install equipment	Within six (6) months of receiving equipment and supplies or thirty-six (36) months of the Effective Date, whichever is later

Donate four (4) portable AreaRAE monitors to Midland County Office of Emergency Management	Within thirty (30) Days of receiving the AreaRAE monitors or thirty-six (36) months of the Effective Date, whichever is later
--	---

D. ESTIMATED COST

DSC expects to spend at least \$326,165 to implement this SEP.

APPENDIX C

MiOps 05.04.05 L3G Investigations Policy

Introduction

This policy establishes the standards for all facilities and functions at Michigan Operations to:

- Thoroughly analyze incidents, unplanned events, and nonconformances using established investigation methodology.
- Identify corrective and preventive actions and complete appropriate follow-up
- Communicating/Leveraging of learning experiences to all involved parties.

Scope

This policy applies to all Michigan Operations facilities and functions.

Roles and Responsibilities

Unplanned Events Notifications

Events meeting the Global RCI Trigger Criteria Standard which occur within any Michigan Operations facility or function are communicated to appropriate individuals per the global

Identify and Investigate (A.1, A.2, A.5)

Incidents meeting [Global RCI Trigger Criteria](#) will be investigated . In addition to the [Global RCI Trigger Criteria](#), the following unplanned events meet an MiOps RCI Trigger:

- Title V Deviations/Permit Exceedances (Level 4)
 - Preventable and Implementation/Interpretation

Facilities and Functions at Michigan Operations may add additional facility trigger criteria.

Continued on next page

MiOps 05.04.05 L3G Investigations Policy, Continued

Identify and Investigate (continued)

- Facility/Function Leaders can request any incident to be investigated and reviewed depending on severity and learning potential.
 - The severe incident RCI facilitation process will be followed for significant events.
 - Facility/Function Leaders or designee are required to participate in RCIs for Level 1, 2 & 3 Injury/Illness events and Level 1, 2 & 3 PSCE events.
 - Facility/Function Leader will ensure the collecting and analyzing of data and provide a preliminary Root Cause to people as defined by

 - Facility/Function Leader will ensure the RCI is scheduled ASAP and complete RCI within 2 weeks if possible.
 - Process Safety Technology Leader (PSTL), business or geographic, is required to be in all investigations associated with PSCE Level 1 or 2.
 - An independent facilitator* shall be utilized for events meeting the following global triggers. Refer to Global Trigger Criteria for the trigger points:
 - Level 1 or 2 Injury/Illness
 - Level 1 or 2 PSCE
 - Reportable Quantity Exceedances (Level 3)
 - Notice of Violation (Level 3)
 - Asset Capability
 - Contractual obligation could not be met
 - Any unplanned event that shuts down an upstream or downstream plant
 - Quality
 - Major Non-Conformance from an Internal or External Quality Systems Audit
 - Any Priority 1 QN
- * An independent facilitator is one that is qualified in Apollo, not directly affected by the outcome of the investigation and can be from the business or site. Michigan Operations has a site [RCI Independent Facilitator team](#) that can be utilized for these investigations.

Continued on next page

MiOps 05.04.05 L3G Investigations Policy, Continued

Communications (A.6)

Significant/relevant information and learnings of each event investigation must be communicated to affected Plant, Site and/or Business personnel commensurate with the severity and impact of the event.

For significant events, the Severe RCI Process will be followed for incident reviews and shared learnings.

Incident Reviews with Site Leadership shall be conducted for the following triggers unless it is following the Severe RCI Process:

- Level 1, 2 & 3 Injury/Illness events
- Level 1 & 2 PSCE
- Title V Deviations

Shared learnings are communicated within MiOps

. In addition to Site Leadership reviews, the Facility/Function Leader is also responsible to present those with significant learning value at the next available EHS sharing meeting.

For events with behavior-related root and contributing causes, Leaders will share the applied Balance of Consequences at the SLT Meeting (Core Members only) to ensure consistency.

Learning Experiences (B.1)

Learnings from events which have leverageable actions should be documented in a Learning Experience Report and shared with the organization as well as others

RCI Effectiveness Metrics

RCI Effectiveness will be measured by the RCI independent facilitator, Facility/Functional leader and site RCI independent facilitation Team Leader utilizing the criteria found in the Global RCI Effectiveness scorecard.

All **events requiring independent facilitation** will be scored. Scores will be reviewed and discussed within the RCI facilitator team in order to continually improve.

Continued on next page

MiOps 05.04.05 L3G Investigations Policy
Michigan Operations

MiOps 05.04.05 L3G Investigations Policy, Continued

Document and Records Management The current document is filed in the Document Management System, Electronic component, under Management System\Site Guidance & Policies

Approvals This document was approved by:

 (Name/Job Title) 11/17/2016
 (Date)

MOC MOC# MIOPS2016100001 Date Approved: 11/17/16

Revision history The following information documents at least the last 3 changes to this document, with all the changes listed for the last 6 months.

Date	Revised By	Changes
8/4/16		Leveraged SCO Site Policy & updated to fit the needs of MiOps. 17902016060003
11/17/2016		Clarified language regarding environmental trigger criteria. Added global triggers of RQ and NOV and MiOps trigger of Title V Deviations/Permit Exceedances- Preventable and Implementation/Interpretation as needing independent facilitators. MIOPS2016100001