APPENDIX D
Evaluation of Non-Routine Releases

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1.0 INTRODUCTION

1.1 PURPOSE OF ANALYSIS

This section presents an evaluation of the off-site impacts that could result from potential accidental or "non-routine" releases at the Romic Southwest Facility ("facility") located in Chandler, Arizona. This evaluation includes an assessment of the likelihood of accidents, process upsets, and non-routine releases, as well as the potential severity of such occurrences.

1.2 APPLICABILITY OF FEDERAL RMP PROGRAM

The federal Risk Management Plan (RMP) program is required by the Clean Air Act section 112(r). The program is codified in regulation under 40 Code of Federal Regulations (CFR) Part 68. Under the program, facilities that handle more than specified threshold quantities of certain listed hazardous substances are required to prepare a RMP. The facility does not handle any of the substances listed in 40 CFR 68.130 in quantities greater than threshold quantities. The facility does receive smaller quantities of some of the substances listed; for example, in lab pack form. None, however, are incorporated in any facility treatment processes except in trace amounts.

1.3 APPLICABILITY OF FEDERAL AND/OR STATE PSM PROGRAM

The federal Occupational Safety and Health Administration (OSHA) Process Safety Management (PSM) standard, set forth in Title 29, CFR, section 1910.119, applies to facilities at which certain listed hazardous substances are involved in greater than listed threshold quantities in processes, subject to certain exceptions. The facility is not subject to the PSM standard.

1.4 OUTLINE OF ANALYSIS

This analysis consisted of identifying potential accidental release scenarios, a review of the facility's incident history to determine whether similar scenarios have occurred in the past, an evaluation of conditions at the facility and the controls the facility has in place to prevent such incidents from occurring, and the active and passive mitigation measures in place to limit or eliminate any off-site impact if an incident were to occur. This section includes a discussion of the safety infrastructure at the facility, and facility operating procedures pertaining to material identification and material handling practices.

2.0 POTENTIAL TYPES OF ACCIDENTAL RELEASES

2.1 ON-SITE SPILLS

The Romic facility is designed to contain any spills of hazardous materials that may occur as a result of its operations, within the facility itself. Tanks, containers and

processes are all located on or within concrete containment structures that are designed to contain a maximum spill or leak. There is a low probability of materials leaking from tanks or containers in storage, and a higher potential for spills or leaks from transfer operations.

2.1.1 Storage Areas

Tank storage areas are all within walled concrete containment structures. The tanks, and their piping systems, are inspected daily for signs of leaks or deterioration. Every two years they undergo tank thickness testing to assure they meet specifications. It is unlikely that a leak of a tank or piping would produce a significant spill. Any leaked material would be contained within the concrete structure, and will be pumped out to another tank or container.

Container storage areas are all within bermed concrete structures. It is unlikely that a leak from a container would result in a significant spill. All container storage areas are inspected weekly for signs of leaks or deterioration of the individual containers. Leaks are immediately cleaned up, and the leaking container is either over packed as-is into another container, or the contents are transferred to another container. Most of the containers are standard Department of Transportation (DOT) 55 gallon drums. There are some larger totes, and smaller containers also in the storage areas.

Romic does not receive waste in railcars. The railcars arrive empty. Romic blends fuels and wastewaters into the railcars, and ships them once they become full. For security, the railcars are parked inside the Romic fence on a rail spur. The three railcars in the loading positions are located on a rail containment structure made of steel and concrete, designed to hold the maximum contents of a railcar plus rainfall accumulation. Railcars are filled from the top, so the bottom railcar valves are sealed closed to prevent accidental release. The railcars undergo periodic DOT inspections, and are inspected by facility personnel in accordance with DOT procedures prior to shipment. It is unlikely that there would be a leak from a railcar.

2.1.2 Distillation

Distillation areas are all within walled concrete containment structures. The process tanks, equipment and piping systems are inspected daily for signs of leaks or deterioration. Tanks undergo tank thickness testing to assure they meet specifications. It is unlikely that a leak of a tank or piping would produce a significant spill. Any leaked material would be contained within the concrete structures, and is pumped out to another tank or container, or absorbed with absorbent upon discovery. Distillation processes are done in batches, under the attention of an operator.

2.1.3 Transfer Operations

Tank transfers from tanks to tanker trucks or from tanker trucks to tanks, have the highest potential for spills, and are managed accordingly. There are measures in place to prevent

spills, and to contain any spills that may occur. All tank transfers occur on concrete containment pads, and transfer operators must stand-by and attend to the transfer until it is complete. Truck transfer hoses are connected from the trucks to contained manual switching stations located within walled concrete containment areas. The west driveway, where tanker trucks unload waste materials, has a drive-over concrete containment berm that can hold the contents of three tanker trucks. Blind sumps are provided in each containment area to facilitate pump out to a tank or container in the event of a spill. All tank transfers are manually initiated, and the level in the receiving tank or tanker is verified manually prior to each transfer to assure there is enough capacity to receive the entire transfer. Any small spills, drips or leaks as a result of a transfer are immediately cleaned up by the operator with absorbent.

Truck unloading occurs on a concrete containment pad. Transfer of containers to and from trucks has a potential for a spill if a container is in poor condition or not closed properly. Most arriving containers are in sound condition and are properly closed. Containers are inspected prior to unloading from trucks. Loose closures are tightened before moving containers. If an unsound or leaking container is discovered on the truck, it is immediately over packed. Drums are moved by forklifts equipped with drum pickers. In the event of a spill, any spilled material is quickly contained and cleaned up with absorbent; there are several absorbent stations in the area.

Railcar loading is done in batches by use of a yard tanker. Drums and totes are placed within the concrete rail containment area, and are suctioned out quickly by use of the yard tanker under vacuum. Once the drums are emptied, the yard tanker is then pressurized to transfer its contents to the railcar. Transfer is done by a manually placed, stingered tanker hose into the top of the rail car. The stinger extends to the bottom of the rail car, thus accomplishing a submerged, bottom fill from the top of the railcar. This also prevents spills. The operator measures the freeboard in the railcar prior to each transfer to assure there is enough empty volume in the rail car to receive the transfer without exceeding the DOT-required freeboard. As the railcar approaches its fill level, the freeboard is also measured at the end of each transfer. The strict freeboard requirement eliminates the potential of a railcar overfill.

2.2 OFF-SITE SPILLS

The Romic facility is designed to contain, within the facility itself, any spills of hazardous materials that may occur as a result of its operations. Therefore, an offsite spill or release of liquids from site operations is unlikely. The containment areas for tanks, containers and rail cars are adequately sized to contain a maximum spill or leak, and the driveway berm contains 15,000 gallons, which is equivalent to the contents of 3 tanker trucks.

An offsite spill most likely would involve a transportation incident on Allison Road at a Romic driveway as the result of a collision of another vehicle with a loaded tanker truck. Romic has the capability to quickly offload material from one tanker truck to another at the facility, and would be able to quickly contain and clean up such a spill.

An unlikely scenario, possibly resulting in an offsite release, would be if a full firewater flow of 1000 gallons per minute (gpm) from a broken sprinkler main overflowed a containment structure, and a tank in the containment structure leaked at the same time.

2.3 EXPLOSIONS

Romic is not permitted to accept explosive materials, or reactive materials in D003 subclassifications 6, 7 or 8. Because there are no explosive materials present at the facility, and all of the operations take place at atmospheric pressure or under vacuum, the likelihood of an explosion occurring at the facility is very small.

Before a waste is scheduled to be delivered to the facility, the generator provides specific information to Romic in the form of a profile. The physical description of the waste, information on the generation of the waste, and the DOT hazardous material information provided by the generator are reviewed by Romic's technical personnel to assure the material is not explosive, and is compatible with Romic's storage capabilities. A representative sample of the waste for Romic's laboratory to analyze is sent with the initial profile application to enable Romic to verify the waste's properties.

When the waste arrives at Romic, the shipping papers and the waste container labels are inspected to assure they match, and are materials Romic is permitted to accept. Each incoming waste is sampled and verified to the profile by lab analysis. These checks are in place to assure that Romic does not accept any explosives, or other wastes it is not permitted to accept.

2.3.1 Storage

Chemicals are stored in tanks and containers at atmospheric pressure and ambient temperatures. All of the tank and container storage areas are contained by concrete structures, and are under roofs to prevent heating by direct sun. Aqueous film-forming foam (AFFF)/water sprinklers are installed under the roofs of each storage area. All storage tanks are equipped with conservation vents to avoid pressurization. Containerized wastes are stored in properly closed DOT shipping containers. Incompatible materials are segregated by area, separated by secondary containment (lab packs) or are placed on separate spill containment pallets by hazard class. Each tank farm is inspected daily, and each container storage area is inspected weekly for signs of leaks or container deterioration.

2.3.2 Distillation

Distillation is accomplished by non-contact steam heating the waste to its boiling point under a vacuum or at atmospheric pressure. Pressure cannot build up in the distillation units, because they are vented through the vacuum pumps to the air pollution control unit, which vents to the atmosphere. Distillation can be stopped or paused in mid-run simply by cutting off the steam supply to the heat exchangers, which heat up the liquid waste to its boiling point. The distillation units cannot be overheated, because the maximum

steam temperature of the 150 psi steam is approximately 300 degrees F. There is no other heat source to the distillation units.

2.3.3 Boiler

There are no waste combustion or incineration units at Romic. The steam boiler, fired by natural gas, is the only combustion unit of any type (excluding mobile trucks and forklifts) at the Romic facility. The boiler is regularly maintained in accordance with its Preventive Maintenance (PM) schedule, and is inspected annually by a certified boiler inspector.

2.3.4 Other Processes

All other waste processing is performed at ambient temperatures and atmospheric pressure. All areas where flammable liquids are stored and handled are designed with explosion-proof or intrinsically safe equipment, and are provided with grounding cables. Proper grounding procedures for solvent transfers, and use of non-sparking tools are implemented to avoid the generation of sparks.

2.4 FIRE

Because the Romic facility handles and processes flammable liquids and solids, there is a potential for fire. This potential is minimized by systems, tools and procedures designed and utilized to minimize the possibility of ignition. All of the process and storage areas are protected by an AFFF foam/water sprinkler system that activates automatically.

2.4.1 Container Operations and Storage

Flammable liquids enter the facility either in bulk by tanker truck, or in individual DOT shipping containers. Flammable solids enter the facility in individual DOT shipping containers. All containers remain closed in storage. The only time a container is opened is for sampling or consolidation, after which it is again closed tightly for storage. Non-sparking tools are used to open and close the containers, and make any transfers. Containers are also opened for the "mucking" process where any remaining non-pumpable residues are scraped from the container and consolidated into another container prior to crushing. This is done in a contained area, under sprinklers, with non-sparking tools. There is little potential for fire from this operation.

2.4.2 Bulk Transfer

Bulk flammable liquids are first tested in the lab for compatibility with tank contents before adding them to designated tanks or the rail cars. This precaution verifies that tank or railcar contents do not react with the material to be added. Transfers are not initiated until lab verification is received by operations personnel. Transfers are accomplished pneumatically via tanker truck, or by air-driven pumps. Grounding cables are utilized during transfers, thus minimizing any potential of fire from this operation.

2.4.3 Consolidation

Containerized flammable liquids are also consolidated into tanks or rail cars by pumping with air-driven pumps, or suctioning by vacuum tanker truck. All incoming wastes are first tested by the laboratory to verify that they match their profiles. Wastes with similar properties may be consolidated or bulked together for onsite treatment or offsite disposal. Sampling of the intermediate consolidation (such as wastes collected in a tanker truck or tote) and the receiving tank or rail car is done so the lab can verify that the consolidated wastes are compatible with the waste in the tank or rail car intended to receive it. Grounding cables are utilized during transfers, thus minimizing any potential of fire from this operation.

2.4.4 Lab Pack Consolidation

Small quantities of liquid or solid flammable wastes from lab packs are carefully consolidated into larger containers as appropriate. The lab packs are segregated by hazard class at the point of origin, and are accompanied by an inventory list of each item in the lab pack container. The paperwork is reviewed by technically knowledgeable personnel to assure that all items are compatible prior to beginning consolidation. As an added precaution, only a small amount of a material is first added to material already in a 55 gallon consolidation container. The addition is observed for any reaction before any more material is added. Lab pack consolidations take place in a roofed, concrete-contained area, under sprinklers, in 55 gallon drums on spill containment pallets. There is a slight potential for fire if a material reacts unexpectedly. Personnel performing this operation have all received HAZWOPER training, are trained in incipient fire fighting procedures, and have fire extinguishers nearby. The small amount of waste involved in lab pack consolidation (maximum 55 gallons) and the isolation of the operation from other processes and storage areas mitigate the potential impact of a fire from this operation.

2.4.5 Distillation

Distillation of flammable liquids takes place by individual batch, within roofed concrete containment areas, under sprinklers. Heat for distillation is supplied by 150 psi steam from a natural gas-fired boiler located in another area. The steam is used in a heat exchanger, and does not directly contact the liquid. Dirty liquid is heated to its boiling point by circulating it through the heat exchanger. Boiling allows clean vapor to separate from the dirty liquid, and the vapor exits the dirty liquid section of the unit. Clean vapor then travels to a condenser, where non-contact cooling water cools it back to a liquid, and is collected in another part of the distillation unit. Any flammable vapors generated during distillation are contained within the unit, and are condensed as liquid product within the unit. Process vents are directed to a volatile organic compound (VOC) reduction unit, which removes any remaining VOC from the vent stream before it enters the atmosphere. Since the distillation units are run under vacuum or at atmospheric pressure, at a maximum temperature of approximately 300 degrees F, and virtually all of

the VOC is removed from the vent stream prior to exit to the atmosphere, there is little potential for fire from this operation.

2.4.6 Boiler

The natural gas-fired, 150 psi steam boiler is the only combustion unit at the Romic facility, and is the only user of natural gas. It is located in a separate area in the southwest corner of the facility, away from the storage and processing areas. There are no waste combustion or incineration units at Romic. Since the boiler is regularly serviced and inspected, there is little potential for fire from this source.

2.4.7 Roll-off Bins

Roll-off bins are used to contain bulkier or large size solid waste materials such as scrap metal or plastic, debris, empty containers, soil, and decommissioned equipment from customers. The wastes are segregated in bins by type and compatibility. The bins are parked on the concrete containment area adjacent to the rail spur, covered when not in active use, and are marked with National Fire Protection Association (NFPA) standard 704 hazard identification diamonds and waste labels to indicate the contents. The number of roll-off bins onsite at any time varies in accordance with customer shipments of bulky waste, but there is at least one bin for cut-up poly drums always present. Flammable materials are not stored in rolloff bins. For the most part, the materials in these bins are not combustible, but there are a few wastes with combustible components, such as absorbents from spill clean up that contain oils or combustible solvents. Proper segregation of wastes is used to prevent interaction of incompatible waste materials. There is a slight potential of fire if a combustible material reacts unexpectedly with residues of other materials that may be on the items in the bin. To assure that wastes are properly segregated, all additions to roll-off bins require supervisor approval. The bins are isolated from process and storage areas, and are protected by an AFFF fire-fighting foam canon.

As indicated above, operations with a potential of fire are isolated from other operations, and procedures and equipment are utilized to prevent fires from occurring. The facility is equipped with an automatic foam/sprinkler system that covers all the storage tanks and warehouses, and a foam canon that covers the rail siding and roll-off bins. These emergency systems can automatically control a fire until the Fire Department arrives. By activating any of these systems, the Fire Department is automatically summoned by the fire system service contractor that continuously monitors the systems.

3.0 ACCIDENTAL RELEASE SCENARIO EVALUATION

3.1 SITE HISTORY OF ACCIDENTAL RELEASE

3.2 ON-SITE SPILLS

The Romic facility is designed to minimize and contain spills of the various liquids it manages. No spills of hazardous or non-hazardous wastes have resulted in a release to the environment outside of containment areas designed to collect and contain such spills. Spill kits and tools are located throughout the facility in areas where there is a potential for a spill or leak, thus facilitating quick cleanup. Romic's incident reporting procedure requires that all spills be immediately cleaned up and reported to a supervisor, and that all spills of a gallon or more be formally reported to the Safety Committee on an incident report form.

Records indicate that there were a total of 39 spills during the two year period of 2004-2005. Spills as small as 100 ml were reported. Most of the spills resulted from drum handling or clearing clogged hoses, with small releases of liquids. Three of the spills were large spills of non-hazardous waste materials, 1000, 1200 and 2700 gallons, into containment areas designed for such events. All of the large spills were the result of a combination of equipment failure and operator error. There were no large spills of hazardous waste during this time period.

3.3 OFF-SITE SPILLS

There has never been an off-site spill at the Romic facility.

3.4 EXPLOSIONS

There has never been an explosion at the Romic facility.

3.5 FIRE

There have been two fires at the Romic facility, both confined to roll-off bins.

The first fire, in May 1996, involved a 40-foot end dump trailer fully loaded with solvent rags and debris that spontaneously combusted on a hot afternoon. Approximately 2500 gallons of foam and water that were used to put out the fire were contained in the concrete containment area where the trailer was parked. It was pumped to a tank for treatment. No environmental or health impact resulted from the incident.

As a result of the fire, the facility no longer used end dump trailers, and instituted additional procedures to segregate solvent- and oil-soaked rags and absorbents from other types of debris materials.

The second fire, in June of 2004, involved a 25 cubic yard roll-off bin partly full of debris materials to which absorbent that contained wood stain was added in error. The wood stain reacted with residues of other chemicals in the bin, generating thin smoke. When the cover was opened to investigate the source of the smoke, flames started. The 400 gallons of water that were used to put out the fire were collected from the containment area where the bin was parked, and were put into totes for offsite treatment. No environmental or health impact resulted from this incident.

As a result of this incident, the operator was discharged for not following specific instructions and not notifying the supervisor of his mistake. All operators were retrained on operating procedures for consolidations, notification, and incident reporting. Also, large NFPA hazard diamonds are placed on each roll-off bin in addition to the generator and waste labels.

3.6 OTHER RELEASES OFF-SITE

There have been two releases from unintended reactions that resulted in vapors drifting from the facility. In both of these instances, vapors dissipated rapidly, and did not cause any measurable harm to human health or the environment.

4.0 ACTIVE PROCESS SAFETY SYSTEMS

4.1 FIRE PROTECTION SYSTEM

The entire process and storage portion of the facility is automatically protected by an AFFF foam/water sprinkler system that is continuously monitored by a contracted service. The service electronically monitors for flow in all parts of the system, 24 hours per day, seven days per week. If sprinkler flow is detected, the service contacts the fire department and designated facility personnel.

The system consists of four foam/firewater riser sections servicing all of the tank farms, process areas and warehouses, and one water-only riser for the laboratory building. Romic's firewater pump supplies 1000 gpm of firewater flow, up to a maximum of 1500 gpm. An 800 gallon foam tank supplies AFFF foam to the firewater risers. If the foam tank is emptied during an emergency, the sprinklers continue to deliver firewater until the risers, or the firewater main, are shut off. Firewater supply is obtained in an eight inch main from the Lone Butte Industrial Park water system, which has 1.6 million gallons of water storage capacity from its wells. There are three Lone Butte fire hydrants located in close proximity to the Romic facility.

In addition to the fire sprinklers, there is a manually activated, automatically deployed foam canon that covers the entire rail containment and active rail spur areas with a blanket of foam. It can be held in one position, if necessary, to aim at a specific target. The foam canon is part of the sprinkler system, and utilizes the same AFFF foam supply and firewater pump as the sprinklers.

Throughout the facility, there are approximately 35, 30 pound (lb) hand-held fire extinguishers. There are also two portable, twin agent (AFFF and potassium bicarbonate) firefighting system units and two wheeled 300 lb. fire extinguishers available in the central area of the facility.