

RCRA Inspection Report

1) Inspector and Author of Report

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2) Facility Information

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EPA ID# NCD062567623

3) Responsible Officials

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4) Inspection Participants

Matthew Murray, IGM Resins
William Gordon, IGM Resins

Andrew Martin, NCDEQ
Laurie Benton DiGaetano, USEPA

5) Date of Inspection

November 9, 2022

6) Applicable Regulations¹

Resource Conservation and Recovery Act (RCRA) Sections 3002 (42 U.S. Code – Annotated U.S.C.A. 6925 and 6927), and 40 Code of Federal Regulation (C.F.R.) Parts 260 - 270, 273, 278, & 279; and The North Carolina Solid Waste Management Law, N.C.G.S. §§ 130A-17 to -28 and 130A-290 to - 310.22, and North Carolina Hazardous Waste Management Rules, 15A NCAC 13A .0101 to .0119.

Pursuant to 15A NCAC 13A .0102 [40 C.F.R. § 260.10], a large quantity generator of hazardous waste (LQG) is a generator who generates greater than or equal to 1,000 kilograms (2,200 pounds) of non-acute hazardous waste in a calendar month.

Pursuant to 15A NCAC 13A .0119 [40 C.F.R. § 273.9], a small quantity handler of universal waste (SQHUW) is a universal waste handler who does not accumulate 5,000 kilograms or more of universal waste (batteries, pesticides, mercury-containing equipment, lamps, or aerosol cans, calculated collectively) at any time.

¹ As the State's authorized hazardous waste program operates in lieu of the federal RCRA program, the citations of those authorized provisions will be to the authorized State program. However, for ease of reference, the federal citations will follow in brackets.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.15(a)], a generator may accumulate as much as 55 gallons of non-acute hazardous waste in containers at or near any point of generation where wastes initially accumulate, which is under the control of the operator of the process generating the waste, without a permit or without having interim status, as required by 130A-294(c) and (g) of the NCSWML, N.C.G.S. § 130A-294(c) and (g) [Section 3005 of RCRA, 42 U.S.C. § 6925], and without complying with 15A NCAC 13A .0107(a) [40 C.F.R. § 262.16(b) or § 262.17(a)], except as required in 15A NCAC 13A .0107(a) [40 C.F.R. § 262.15(a)(7) and (8)], provided that the generator complies with the satellite accumulation area conditions listed in 15A NCAC 13A .0107(a) [40 C.F.R. § 262.15(a)] (hereinafter referred to as the “SAA Permit Exemption”).

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17], an LQG may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status, as required by 130A-294(c) and (g) of the NCSWML, N.C.G.S. § 130A-294(c) and (g) [Section 3005 of RCRA, 42 U.S.C. § 6925], provided that the generator complies with the conditions listed in 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17] (hereinafter referred to as the “LQG Permit Exemption”).

Pursuant to 15A NCAC 13A .0106 [40 C.F.R. § 261.4(a)(8)], secondary materials that are reclaimed and returned to the original process or processes in which they were generated where they are reused in the production process are not solid wastes provided that only tank storage is involved, and the entire process through completion of reclamation is closed by being entirely connected with pipes or other comparable enclosed means of conveyance; reclamation does not involve controlled flame combustion (such as occurs in boilers, industrial furnaces, or incinerators); the secondary materials are never accumulated in such tanks for over twelve months without being reclaimed; and the reclaimed material is not used to produce a fuel, or used to produce products that are used in a manner constituting disposal (hereinafter referred to as the “Closed-Loop Recycling Exemption”).

7) **Purpose of Inspection**

The purpose of this inspection was for the Environmental Protection Agency (EPA) and the North Carolina Department of Environmental Quality (NCDEQ) to conduct an unannounced compliance evaluation inspection (CEI) to determine IGM Resins USA Inc.’s compliance with the applicable requirements of RCRA and the corresponding North Carolina regulations. This was an EPA lead inspection.

8) **Facility Description**

Company and Facility Overview:

IGM Resins develops, manufactures, and supplies energy curing raw materials to a wide variety of global customers in the graphic arts, industrial coatings, adhesives and 3D printing industries. The company’s head office is located in the Netherlands, and the North American headquarters, IGM Resins USA, Inc., is located at the subject facility in Charlotte, North Carolina. This facility began operations in 1972 and has approximately 80 employees today. Operations currently run 24-hours per day, seven days per week, up from the previous 24-hours per day, five days per week operation schedule that occurred prior to April 2021.

IGM Resins USA, Inc. (IGM) operates under the NAICS Code 325998 for All Other Miscellaneous Chemical Product and Preparation Manufacturing, and the subject facility specializes in the manufacture of photomers, ultraviolet inks, and urethane products. In addition to the eight full-scale reactors (EK4, EK5, EK7, EK8, EK9, EK11, EK12 and EK13) in the manufacturing process areas, IGM also operates a Pilot Plant with four small reactors (approximately 10-liters, 60-gallons, 120-gallons and 300-gallons) on-site. UV acrylate esters are produced by mixing caustic raw materials with acrylic acid to produce UV light sensitive resins. When used in paints, the resin products produce an immediate drying effect when the paint is exposed to sun light. Acrylic acid and caustic raw materials are delivered in bulk and stored onsite in tanks, but other raw materials are delivered and stored in 55-gallon drums or totes. Facility personnel estimated that 20% of the facility's final products are delivered to customers in bulk shipments, and 80% are shipped in 55-gallon drums or totes.

According to facility personnel, IGM has not used toluene in Reactors EK12 or EK13, which are dedicated to the manufacture of urethane acrylate products since 2016. However, toluene may be used in other production processes to assist with the mixing of reactants, to control product viscosity during reaction, to assist with separation during the wash process, and to provide more efficient heat transfer from the heating/cooling coils or jacket of the reactor vessel. Although a tiny amount of toluene may exit the system with the final product, the solvent is not used as an ingredient to be consumed by the production process. Instead, toluene is recovered from the reactor following the production process for reuse in another batch. According to Matthew Murray, approximately 10-14,000 pounds of toluene may be added to each production batch for use as a processing solvent, and IGM has not purchased toluene for use at the facility in over 1.5 years.

Each reactor has its own condenser, splitter, and receiver to recover and recycle toluene. During the reaction process, the system removes by-product water from the reactor and separates it into recovered toluene and reaction water. The toluene is returned to the reactor and the reaction water is sent to the receiver. This process continues until the raw materials have completed their reactions to create the final product. When the reactions are complete, the wash process begins by introducing a caustic wash into the reactor to neutralize the catalyst and other materials used in the reaction process. A saturated brine solution wash is also added to enhance the removal of trace salts during the wash process.

After the wash process, the material in the reactor is given time to settle and separate into heavy aqueous and light organic phases a total of three times. The heavy aqueous phase, which contains the caustic wash, the brine solution, salts, and a small amount of toluene, is decanted into tank TK528 following each of the first two separation intervals, and it is decanted into tank TK526 following the third separation interval. The light organic phase, which contains the final product and almost all of the toluene solvent, remains in the reactor vessel.

Next, the reactor vessel is heated under full vacuum pressure to recover toluene from the product. The distilled toluene is sent to storage tanks TK125, TK206, or TK216, and the product material is cooled and then transferred to a filtration tank. After removing the bulk of recovered toluene, a water sparge is used to strip off the last traces of toluene in the reactor vessel. The strip wash water, which can consist of 2% to 50% toluene, is sent to the receiver where it is given sufficient time to separate into heavy aqueous and light organic layers. The heavy aqueous layer,

which contains reaction water and strip wash water, is decanted from the receiver to the 6,000-gallon toluene stripper feed tank, TK525. The light organic layer, which contains toluene, is either sent from the receiver to storage tanks TK206 or TK216 or it is charged directly back to the reactor vessel for the next reaction.

In tank TK526, the salt-laden wash water is allowed to sit for 3 or 4 days for phase separation. The heavy aqueous phase in tank TK526 is sent to the toluene stripper feed tank, TK528. The remaining light organic phase is returned to the reactors EK8 and EK9 to distill off the remaining toluene. Once again, the reactor vessel (EK8 or EK9) is heated under full vacuum pressure to recover toluene from the light organic phase generated in tank TK526. The distilled toluene is sent to storage tanks TK125, TK206, or TK216.

Wastewater in tanks TK525 and TK528 is pumped into a toluene air stripper column to remove toluene per the Miscellaneous Organic NESHAP (MON) regulations. Wastewater from the toluene air stripper is further treated in the on-site biological pretreatment processes before it is discharged to the municipal sewage system. The facility's wastewater pretreatment permit and Title V air permit have wastewater effluent and air emission limits for toluene, respectively.

Waste Generation and Management:

Although the subject facility has been a large quantity generator (LQG) of hazardous waste for over 30 years, IGM first notified as the owner and operator of the facility in October of 2010. Facility personnel stated that most hazardous waste generation occurs from unsuccessful tests in the on-site Pilot Plant, from bad raw materials, and from expired products. The facility is currently managing hazardous waste in three satellite accumulation areas (the Quality Control Lab, the Pilot Plant, and the Pilot Plant Lab), and in one central accumulation area (CAA). They also stated that the on-site wastewater treatment system is operating well below the designed capacity, and sludge is currently held in an on-site tank that is only about ½ full. The filter press associated with the on-site wastewater treatment system is currently off-line, and no filter cake has been generated at the facility in over three years. Universal waste is managed in Building 14.

According to the November 3, 2022, Hazardous Waste Plan, the facility may also generate:

- hazardous waste aborted UV resin from manufacturing problems (D001),
- hazardous waste spent toluene/heptane (D001, F005) that is typically reused in the process but may periodically drop out,
- waste fluorescent lamps and mercury vapor lights (D009),
- wet acid batteries (D002, D008), nickel cadmium batteries (D006),
- nonhazardous maintenance oil,
- COD reagent (D002, D007, D009) from routine tests in the WWTP²,
- urethane resin samples (D001) generated in laboratory after testing samples that are pulled off reactors in Building 6 at various stages,
- labpacks (D001, U190, U220, U008) from the Quality Control and Research and Development laboratories, and
- lithium-ion batteries (D003).

² Facility personnel stated that the facility no longer generates COD reagent (D002, D007, D009) hazardous waste, because COD tests are no longer performed at the on-site WWTP.

9) **Previous Inspection History**

The NCDEQ has conducted five RCRA CEIs at the subject facility since IGM first notified as the owner and operator in 2010. On June 6, 2019, the NCDEQ conducted the most recent RCRA CEI at the subject facility and found apparent violations of RCRA's requirements for documenting claims that spent toluene laden wastewaters are not solid waste or are conditionally exempt from regulation; conducting a hazardous waste determination on containers of waste; managing hazardous waste in SAAs; managing hazardous waste in a CAA; and storing hazardous waste on-site for greater than 90 days without a permit. As a result, the NCDEQ issued a Short Form Compliance Order with Administrative Penalty to IGM on January 12, 2021; entered into a Settlement Agreement with IGM on June 23, 2021; and verified that the facility had returned to compliance during a follow-up compliance scheduled evaluation on July 26, 2021.

10) **Opening Conference**

On November 9, 2022, EPA inspector Laurie Benton DiGaetano, accompanied by NCDEQ inspector Andrew Martin, arrived at the IGM facility at approximately 10:00 AM. Matthew Murray, EHS Manager, immediately received the inspectors. The inspectors introduced themselves, showed their credentials to Matthew Murray, and explained the purpose of the visit.

The inspectors described the anticipated use of equipment (digital camera) during the inspection, and Matthew Murray obtained a "hot work" permit for the device. The EPA inspector explained that the Small Business Regulatory Enforcement Fairness Act's classification of a "small business" is generally set by the Small Business Administration using the business' SIC/NAICS code and annual receipts or number of employees. A copy of the EPA's information sheet for small businesses can be found at <https://www.epa.gov/sites/production/files/2017-06/documents/smallbusinessinfo.pdf>. The EPA inspector also discussed the company's ability, pursuant to 40 C.F.R. §2.203, to assert a business confidentiality claim for information submitted to EPA. The company did not assert a business confidentiality claim.

Matthew Murray provided an overview of the facility's history and current operations during the opening conference. The inspection participants also discussed health and safety protocols and required personal protective equipment before Facility representative led the inspectors on a tour of the Facility operations.

11) **Inspection Observations**

Quality Control (QC) Laboratory (SAA):

IGM manages one SAA in the QC Laboratory for managing hazardous waste generated in this area. The inspectors observed one 35-gallon drum, three 3-liter containers, three 1-liter containers, and two 1-gallon containers in this SAA. The total capacity of hazardous waste containers observed in this area was approximately 40 gallons:

- One 35-gallon drum equipped with a funnel lid, which was latched closed, on a secondary containment pallet. The drum was labeled hazardous waste flammable liquid (toluene, isopropanol) and it was also identified as toxic.
- One approximately 3-liter container located on a laboratory bench under a fume hood. The container was labeled hazardous waste used GPC solvents with contents including

THF, and it was identified with pictograms indicating that the contents are flammable and toxic.

- Three 1-liter containers, which were each connected to a Karl Fisher unit at a laboratory bench. Each container was labeled hazardous waste Karl Fisher Titrator Waste and identified with indications (words or pictogram) of the hazards of its contents.
- Two 3-liter containers, which were each connected to an HPLC machine in the back room of the QC Laboratory. Each container was labeled hazardous waste with contents including methanol water acetonitrile and was identified with indications of the hazards of its contents. The tubing that discharges hazardous waste liquid from the HPLC into one accumulation container was secured with tape but placed into the other container without a seal. It appeared that the HPLC discharging to the open container was in operation at the time of the inspection. Please note that the container must remain closed when the machine ceases discharging hazardous waste.
- Two 1-gallon containers located on laboratory benches under fume hoods. Each container was labeled hazardous waste flammable liquid (toluene, isopropanol), but the labels were severely faded and needed to be replaced. Neither container was marked to indicate that the contents were toxic.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.15(a)(5)], which is a condition of the SAA Permit Exemption, a generator is required to mark or label its containers with the words “Hazardous Waste” and with an indication of the hazards of the contents.

In an email to the inspectors on November 18, 2022, Matthew Murray attached a photograph of one of the 1-gallon containers located on a laboratory bench under a fume hood. A new hazardous waste label had been applied to the container in the photograph, and the label was marked to indicate that the contents are flammable and toxic.

Production Area:

The inspectors observed liquid on the floor in the Production Area, and Matthew Murray explained that the liquid was a result of taking the boilers off-line for repair. In an email to the inspectors dated December 9, 2022, Matthew Murray explained that the liquid observed on the floor in this area was from washing the material that was last inside the reactor. After washing the reactor, the material is released from the bottom of the vessel to the process trenches, which are directly below the reactor vessel and used to feed the on-site wastewater treatment plant. Matthew Murray explained that the material on the floor was liquid that had splashed up out of the process trench, and that it would be rinsed back into the process trench for conveyance to the wastewater treatment plant.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.11], a person who generates a solid waste, as defined in 15A NCAC 13A .0106 [40 C.F.R. § 261.2], must use the steps articulated in 15A NCAC 13A .0107(a) [40 C.F.R. § 262.11] to make an accurate determination as to whether that waste is a hazardous waste in order to ensure wastes are properly managed according to applicable RCRA regulations.

Building 6:

The inspection participants observed Reactors EK12 and EK13 in Building 6. According to Matthew Murray, toluene has not been used in this area since the processes in these reactors changed in 2015. Based on generator's knowledge of the raw materials used in the batch

processes in Reactors EK12 and EK13, IGM has determined that hazardous waste is not generated in Building 6.

Facility Yard/Hotbox Area:

The inspectors observed cubic yard boxes containing bottles of IGM products staged next to empty burned 55-gallon drums in the facility yard. Matthew Murray explained that these materials were staged here in the facility yard following a fire that occurred in one of two hotboxes on September 10, 2022. Several 55-gallon drums of a very viscous 3016 photomer product had been placed inside the hotbox in order to maintain the required temperature for the product. It appears that the inhibitor used in the 3016 photomer product may have failed, causing a polymerization reaction to begin in the 55-gallon drums. This reaction appears to have caused the 3016 photomer product to over-pressurize inside the drums, which ultimately led to a fire inside the hotbox.

Matthew Murray stated that the waste generated from cleaning the hotbox where the fire occurred was placed into drums for management and disposal as nonhazardous waste. The bottles of IGM products contained in the cubic yard boxes were removed from the second hotbox. Although this material was not directly involved in the fire, it was removed from the second hotbox and staged in the cubic yard boxes so that IGM can perform sampling and laboratory analysis in order to verify that the products still meet the quality control standards for distribution and sale. The inspectors observed bottles labeled Photomer 6019, Photomer 6024, Photomer 5442, and Omnirad 81. If these materials are disposed of as a waste, Matthew Murray stated that the Omnirad 81 would be managed as hazardous waste, but the photomer products would be nonhazardous waste.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.11], a person who generates a solid waste must make an accurate determination as to whether that waste is a hazardous waste at the point of waste generation in order to ensure that wastes are properly managed according to applicable RCRA regulations. If IGM determines that any material removed from the hotbox is, in fact, a waste, the point of generation for that waste would be when the fire occurred. As a result, any hazardous waste generated by the fire should be managed according to applicable RCRA regulations from the point of generation. The containers observed during the inspection were not labeled with the words “hazardous waste,” or marked with an accumulation start date. The containers were staged in the facility yard, and not in a designated CAA.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.11], a person who generates a solid waste, as defined in 15A NCAC 13A .0106 [40 C.F.R. § 261.2], must use the steps articulated in 15A NCAC 13A .0107(a) [40 C.F.R. § 262.11] to make an accurate determination as to whether that waste is a hazardous waste in order to ensure wastes are properly managed according to applicable RCRA regulations.

Pilot Plant (SAA):

IGM manages one SAA in the Pilot Plant for managing hazardous waste flammable liquids (D001/F005) that is generated when sampling incomplete reactions in the Pilot Plant. In an email to the inspectors on December 9, 2022, Matthew Murray explained that samples are pulled from reactors in the Pilot Plant using a dip sample cup. The required sample volume is transferred into a small jar and taken to the laboratory for analysis, and the excess material in the dip sample cup is transferred into a 55-gallon drum in the SAA. Because these samples may be taken before

toluene is stripped from the system, the excess material is managed as D001/F005 hazardous waste.

The inspectors observed two 55-gallon drums in the Pilot Plant SAA. One drum was equipped with a flip-open lid, which was latched closed, and the other was equipped with a standard drum lid, which was secured with a ring. Each drum was labeled hazardous waste flammable liquid (toluene, isopropanol), and also identified as toxic. Each 55-gallon drum appeared to be approximately ½-full, but it was not clear if the total volume of waste exceeded 55-gallons. Although IGM may manage more than one container in the same SAA, please note that the SAA Permit Exemption limits the total volume of waste accumulated in this area at any given time to be no more than 55 gallons. Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.15(a)(6)], a generator who accumulates hazardous waste in excess of 55 gallons must, with respect to that amount of excess waste, comply with 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)] or remove the excess waste from the SAA within three consecutive calendar days.

Pilot Plant Laboratory (SAA):

IGM manages one SAA in the Pilot Plant Laboratory for managing hazardous waste that is generated by sample testing. The inspectors observed one 35-gallon drum on a portable secondary containment pallet in this SAA. The drum was equipped with a funnel lid, which was latched closed. The drum was labeled hazardous waste flammable liquid (toluene, isopropanol), and also identified as toxic.

Wastewater Treatment Area:

The inspectors observed the filter press associated with the on-site wastewater treatment system. The press was disconnected from the treatment system and not in operation at the time of the inspection.

Toluene Storage Tanks and Recycling System:

During NCDEQ's previous RCRA compliance activities conducted at the facility, IGM described the use of toluene in reactor vessels as part of a closed loop system that includes the reactor vessels and their associated condensers, splitters and receivers, toluene storage tank TK526, and solvent stripper feed tanks TK525 and TK528. The inspectors reviewed a July 2021 record addressing the requirements for legitimate recycling of toluene that was provided by IGM. The record indicates that recycled toluene is recovered or regenerated by the recycling process; it is used as an effective substitute for a commercial chemical product or as an ingredient or intermediate in the industrial process; it is contained; and it is no different from virgin toluene.

The inspectors observed two 55-gallon drums on a concrete pad near the toluene recycling system tank farm. Each drum was labeled dirty toluene and dated June 20, 2022. Matthew Murray stated that the drums contain dirty/used toluene that was generated in the Pilot Plant and will be recycled in the toluene recycling system. Matthew Murray explained that facility personnel must don PPE before they can open the reactor and transfer the contents of the drums inside. As a result, IGM stores dirty/used toluene in 55-gallon drums until approximately four-to-eight drums have been generated, so that they can minimize the number of times personnel must perform these activities. Matthew Murray estimated that it typically takes the Pilot Plant about three months to generate four-to-eight drums of used toluene.

In an email to the inspectors on November 18, 2022, Matthew Murray explained that dirty/used toluene is generated by stripping toluene out of reactions in the Pilot Plant using the same process as in the main reactors. The stripping process leaves water present with the recovered toluene, and this contamination by water is what causes the toluene to be considered “dirty.” Matthew Murray stated that the dirty/used toluene is added immediately following the normal addition of toluene to the reactors; that the dirty/used toluene is present for the entire product reaction; and that it is stripped out of the reactors during the production process.

By adding dirty/used toluene into the reactor, the facility is not meeting the conditions listed in the Closed-Loop Recycling Exemption. As a result, all used toluene in the system is therefore regulated as a solid waste. Because it exhibits the characteristic of ignitability and it is a spent solvent, the used toluene is also regulated as a hazardous waste with the EPA Hazardous Waste Numbers of D001 and F005. The drums of dirty toluene observed in this area had been stored on-site for at least 142 days.

Pursuant to 15A NCAC 13A .0107 [40 C.F.R. § 262.17(b)], which is a condition of the LQG Permit Exemption, an LQG who accumulates hazardous waste for more than 90 days is subject to the requirements of 15A NCAC 13A .0101 to .0119 [40 C.F.R. Parts 124, 264 through 268, and Part 270] of this chapter unless it has been granted an extension to the 90-day period.

In an email to the inspectors on November 18, 2022, Matthew Murray stated that IGM conducts visual inspections of the diked area around tanks T-525, 526 and 528 and the stripping column looking for unaccounted liquid that may indicate a leak in the system, but they do not conduct air monitoring or PID monitoring on the equipment in this area.

The facility has an industrial wastewater pretreatment permit (Permit #0500) from the City of Charlotte Charlotte-Mecklenburg Utility Department. This permit, which includes the toluene stripper, identifies the discharge limits established for the facility under the National Pollutant Discharge Elimination System (NPDES) permitting program. Tanks TK525 and TK528 are used to receive and store influent wastewater before it is fed into the toluene air stripper column. Tank TK526 is used to receive salt-laden wash water, which remains in the tank long enough to separate into two phases. The heavy aqueous phase in tank TK526 is sent to the toluene stripper feed tank TK528. The light organic phase is returned to the reactor vessel EK8 or EK9 to recover the remaining toluene. Although the salt-laden wash water managed in Tank TK526 contains spent toluene, a listed hazardous waste, IGM was not managing this tank as a hazardous waste management unit.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(2)], which incorporates 15A NCAC 13A .0110(j) [40 C.F.R. § 265.191(a)] and is a condition of the LQG Permit Exemption, a generator who places hazardous waste in tanks must obtain and keep on file at the facility a written assessment reviewed and certified by a qualified Professional Engineer that attests to the tank system’s integrity.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(2)], which incorporates 15A NCAC 13A .0110(j) [40 C.F.R. § 265.195] and is a condition of the LQG Permit Exemption, a generator who places hazardous waste in tanks must inspect and document, at least once each operating day: data gathered from monitoring and

leak detection equipment, where present, to ensure that the tank system is being operated according to its design; overflow/spill control equipment to ensure that it is in good working order; above ground portions of the tank system, if any, to detect corrosion or releases of waste; and the construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system to detect erosion or signs of releases of hazardous waste.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(2)], which incorporates 15A NCAC 13A .0110(t) [40 C.F.R. § 265.1050] and is a condition of the LQG Permit Exemption, 15A NCAC 13A .0110(t) [40 C.F.R. Part 265 Subpart BB] applies to equipment that contains or contacts hazardous waste with organic concentrations of at least 10 percent by weight that are managed in a unit that is exempt from permitted under the LQG Permit Exemption and is not a recycling unit under 15A NCAC 13A .0106 [40 C.F.R. § 261.6].

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(2)], which incorporates 15A NCAC 13A .0110(u) [40 C.F.R. § 265.1083(b)] and is a condition of the LQG Permit Exemption, a generator shall control air pollutant emissions from each hazardous waste management unit in accordance with standards specified in 15A NCAC 13A .0110(u) [40 C.F.R. § 265.1085 through 265.1088], as applicable to the hazardous waste management unit.

The inspectors observed a filter housing at the discharge of tanks TK525 and TK528. According to the facility's Hazardous Waste Plan, acrylate gel waste generated when cleaning these filter vessels is a hazardous waste. During the record review, William Gordon explained that these filters are cleaned approximately once each month, and that approximately one gallon of waste is generated during each clean out event. William Gordon stated that this waste is accumulated, stored, and shipped off-site as a hazardous waste.

Storage Pad (CAA):

IGM manages hazardous waste (including ignitable waste) in a CAA on a curbed concrete pad in the facility yard (Photo 1). The area was identified with a sign which read "danger," "hazardous waste storage," and "no smoking," and the inspectors observed a spill kit and fire extinguishing equipment in an open shed next to the pad. According to Matthew Murray, personnel carry two-way radios for emergency communication when working in this area. However, the area does not appear to be equipped with an internal communications or alarm system capable of providing immediate emergency instruction to facility personnel.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(6)], which incorporates 15A NCAC 13A .0107(i) [40 C.F.R. § 262.252(a)], and is a condition of the LQG Permit Exemption, all areas of a LQG where hazardous waste is generated or accumulated onsite must be equipped with an internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel.

The inspectors observed six pallets holding containers in the CAA. The pallets were arranged in four rows:

- Row 1 consisted of one pallet holding one 55-gallon container labeled nonhazardous waste photomer.
- Row 2 consisted of one pallet holding one overpack container identified with toxic and marine pollutant hazard pictograms. The container was not labeled as hazardous waste or marked with an accumulation start date.
- Row 3 consisted of three pallets. The first pallet held one 55-gallon drum labeled nonRCRA waste and was stacked above the second pallet, which held four 55-gallon drums. Each of the four drums was labeled nonhazardous and three were dated September 19, 2022. The third pallet held three 35-gallon drums of hazardous waste. Each 35-gallon drum was labeled hazardous waste flammable liquid (toluene, isopropanol), and identified as flammable and toxic. Each drum was marked with an accumulation start date of September 29, 2022, October 9, 2022, or October 21, 2022.
- Row 4 consisted of two pallets. The first pallet held one 55-gallon drum labeled nonhazardous waste and one 55-gallon drum labeled used oil. The last pallet held one 55-gallon drum labeled hazardous waste flammable liquid (toluene, isopropanol), identified as flammable and toxic, and marked with an accumulation start date of September 23, 2022. The inspectors observed evidence of dried material that had leaked or spilled down the outside of the drum.

Pursuant to 15A NCAC 13A .0107 [40 C.F.R. § 262.17(a)(1)(ii)], which is a condition of the LQG Permit Exemption, if a container holding hazardous waste is not in good condition, or if it begins to leak, the LQG must immediately transfer the hazardous waste from this container to a container that is in good condition, or immediately manage the waste in some other way that complies with the conditions for exemption of this section.

In an email to the inspectors on November 18, 2022, Matthew Murray attached a photograph of the damaged drum inside the overpack container and explained that the drum contained a product material. According to Matthew Murray, the drum was placed into the overpack container when it was damaged by a forklift, and the material in the drum was used in a production batch after the inspection.

Warehouse Storage Covered Pad (Building 19):

On a covered concrete pad next to the CAA, the inspectors observed six rows of pallets holding various containers ranging in size from less than 1-gallon to over 200-gallons (Photo 2). Matthew Murray explained that IGM converted to a new computer inventory system in 2020/2021, and that not all of the material onsite was entered into the new system. On October 18-20, 2022, IGM personnel conducted a full physical inventory of the contents of the warehouse, the Pilot Plant, and the outdoor storage area and recertified the levels of the contents inside the tanks. Any containers observed during the physical inventory that were not entered into the electronic inventory system were moved to this covered area or to the flammable storage area three weeks before the inspection.

Matthew Murray stated that IGM personnel will evaluate each container that is not in the electronic inventory system to determine if the contents can be recertified for use on-site, if the shelf life can be extended for potential use, if the material is suitable for resale, or if the container and its contents must be disposed as a waste. According to Matthew Murray, some containers that were easier to evaluate have already been processed, and the facility shipped forty pallets of

containers off-site as waste during the week before the inspection. Evaluation of the remaining containers is expected to be completed by the end of the calendar year.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.11], a person who generates a solid waste must make an accurate determination as to whether that waste is a hazardous waste at the point of waste generation in order to ensure that wastes are properly managed according to applicable RCRA regulations. If IGM determines that any material that was removed from the inventory is, in fact, a waste, the point of generation in this instance would be when the material was removed from the inventory and staged in Building 19. As a result, any hazardous waste generated by the physical inventory should be managed according to applicable RCRA regulations from the point of generation.

The inspectors observed pallets stacked one to three pallets high and seven or eight pallets long in each row in this area:

- Row 1: five single pallets, and three pallets stacked two high
- Row 2: six single pallets, and two pallets stacked two high
- Row 3: two single pallets, one pallet stacked two high, and four pallets stacked three high
- Row 4: one single pallet, five pallets stacked two high, and one pallet stacked three high
- Row 5: four single pallets, one pallet stacked two high, and two pallets stacked three high
- Row 6: one single pallet, two pallets stacked two high, and five pallets stacked three high

Some containers were in poor condition, and the inspectors observed a large hole in one leaking two-liter container of 2-ethylhexyl acrylate. The inspectors also observed an unknown liquid on the pad which was evidence of leaking container(s) in the last row, but they were unable to identify which container(s) was responsible for the leaked/spilled material.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.11], a person who generates a solid waste, as defined in 15A NCAC 13A .0106 [40 C.F.R. § 261.2], must use the steps articulated in 15A NCAC 13A .0107(a) [40 C.F.R. § 262.11] to make an accurate determination as to whether that waste is a hazardous waste in order to ensure wastes are properly managed according to applicable RCRA regulations.

The inspectors also observed four drums that were marked as rejected drums from Sherwin Williams. In an email to the inspectors on November 18, 2022, Matthew Murray stated that one of these drums was labeled FoamStar ST 2420, one was labeled Tergitol 15-S-12 Surfactant, and two were labeled Omnirad 81. Matthew Murray explained that these containers may have been received in error when they were off-loaded with a shipment of other valid returns received by the facility. According to Matthew Murray, IGM personnel opened each of these drums after the inspection, determined that they were RCRA empty because each drum contained between ¼- to ½-inches of material, and will ship the drums off-site as empty drums.

Please note that having no more than 2.5 centimeters (one inch) of residue remaining in the bottom of a container is only one of two conditions required for meeting the standard for RCRA empty. Pursuant to 40 C.F.R. 261.7(b) a container that has held any hazardous waste is empty if all wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, *and* no more than 2.5 centimeters (one inch) of residue remain on the bottom of the container, *or* no more than 3 percent by weight of the total capacity of the container remains in the container if the container is less than or equal to 119

gallons in size. The regulations call out pouring, pumping, and aspirating as practices that are “commonly employed.”

It appears that the containers observed during the inspection may have been previously shipped to a drum reconditioning facility, where they were rejected because that facility determined that the containers were not RCRA empty. Before these containers are sent off-site again as RCRA empty, they should be subjected to the commonly employed methods of emptying. If the containers are rejected by a drum reconditioning facility for not meeting the conditions of RCRA empty, IGM may be in violation of the RCRA requirements for manifesting hazardous waste and for shipping it to a facility with a RCRA permit or to a recycling facility.

Flammable Storage Covered Pad:

The inspectors observed additional containers that were not in the electronic inventory in the flammable covered storage pad area. Like the containers on the covered concrete pad next to the CAA, Matthew Murray stated that IGM personnel will evaluate each of these containers to determine if the contents can be recertified for use on-site, if the shelf life can be extended for potential use, if the material is suitable for resale, or if the container and its contents must be disposed as a waste. The inspectors noted that some of these drums appear to be old and rusting, that liquids were observed inside the secondary containment, and that evidence of staining was observed on the containment pad.

In an email to the inspectors on November 18, 2022, Matthew Murray attached a detailed inventory list of material for materials that were observed in Building 19 and the Flammable Storage Covered Pad. Matthew Murray indicated that the facility completed a first pass disposition of the materials, and only material that is being kept for use in the Pilot Plant or production processes remains in the Flammable Storage Covered Pad. The detailed inventory list of material managed in Building 19 following the inspection includes both material that is being kept for use and material that will be disposed as waste.

Pole Building (Universal Waste):

IGM manages universal waste lamps in the Pole Building (Building 7). According to the records provided during the inspection, the facility last sent a shipment of universal waste lamps to Southeast Recycling (TNR000003137) on December 10, 2021. The inspectors observed one 8-foot cardboard box and one 4-foot cardboard box of used florescent lamps, one 55-gallon drum of used mercury lamps, and one 5-gallon bucket of used mercury lamps. Each container was closed and labeled universal waste lamps.

Contingency Plan and Quick Reference Guide:

The actions that facility personnel should take in response to an emergency are described in the facility’s Hazardous Waste Plan, which was last updated on November 3, 2022. The plan describes actions facility personnel must take in response to any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility, but it does not describe actions facility personnel must take in response to fires or explosions. It identifies the names and emergency telephone numbers for persons to act as emergency coordinators.

The plan includes a list of emergency fire extinguishers, sprinklers, fire hydrants, eye washes, safety showers, spill response kits and emergency power controls at the facility. Although the plan describes the locations of the available spill response kits, it does not include the location and a physical description of each other item on the list or a brief outline of its capabilities. It also did not include an evacuation plan for personnel.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(6)], which incorporates 15A NCAC 13A .0107(i) [40 C.F.R. § 262.261(d), (e) and (f)], and is a condition of the LQG Permit Exemption, the contingency plan must list the names and emergency telephone numbers of all persons qualified to act as emergency coordinator; it must include a list of all emergency equipment at the facility, and include the location and a physical description of each item on the list, and a brief outline of its capabilities; and the plan must include an evacuation plan for generator personnel where there is a possibility that evacuation could be necessary. The plan must describe signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes (in cases where the primary routes could be blocked by release of hazardous waste or fire).

The plan references arrangements agreed to with the local police department, fire department, other emergency response teams, emergency response contractors, equipment suppliers, local hospitals or the Local Emergency Planning Committee, and it states that a copy of the plan (and its quick reference guide) was submitted to the State Emergency Response Center, Conco Inc., Carolinas Medical Center – Pineville, the Charlotte Fire Department Emergency Manager, Charlotte Fire Department Station 26, Charlotte Mecklenburg Utilities, the Charlotte Mecklenburg Police Department, Arrowood Medical Center, Mecklenburg Land Use and Environmental Services, and JRP Company. However, the facility could not provide records to document that the plan had been submitted to these emergency responders.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(6)], which incorporates 15A NCAC 13A .0107(i) [40 C.F.R. § 262.262(a), (b) and (c)], and is a condition of the LQG Permit Exemption, the LQG must submit a copy of the contingency plan and all revisions to all local emergency responders; and a LQG that is amending its contingency plan must at that time submit a quick reference guide of the contingency plan to the local emergency responders. Generators must update, if necessary, their quick reference guides, whenever the contingency plan is amended and submit these documents to the local emergency responders.

In an email to the inspectors on November 18, 2022, Matthew Murray provided documentation to show that the contingency plan, quick reference guide, and hazardous waste plan were submitted to the SARA Coordinator at the State Emergency Response Center, to the Emergency Management and Hazardous Materials at the Charlotte Fire Department, to the Concentra Medical Center, to CMC Pineville, to Charlotte Water, to the Charlotte-Mecklenburg Police Department, to the Charlotte Fire Department's Station 26, to Canco, to the Mecklenburg County Land use and Environmental Services Agency, and to JRP Company on November 11, 2022.

IGM's quick reference guide was last updated on July 28, 2022. Although the quick reference guide is intended to be a concise informative resource that emergency responders can use in the early stages of an incident response, IGM's document contains 11 pages. The inspectors

recommend working with emergency responders to verify that the document is useful and easily navigable while still containing all the required information. The quick reference guide included the types/names of hazardous waste in layman's terms and the associated hazard associated with each hazardous waste present at any one time; the estimated maximum amount of each hazardous waste that may be present at any one time; the identification of any hazardous wastes where exposure would require unique or special treatment by medical or hospital staff; a street map of the facility in relation to surrounding businesses, schools and residential areas; the locations of water supply; and the name of the emergency coordinator(s) and emergency telephone number(s). Although the quick reference guide map included a map of the facility showing where hazardous wastes are generated, accumulated and treated and routes for accessing these wastes; the map identified Building 6 as an area where hazardous wastes are generated and accumulated. Matthew Murray stated that the production processes in Building 6 have changed, and the new processes do not generate hazardous waste. In addition, the quick reference guide did not include the identification of the on-site notification systems.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(6)], which incorporates 15A NCAC 13A .0107(i) [40 C.F.R. § 262.262(b)(4) and (7)], and is a condition of the LQG Permit Exemption, the quick reference guide of the contingency plan must include a map of the facility showing where hazardous wastes are generated, accumulated and treated and routes for accessing these wastes, and the identification of on-site notification systems.

Training Records:

The inspectors reviewed facility job descriptions and employee names that were provided for MPR Operators; the Production Supervisor, Safety Engineer, Scheduler, and Department Managers; the Quality Control Laboratory Technicians; Maintenance Mechanics and Instrument Technicians; Drummers, Warehouse and Tank Farm Personnel; Pilot Plant Operators and R&D Laboratory Technicians; the Waste Material Specialist; and the EHS Manager. Each description included the requisite skill, education, or other qualifications, and duties for facility personnel assigned to that position, and a written description of the type and amount of both introductory and continuing training to be given to each person filling the position.

The inspectors reviewed the records of RCRA hazardous waste management refresher training completed by both Matthew Murray and Willian Gordon on January 5, 2021, and January 19, 2022. The inspectors also reviewed the records of in-house hazardous waste training provided to facility personnel in November 2021 and October 2022. Matthew Murray stated that IGM hired approximately thirty new employees during 2022. However, records showed that only twenty-three employees attended the hazardous waste training in October 2022. The provided records did not adequately document that the required initial training and annual review had been given to, and were completed by, facility personnel, because the provided records did not include the names of employees filling each position or the date upon which each employee filled that position.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(7)(iv)(A) and (D)], which is a condition of the LQG Permit Exemption, the LQG must maintain the following documents and records at the facility: the job title for each position at the facility related to hazardous waste management, and the name of the employee

filling each job; and records that document that the training or job experience, required in this section, has been given to, and completed by, facility personnel.

Waste Manifest Records:

The inspectors reviewed available hazardous waste manifest records for shipments of hazardous waste sent over the past two years. Hazardous waste manifest records that were found in the eManifest system and/or provided during the inspection indicate that IGM sends a shipment of D001, F005 hazardous waste liquids (toluene, isopropanol) to Giant Resource Recovery, Sumter (SCD036275626) once every one-to-four months, and that one of these shipments also contained D001 hazardous waste heptanes, D001 hazardous waste flammable liquid (mineral spirits) and D001, U057 hazardous waste cyclohexane. Hazardous waste manifest records also show that IGM sent four shipments of hazardous waste to Cycle Chem (PAD067098822) over the past two years. Each shipment to Cycle Chem has included one or more of the following hazardous wastes: D002 hazardous waste corrosive liquid acid functional acrylic ester, D002 hazardous waste ammonia solutions, D002 hazardous waste corrosive liquid 2-hydro ethyl acrylate, and D001 hazardous waste flammable liquids (containing toluene).

The inspectors also reviewed IGM's most recent Hazardous Waste Report Form 8700-13 A/B (the "biennial report"), which was submitted on February 27, 2022. IGM's biennial report included the following total volumes of hazardous waste shipped off-site during calendar year 2021:

- 450 pounds of hazardous waste ignitable acrylate ester (D001),
- 10,410 pounds of hazardous waste lab samples (D001, F003), and
- 200 pounds of hazardous waste aerosol cans (D001).

Although the eManifest system indicated that IGM sent one shipment of hazardous waste to Cycle Chem, Inc (PAD067098822) on November 9, 2021, and another on February 1, 2022, IGM could not locate manifest records for those shipments during the inspection. In addition, no hazardous waste manifest record was provided for the 200 pounds of D001 hazardous waste aerosol cans included on the biennial report.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.20], a generator that transports, or offers for transport a hazardous waste for offsite treatment, storage, or disposal must prepare a Manifest (OMB Control number 2050-0039) on EPA Form 8700-22.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.23(a)(3)], a generator must retain one copy, in accordance with 262.40(a).

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.40], a generator must retain one copy of each manifest signed in accordance with 262.23(a) for three years or until he receives a signed copy from the designated facility which received the waste. This signed copy must be retained as a record for at least three years from the date the waste was accepted by the initial transporter.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.24(a)(3)], any requirement in these regulations for a generator to keep or retain a copy of each manifest is satisfied by retention of a signed electronic manifest in the generator's account on

the national eManifest system, provided that such copies are readily available for viewing and production if requested by any EPA or authorized state inspector.

In an email to the inspectors on November 18, 2022, Matthew Murray included a copy of hazardous waste manifest 023037532JJJK, for a shipment of D001 hazardous waste flammable liquids to Cycle Chem, Inc. (PAD067098822) on February 1, 2022.

IGM's biennial report did not include 2,500 pounds of D002 hazardous waste corrosive liquid (acid functional acrylate ester) or 1,200 pounds of D002 hazardous waste ammonia solution that was sent to Cycle Chem, Inc (PAD067098882) on November 9, 2021, or the 13,200 pounds D002 hazardous waste corrosive liquids (2-hydroxyethyl acrylate) that was sent to Cycle Chem, Inc (PAD067098882) on February 2, 2021, using hazardous waste manifest numbers 022972417JJJK and 022192367JJJK, respectively.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.41], a generator who is a LQG for at least one month of an odd-numbered year (reporting year) who ships any hazardous waste off-site to a treatment, storage or disposal facility within the United States must complete and submit EPA Form 8700-13 A/B by March 1 of the following even-numbered year and must cover generator activities during the previous year.

Pursuant to the EPA Form 8700-13 A/B Hazardous Waste Report Form Instructions, a Generation and Management Form (GM Form) must be submitted for each generated RCRA hazardous waste. Hazardous waste must be reported if it was generated and accumulated on-site and subsequently managed on-site or shipped off-site in the reporting year.

IGM's biennial report included 10,410 pounds of D001, F003 hazardous waste lab samples that were shipped off-site during calendar year 2021, but the hazardous waste manifest records associated with these shipments indicate that 10,410 pounds of D001, F005 hazardous waste flammable liquids (toluene, isopropanol) were shipped off-site. The federal waste codes associated with the shipments reported on the biennial report were different from the federal waste codes associated with the shipments reported on the hazardous waste manifest records.

Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.41], a generator who is a LQG for at least one month of an odd-numbered year (reporting year) who ships any hazardous waste off-site to a treatment, storage or disposal facility within the United States must complete and submit EPA Form 8700-13 A/B by March 1 of the following even-numbered year and must cover generator activities during the previous year.

Pursuant to the EPA Form 8700-13 A/B Hazardous Waste Report Form Instructions, a generated must, in Item I.B – EPA Hazardous Waste Code(s), enter the four-character EPA hazardous waste code(s) that apply to the waste reported in Item I.A.

Inspection Records:

The inspectors reviewed IGM's available records of inspections of the hazardous waste central

accumulation area (CAA) since March 16, 2022. The inspection log includes a checklist to record observations about leaking containers and for deterioration of containers caused by corrosion or other factors. The inspection checklist includes areas to record observations about leakage and spills, container closure and condition, labels and aisle space, adherence to 90-day storage time limit, condition of concrete slab, and the presence of signs and a spill kit. The records include the date of the inspection and the signature of the employee conducting the inspection.

12) Closing Conference

The inspectors conducted the exit meeting with Matthew Murray. During this meeting, the inspectors stated their preliminary conclusions of the inspection, and Matthew Murray agreed to provide additional information concerning the four drums labeled Omnirad 81 and marked as rejected material from Sherwin Williams that were observed in the Building 19 area and the material in cubic yard boxes of IGM products that were staged in the facility yard following the hotbox fire at the end of September.

On November 14, 2022, Andrew Martin sent an email to Matthew Murray requesting:

- An inventory of the contents of the flammable storage area and Building 19,
- Information on the four containers of drum washer rejected material from Sherwin Williams observed in Building 19,
- Information on the unknown material in the overpack observed in the CAA,
- Information on the fire that occurred in the hotbox,
- Information on the procedures for reclaiming dirty toluene generated in the Pilot Plant,
- Information on leak detection or air monitoring that may have been performed on the equipment associated with the toluene stripper, and
- Documentation to show that the contingency plan/quick reference guide have been submitted to the local authorities.

In an email to the inspectors on November 18, 2022, Matthew Murray provided additional information requested by the inspectors.

13) Summary of Observations

Based on the observations made during the inspection, the following RCRA requirements appear to be applicable at the subject facility:

- **Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.11], a person who generates a solid waste, as defined in 15A NCAC 13A .0106 [40 C.F.R. § 261.2], must use the steps articulated in 15A NCAC 13A .0107(a) [40 C.F.R. § 262.11] to make an accurate determination as to whether that waste is a hazardous waste in order to ensure wastes are properly managed according to applicable RCRA regulations.**

A hazardous waste determination is necessary for the liquid observed on the floor in the Production Area; for any of the materials that were removed from the second hotbox and observed in cubic yard boxes in the facility yard which do not meet the quality control standards and must be disposed as waste; for any of the materials that were not entered into the electronic inventory as usable material and observed in Building 19 or the

Flammable Storage Covered Pad which cannot be either recertified or sold for use as a product; and for the salt-laden wash water that is decanted into Tank TK526.

- **Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.15(a)(5)], which is a condition of the SAA Permit Exemption, a generator is required to mark or label its containers with the words “Hazardous Waste” and with an indication of the hazards of the contents.**

The inspectors observed two 1-gallon containers located on laboratory benches under fume hoods in the QC laboratory SAA. Each container was labeled hazardous waste flammable liquid (toluene, isopropanol), but the labels were severely faded. Neither container was marked to indicate that the contents were toxic.

In an email to the inspectors on November 18, 2022, Matthew Murray attached a photograph of one of the 1-gallon containers located on a laboratory bunch under a fume hood. A new hazardous waste label had been applied to the container in the photograph, and the label was marked to indicate that the contents are flammable and toxic.

- **Pursuant to 15A NCAC 13A .0107 [40 C.F.R. § 262.17(a)(1)(ii)], which is a condition of the LQG Permit Exemption, if a container holding hazardous waste is not in good condition, or if it begins to leak, the LQG must immediately transfer the hazardous waste from this container to a container that is in good condition, or immediately manage the waste in some other way that complies with the conditions for exemption of this section.**

The inspectors observed evidence of dried material that had leaked or spilled down the outside of one 55-gallon drum, which was labeled hazardous waste flammable liquid (toluene, isopropanol), identified as flammable and toxic, and marked with an accumulation start date of September 23, 2022, in the CAA.

- **Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(2)], which incorporates 15A NCAC 13A .0110(j) [40 C.F.R. § 265.191(a)] and is a condition of the LQG Permit Exemption, a generator who places hazardous waste in tanks must obtain and keep on file at the facility a written assessment reviewed and certified by a qualified Professional Engineer that attests to the tank system’s integrity.**

Tank TK526 is used to receive salt-laden wash water, which contains spent toluene, a listed hazardous waste. IGM was not managing this tank as a hazardous waste management unit, and the inspectors did not observe a written assessment of the tank.

- **Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(2)], which incorporates 15A NCAC 13A .0110(j) [40 C.F.R. § 265.195] and is a condition of the LQG Permit Exemption, a generator who places hazardous waste in tanks must inspect and document, at least once each operating day: data gathered from monitoring and leak detection equipment, where present, to ensure that the tank system is being operated according to its design; overfill/spill control equipment to ensure that it is in good working order; above ground portions of the tank system, if any, to detect corrosion or releases of waste; and the construction materials and the area**

immediately surrounding the externally accessible portion of the tank system, including the secondary containment system to detect erosion or signs of releases of hazardous waste.

In an email to the inspectors on November 18, 2022, Matthew Murray stated that IGM conducts visual inspections of the diked area around tanks T-525, 526 and 528 and the stripping column looking for unaccounted liquid that may indicate a leak in the system, but they do not conduct air monitoring or PID monitoring on the equipment in this area. The inspectors did not observe documentation of these inspections in the operating record.

- **Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(2)], which incorporates 15A NCAC 13A .0110(t) [40 C.F.R. § 265.1050] and is a condition of the LQG Permit Exemption, 15A NCAC 13A .0110(t) [40 C.F.R. Part 265 Subpart BB] applies to equipment that contains or contacts hazardous waste with organic concentrations of at least 10 percent by weight that are managed in a unit that is exempt from permitted under the LQG Permit Exemption and is not a recycling unit under 15A NCAC 13A .0106 [40 C.F.R. § 261.6].**

Tank TK526 is used to receive salt-laden wash water, which contains spent toluene, a listed hazardous waste. However, the equipment associated with Tank TK526 has not been marked in such a manner that it can be distinguished readily from other pieces of equipment, and IGM does not conduct air monitoring or PID monitoring on the equipment in the area around Tanks TK525, TK526 and TK528.

- **Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(2)], which incorporates 15A NCAC 13A .0110(u) [40 C.F.R. § 265.1083(b)] and is a condition of the LQG Permit Exemption, a generator shall control air pollutant emissions from each hazardous waste management unit in accordance with standards specified in 15A NCAC 13A .0110(u) [40 C.F.R. § 265.1085 through 265.1088], as applicable to the hazardous waste management unit.**

Tank TK526 is used to receive salt-laden wash water, which contains spent toluene, a listed hazardous waste. However, IGM has not demonstrated that air pollutant emissions from Tank TK526 have been controlled in accordance with standards specified in 15A NCAC 13A .0110(u) [40 C.F.R. § 265.1085 through 265.1088].

- **Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(6)], which incorporates 15A NCAC 13A .0107(i) [40 C.F.R. § 262.252(a)], and is a condition of the LQG Permit Exemption, all areas of a LQG where hazardous waste is generated or accumulated onsite must be equipped with an internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel.**

It appears that areas where hazardous waste is generated or accumulated onsite are not equipped with an internal communications or alarm system capable of providing immediate emergency instruction to facility personnel.

- Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(6)], which incorporates 15A NCAC 13A .0107(i) [40 C.F.R. § 262.261(d), (e) and (f)], and is a condition of the LQG Permit Exemption, the contingency plan must list the names and emergency telephone numbers of all persons qualified to act as emergency coordinator; it must include a list of all emergency equipment at the facility, and include the location and a physical description of each item on the list, and a brief outline of its capabilities; and the plan must include an evacuation plan for generator personnel where there is a possibility that evacuation could be necessary. The plan must describe signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes (in cases where the primary routes could be blocked by release of hazardous waste or fire).

The facility's contingency plan does not describe actions facility personnel must take in response to fires or explosions; it does not include the location and physical description or a brief outline of the capabilities of each item on the list of emergency equipment; and it does not include an evacuation plan for personnel.

- Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(6)], which incorporates 15A NCAC 13A .0107(i) [40 C.F.R. § 262.262(a), (b) and (c)], and is a condition of the LQG Permit Exemption, the LQG must submit a copy of the contingency plan and all revisions to all local emergency responders; the quick reference guide of the contingency plan must include a map of the facility showing where hazardous wastes are generated, accumulated and treated and routes for accessing these wastes, and the identification of on-site notification systems; and a LQG that is amending its contingency plan must at that time submit a quick reference guide of the contingency plan to the local emergency responders. Generators must update, if necessary, their quick reference guides, whenever the contingency plan is amended and submit these documents to the local emergency responders.

IGM could not provide records to document that the contingency plan and quick reference guide had been submitted to the local emergency responders, and the quick reference guide did not include the identification of the on-site notification systems.

- Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.17(a)(7)(iv)(A) and (D)], which is a condition of the LQG Permit Exemption, the LQG must maintain the following documents and records at the facility: the job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job; and records that document that the training or job experience, required in this section, has been given to, and completed by, facility personnel.

The provided hazardous waste training records did not adequately document that the required initial training and annual review had been given to, and were completed by, facility personnel, because the provided records did not include the names of employees filling each position or the date upon which each employee filled that position.

- Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.20], a generator that transports, or offers for transport a hazardous waste for offsite treatment, storage,

or disposal must prepare a Manifest (OMB Control number 2050-0039) on EPA Form 8700-22.

No hazardous waste manifest record was provided for the 200 pounds of D001 hazardous waste aerosol cans included on the biennial report.

- **Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.23(a)(3)], a generator must retain one copy, in accordance with 262.40(a).**

Although the eManifest system indicated that IGM sent one shipment of hazardous waste to Cyclechem, Inc (PAD067098822) on November 09, 2021, and another on February 01, 2022, IGM could not locate manifest records for those shipments during the inspection. In addition, no hazardous waste manifest record was provided for the 200 pounds of D001 hazardous waste aerosol cans included on the biennial report.

- **Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.24(a)(3)], any requirement in these regulations for a generator to keep or retain a copy of each manifest is satisfied by retention of a signed electronic manifest in the generator's account on the national eManifest system, provided that such copies are readily available for viewing and production if requested by any EPA or authorized state inspector.**

Although the eManifest system indicated that IGM sent one shipment of hazardous waste to Cyclechem, Inc (PAD067098822) on November 09, 2021, and another on February 01, 2022, IGM could not locate manifest records for those shipments during the inspection. In addition, no hazardous waste manifest record was provided for the 200 pounds of D001 hazardous waste aerosol cans included on the biennial report.

- **Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.40], a generator must retain one copy of each manifest signed in accordance with 262.23(a) for three years or until he receives a signed copy from the designated facility which received the waste. This signed copy must be retained as a record for at least three years from the date the waste was accepted by the initial transporter.**

Although the eManifest system indicated that IGM sent one shipment of hazardous waste to Cyclechem, Inc (PAD067098822) on November 09, 2021, and another on February 01, 2022, IGM could not locate manifest records for those shipments during the inspection. In addition, no hazardous waste manifest record was provided for the 200 pounds of D001 hazardous waste aerosol cans included on the biennial report.

- **Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.41], a generator who is a LQG for at least one month of an odd-numbered year (reporting year) who ships any hazardous waste off-site to a treatment, storage or disposal facility within the United States must complete and submit EPA Form 8700-13 A/B by March 1 of the following even-numbered year and must cover generator activities during the previous year.**

Pursuant to the EPA Form 8700-13 A/B Hazardous Waste Report Form Instructions, a Generation and Management Form (GM Form) must be submitted

for each generated RCRA hazardous waste. Hazardous waste must be reported if it was generated and accumulated on-site and subsequently managed on-site or shipped off-site in the reporting year.

IGM's biennial report did not include 2,500 pounds of D002 hazardous waste corrosive liquid (acid functional acrylate ester) or 1,200 pounds of D002 hazardous waste ammonia solution that was sent to Cycle Chem, Inc (PAD067098882) on November 09, 2021, or the 13,200 pounds D002 hazardous waste corrosive liquids (2-hydroxyethyl acrylate) that was sent to Cycle Chem, Inc (PAD067098882) on February 02, 2021, using hazardous waste manifest numbers 022972417JJK and 022192367JJK, respectively.

- **Pursuant to 15A NCAC 13A .0107(a) [40 C.F.R. § 262.41], a generator who is a LQG for at least one month of an odd-numbered year (reporting year) who ships any hazardous waste off-site to a treatment, storage or disposal facility within the United States must complete and submit EPA Form 8700-13 A/B by March 1 of the following even-numbered year and must cover generator activities during the previous year.**

Pursuant to the EPA Form 8700-13 A/B Hazardous Waste Report Form Instructions, a generated must, in Item I.B – EPA Hazardous Waste Code(s), enter the four-character EPA hazardous waste code(s) that apply to the waste reported in Item I.A.

IGM's biennial report included 10,410 pounds of D001, F003 hazardous waste lab samples that were shipped off-site during calendar year 2021, but the hazardous waste manifest records associated with these shipments indicate that 10,410 pounds of D001, F005 hazardous waste flammable liquids (toluene, isopropanol) were shipped off-site. The federal waste codes associated with the shipments reported on the biennial report were different from the federal waste codes associated with the shipments reported on the hazardous waste manifest records.

14) List of Appendices

Appendix 1 – Photo Log:

Two Photos taken on: November 9, 2022

Photos taken by: Laurie Benton DiGaetano

Photos taken with: Panasonic DMC TS-5 Digital Camera

EPA Property Tag: S09533

15) Signed

**LAURIE
DIGAETANO**

Digitally signed by LAURIE
DIGAETANO
Date: 2023.01.18 13:24:03 -05'00'

Laurie Benton DiGaetano
Environmental Engineer

Concurrence

**ARACELI
CHAVEZ**

 Digitally signed by ARACELI
CHAVEZ
Date: 2023.01.18 16:15:49 -05'00'

Araceli B. Chavez
RCRA Enforcement Section

IGM Resins
RCRA CEI Photographs
Laurie Benton DiGaetano, USEPA



Photo 1: Six pallets, which are arranged in four rows and not stacked, in the curbed concrete pad CAA in the facility yard. (Note that the stacked containers shown behind the CAA are in the Building 19 Covered Storage Pad.)



Photo 2: Six rows of pallets holding various containers ranging in size from less than 1-gallon to over 200-gallons observed in the Building 19 Covered Storage Pad next to the CAA. These containers were reportedly moved to this area on October 18-20, 2022 following a full physical inventory of the contents of the warehouse, the Pilot Plant, and the outdoor storage area. Any containers observed during the physical inventory that were not entered into the new electronic inventory system were moved to this covered area or to the Flammable Covered Storage Pad.