Attachment 1: Prioritization of Existing Products as of 2014

During the second and third quarters of 2014 ASHTA put a process in place to prioritize products to identify those products that require a more detailed evaluation, assessment, and risk management controls, and that require additional data and information gathering. In keeping with the ACC RC Product Safety Code, ASHTA applied a science- and risk-based approach, considering hazard, intended uses and exposure potential to not only trained industry work force, but the impact on the general public from use, misuse, transportation incidents and security risks, when prioritizing the products.

The company's criteria were applied uniformly to all current products and incorporated relevant, credible current regulation and scientific advances deemed to be RAGAGEP as captured in regulatory or non-governmental standards. Web searches were performed to consider any significant new information to ensure that prioritization decisions were current. Critical nationwide and industry wide initiatives such as the ongoing TSCA inventory proposals, and chemical security initiates were weighed heavily as valid indicators of the potential impact of ASHTA products on the safety and well-being of public stakeholders.

The results of the review of recognized regulatory and statutory standards are summarized in Table 1 below. The first column reflects the level of concern shown by the Department of Homeland Security through their implementation of the Chemical Facility Anti-Terrorist Standard. Only those chemical substances with the ability to produce widespread impact in the form of public casualties are deemed to be Chemicals of Interest (COI). As is noted below both Chlorine and Chloropicrin meet those criteria and are controlled. The specific issues and scenarios involved are not presented here due to regulatory Chemical Vulnerability Information (CVI) control issues but are available for review in the site's current Site Vulnerability Assessment (SVA) for personnel with the appropriate CVI clearance and a valid need to know.

The second column similarly reflects the concerns of widespread casualties due to theft or diversion as regulated by the Transportation Safety Administration (TSA) and reflects those chemicals produced by ASHTA that require chain of custody control and documentation, real time location reporting, and continuous physical security. TSA deems those materials to be Rail Security Sensitive Materials (RSSM) and that includes our current products Chlorine and Chloropicrin.

Of the many toxic chemicals utilized in industry some are deemed to be so toxic as to have levels of concentration that are considered to be Immediately Dangerous to Life and Health (IDLH). Those levels are determined through testing. The values representing IDLH concentrations as published by the internationally recognized National Institute for Occupational Safety and Health (NIOSH) are shown in column three.

In addition to the relative amount of the product required to produce an IDLH atmosphere, the rate at which the product actually releases also affects the impact on the public and the environment. This is especially on point as one product, chlorine, is a pressurized liquid as shipped, and two products, Chloropicrin and Hydrochloric acid are fuming liquids that vaporize into the air. A RAGAGEP source for evaluating these affects is the guidance in the Emergency Response Guidebook (edition 2012) published by the U.S. Department of Transportation in conjunction with the Canadian Department of Transportation. Chemicals with the most severe rates of vaporization require prompt action to establish initial isolation and protective distances form the spill. Those chemicals requiring these special steps and the required responses are captured in Tables 1 & 3 of the Guide. The fourth column of Table 1 indicates those chemicals that meet those criteria.
Finally, the new universally recognized Global Harmonization System (GHS) attempts to quantify the risk of acutely toxic chemicals through a tiering system with 1 as the most toxic and 4 as the least (of the

acutely toxic substances). The fifth column shows that two of our products are Acute 1, the most toxic, and two Acute 4 of lesser toxicity. The remaining products are toxicity only at very close quarters requiring immersion, ingestions, or direct contact.

Table 1: Product Prioritization by Regulatory Categories

	CFATS COI	TSA RSSM	NIOSH IDLH	E Resp Tables	GHS Toxicity
Chlorine (liquid)	Yes	Yes	10 ppm	Yes	Acute 1
Chloropicrin (liquid)	Yes	Yes	2 ppm	Yes	Acute 1
Hydrochloric Acid	No	No	50 ppm	No	Acute 4
Liquid Potassium Hydroxide	No	No	N/A	No	Acute 4
Anhydrous Potassium hydroxide (flake & walnut)	No	No	N/A	No	Oral/contact
Potassium Hydroxide/ Carbonate blends	No	No	N/A	No	Oral/contact
Liquid Potassium Carbonate	No	No	N/A	No	Oral/contact
Anhydrous potassium carbonate	No	No	N/A	No	Oral/contact

Additional review was conducted form a qualified worker perspective with regard to allowed work place exposure and transportation hazards. This review was conducted to ensure that event though the impact on the public and environment were paramount, that there was not a hidden occupational hazard for plant workers, supply chain personnel, or transportation operators that should cause a further review.

Table 2 summarizes those additional findings using RAGAGEP health classifications. OSHA PELs refer to the permissible exposure limits as defined by the U. S. Occupational Health Administration. NIOSH PELs refer the same limits as defined by the National Institute for Occupational Safety and Health. The third column has the health ratings as defined by the National Fire Protection Association pamphlet NFPA 704: Standard System for the Identification of the Hazards of Materials for Emergency Response. The fourth column is the toxic hazard rating as proscribed in the Hazardous Materials Identification System (HMIS). This system originally developed by the American Coatings Association (ACA) is also recognized nationally as RAGAGEP. The final column of Table 2 reflects the U. S. Department of Transportation (DOT) Hazard Classification.

Table 2: Product Prioritization by Health Classifications

	OSHA PELs	NIOSH PEL	NFPA health rating	HMIS Health rating	US DOT Hazard class
Chlorine (liquid)	1 ppm	0.5 ppm	3	3	2.3
Chloropicrin (liquid)	0.1 ppm	0.1 ppm	4	4*	6.1
Hydrochloric Acid	5 ppm	5 ppm	3	3	8
Liquid Potassium Hydroxide	none listed	2mg/m3	3	3	8
Anhydrous Potassium hydroxide (flake & walnut)	vacated	2mg/m3	3	3	8
Potassium Hydroxide/ Carbonate blends	none listed	none listed	4	4	8
Liquid Potassium Carbonate	none listed	none listed	2	3	8
Anhydrous potassium carbonate	None listed	None listed	2	3	*None listed*

* indicates chronic health hazard

In summary, the three vaporizing liquids, Chlorine, Chloropicrin and Hydrochloric Acid have approximately the same impact in the workforce as shown in Table 2. However, as Table 1 shows the potential impact on the public of misuse or accidental release are vastly greater for Chlorine and Chloropicrin. Therefore, at this time in 2014, ASHTA has determined through this risk based approach that Chlorine and Chloropicrin are the higher priority and higher risk products deserving of more detailed evaluation, assessment, and risk management controls.

The company's criteria will continue to be applied uniformly to all products currently screened and new products or methods proposed through the existing Management of Change process. An annual review will be conducted concurrent with the existing scheduled Process Product Control Plan (PPCP) reviews to provide a structured opportunity to review and assess any new industry information. In order to support the ongoing incorporation of relevant, credible scientific advances and have access to significant new information to support prioritization decisions remaining current, ASHTA will continue to support and interact with critical Industry groups and organizations. At this time those organizations include:

The Chlorine Institute including support of the "Jack Rabbit" series of peer reviewed chlorine release testing, participation on relevant issue teams, and assessing the ongoing upgrade of pamphlets in support of mission chemicals.

The American Chemistry Council with participation in its workshops, industry information notifications, and its peer to peer information exchanges.

The Chloropicrin Manufacturer's Task Force (CMTF) and its support of testing and studies and the gathering and analysis of relevant information on the affects, uses, applications, and potential issues of the chemical.

Attachment 2: Risk Tiering and Resulting Actions

Product Risk Based Tiering:

Higher risk *(priority) products*:	Chlorine Chloropicrin (Raw Material of Risk: Nitromethane)
Remaining tiered products:	Hydrochloric Acid Potassium Hydroxide (Caustic Potash) Liquid Potassium Hydroxide (Caustic Potash) Dry/ Anhydrous Potassium Carbonate) Liquid Potassium Carbonate) Liquid Potassium Hydroxide / Potassium Carbonate Blends

Notes:

For the higher risk products, the characterization is based significantly on public impact from transportation issues, theft, or diversion. For that reason, critical actions requiring implementation include additional review and evaluation of those distributors who will handle higher risk products and the establishment of a process for the approval and review of customers of high risk product. SOP MSD-D06 establishes that process and criteria.

Ongoing Required Actions:

-BDSC review of Product Quality AND SAFETY at least annually.
-Manager EH&S will report to the management team through the periodic Operations Review Meeting any events occurring industry wide that reflect on the safety or stewardship of ASHTA's products or similar products.
-ASHTA will remain a member of the Chlorine Institute, American Chemistry Council, Chloropicrin Manufactures' Task Force and Ohio Chemistry Council to stay barest of industry issues that could affect Product safety and stewardship.
-Amend the PM for periodic PPCP review to include a simultaneous safety review of the products in question.

Attachment 3: Risk Characterization of Priority Products

The priority products were defined by the prioritization analysis defined and documented in Attachment 1. The resulting risk tiering is documented in Attachment 2. This attachment documents the detailed risk characterizations for the priority products in accordance with American Chemistry Council (ACC) guidelines for Responsible Care® Product Safety Code to include a review of the five phases of the product, production, loading, transportation, unloading, and use. In addition, ASHTA evaluates the waste phase. This risk characterization focuses on the impact of exposure to the worker (production, transportation, distributor, end user) and general public in each of these phases with a special concern for potential exposure to children.

Priority Product: Chlorine

The production phase for chlorine manufactured by ASHTA Chemicals occurs at a single location in relatively rural Ashtabula County. That facility is an Occupational Health & Safety Administration (OSHA) Process Safety Management (PSM) regulated facility adhering to the ACC Process Safety Code. Those measures in place combined with the facility safety record as illustrated by both the regulatory required safety experience reporting and the onsite tracked key measure metrics indicates a strong protective environment for production worker safety. Active membership in the Chlorine Institute and its critical technical issue teams maintains the plant knowledge base current to evaluate plant processes and systems against the ongoing development of industry standards specific for this type of production. This active membership also ensures that the safety performance of the facility is compared and measured against the strongest performers in the specific function of chlor-alkali manufacturing regardless of company size or location. The processes in place on site stress employee participation and including a worker representative site safety committee.

In order to provide a safe environment to the surrounding community including the general public and especially the children, this facility in here strictly to Environmental Protection Agency Risk Management Planning (RMP) regulations, and supports with community Right to Know. Many of the same measures taken onsite to ensure worker safety under the PSM regulations also have the effect of minimizing the probability and mitigating the consequence of the toxic chemical release date could have impact to the surrounding community. This chemical has excellent warning properties at nontoxic concentrations. The potential release scenarios have been evaluated through site vulnerability assessments and are confirmed to be bounded by original RMP “worst case” scenario calculations. These have been shared with a local community, and are used as the basis for onsite training and combined onsite and off-site exercises. This facility also works with the neighboring chemical plants to create a strong preplanned basis for mutual aid in the event of a toxic chemical release. The facility has consistent representation with both the Local Emergency Planning Commission (LEPC), and the Community Action Panel (CAP). The facility conducts onsite emergency response drills, and emergency release mitigation training. Local emergency response teams are frequently invited and included in this training to enhance better coordination during an actual event. A large emphasis is placed with the LEPC to ensure the capacity for adequate warning, shelter in place, and evacuation in the event of a release. The site actively engages local emergency response teams and their support including the local fire department, county sheriff, local hospital, and the local government representatives, the township trustees. As a result of this community interaction and frequent drilling, local emergency response teams are sensitive to the location of nearby schools, commercial activities, and facilities that have a high potential to have children present. These are prioritized for alert, shelter and/or evacuation.

The loading phase of the chlorine product is tightly regulated and conducted in accordance with detailed Chlorine Institute(CI) guidelines, principally CI Pamphlet 66. Transportation of the liquid chlorine product is limited to rail traffic only. The loading to tank cars is conducted only on scale with automated shuttle off to prevent over loading. Emergency closure is provided in accordance with CI Pamphlet 57 to mitigate the consequences of inadvertent

railcar movement or loading hose rupture while in service. Preloading inspections of the railcar are conducted to address hazardous material safety concerns in accordance with Department of Transportation (DOT) and CI guidelines, and to mitigate security vulnerabilities in accordance with the requirements of the Department of Homeland Security (DHS) Chemical Facility Anti-Terrorist Standard (CFATS), the Transportation Security Administration (TSA) Rail Security Sensitive Material (RSSM) regulations. The two critical risk scenarios for this phase are an onsite leak with offsite impact, and the security scenario of a loaded RSSM car with a remotely triggerable device surreptitiously attached. ASHTA personnel are trained on the probability and the consequences of the scenarios and the appropriate actions to prevent deter and mitigate the consequences.

The transportation phase of the chlorine product lifecycle is tightly controlled. ASHTA transfers chlorine only through regulated rail service providers. The change of custody procedures are strictly adhered to and subject to frequent (more often than monthly) unannounced TSA inspections. Transportation events are monitored and tracked by the Distribution Manager in accordance with DOT and Federal Railroad Administration (FRA) requirements. Senior management is briefed on and reviews all abnormal events associated with the transportation of priority products. To limit the risk inherent in transportation ASHTA utilizes only DOT approved railcars. Continued active membership on the CI Transportation Issues Team provides the company a means to stay abreast of the latest industry developments in equipment, procedures and practices to ensure the safest possible transportation of the priority product to the end user. In the event of a mishap during transportation leading to a release of the priority product, planning, preparation and training has been provided by the Chlorine Institute through the CHLOREP initiative to ensure that the emergency response team leaders in each community along the transportation route have the necessary information and training. It is expected that the qualified local emergency response leaders will utilize Guide 124 "Gases – Toxic and/ or Corrosive – Oxidizing" and Table 1 "Initial Isolation and Protective Action Distance" from the DOT Emergency Response Guidebook to provide the warning sheltering and evacuation required to protect the general public and limit exposure to children. The CHEMTREC and CHLOREP organizations are in place specifically to provide support to the local community emergency response team leaders during such an event. ASHTA Chemicals takes the lead role as the CHLOREP leader for the multi-state regional area surrounding the Ashtabula facility. Despite these safeguards transportation events continue to be a possibility and the company supports the continued development of safer railcars, alternate transportation strategies, and the implementation of positive train control (PTC) by critical rail providers.

The unloading phase of this priority product lifecycle is also tightly controlled. This control is enforced by the implementation of procedure BDM 1.5 Product Safety Stewardship and Risk Assessment. This procedure in turn requires that priority products be distributed only through and sold only to facilities approved through the distribution department in accordance with procedure MSD – C06 "Evaluation and Approval of Customers/Distributors of Higher Risk Products. This process ensures that the unloading facility understands and is committed to adhering to the CI guidelines. Currently all entities unloading ASHTA's chlorine priority product are both Chlorine Institute members themselves, and practitioners of ACC Responsible Care®.

The principle use of the product has been in industrial applications. In some sales, the customer acts as a distributor repackaging the product for additional end users. In those cases, the product is bound by the user's final product registration, which has been evaluated through the approval process. As noted above the approval process required prior to allowing a customer or distributor to have access to priority product focuses on the implementation of safety and stewardship of that customer/distributor for the priority product. At this time, it is the policy of ASHTA Chemicals to only sell chlorine to fellow chlorine institute members who practice ACC Responsible Care®, and therefore product safety and stewardship with downstream end users. Because the product is fully used and absorbed in the manufacturing or cleansing process there is no waste and therefore no waste phase.

Priority Product: Chloropicrin

The production phase for chloropicrin manufacturing by ASHTA Chemicals occurs at a single location in relatively rural Ashtabula County. That facility is a Process Safety Management regulated facility adhering to the ACC Process Safety Code. That facility is a portion of the same chlor-alkali facility producing chlorine reviewed above. The attributes listed for chlorine manufacturing such as a facility safety record, the active membership in industry organizations and the strict adherence to PSM and RMP regulations and the support of right to know also apply. In addition to operating, constructing and maintaining this facility to meet the PSM requirements, portions of the Chloropicrin process are individually permitted for fugitive emission prevention and intentional controlled venting. The production (and the distribution and application) of the product are tightly regulated under Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Periodic inspection, evaluation and record keeping ensure that the criteria of these permits are met. Chloropicrin is not a mission chemical of the Chlorine Institute. Responsible and Generally Accepted Good Engineering Practices (RAGAGEP) is provided by information gained through active participation in the Chloropicrin Manufacturers' Task Force (CMTF). This group provides technical data, industry best practices, and emergency response guidelines to the member companies. Analysis of the chemical properties of chloropicrin including its evaporation rate and biological impact confirm that the effects of a major Chloropicrin release and the resulting offsite consequences are less severe than the worst case chlorine release scenario that has already been provided to the community. This same scenario is used as the basis for training onsite and offsite emergency responders. It is recognized that in the event of a Chloropicrin release there can be additional eye irritation, tearing and choking from this chemical over chlorine exposure, however the toxicity at these concentrations is the driving factor. Chloropicrin and the associated blend products have excellent warning properties. The unintended release of Chloropicrin has been the subject of table top and site wide emergency response exercises. Additional training has been conducted with the onsite emergency responders to stress the impact chloropicrin's additional chemical properties.

The loading phase of Chloropicrin is conducted in four separate ways. Railcars are loaded with Chloropicrin at both the rail car loading station and at the Telone© Blending facility. Loading at both of these closely located facilities is conducted by procedure in accordance with guidelines similar to those for loading a chlorine car using materials of construction consistent with the guidance of the Chloropicrin Manufacturers Task Force. Chloropicrin is also loaded into cylinders. Although at this time cylinders are not approved or utilized for offsite transportation of the product, there is temporary intermediate storage of a single cylinder onsite to facilitate bottling of the product in small (8 to 16 oz.) bottles. These bottles are utilized by building fumigators as a warning and deterrence agent while treating a structure. Cylinder loading includes safeguards such as scale control. Rail car loading is by volume with a post loading weight check. Chloropicrin is also directly piped to a blending station for where it is blended with a third party provided soil fumigant (Telone©) and returned to that third party for distribution. That party is an ACC member practicing Responsible Care® on the distribution of that product. The loading of the blended product occurs into railcars and trucks at the blending station with the appropriate safeguards and interlocks to prevent overloading. Analysis is performed to verify proper blend composition. This blending process also occurs in accordance with detailed procedures. For all of these processes potential leaks and unintended releases are limited by administrative controls through procedures, proper use of the correct materials of construction, and safeguards and interlocks associated with the blending process.

The transportation phase of the chloropicrin product lifecycle is controlled either as through regulated rail service providers or HAZMAT certified tank truck (chloropicrin fumigant blends) or packaged bottles in box trucks transporting under HAZMAT rules. For railcars the change of custody procedures are strictly adhered to and subject to frequent unannounced TSA inspections. Transportation events, rail or over the road are monitored and tracked by the Distribution Manager in accordance with DOT and Federal Railroad Administration (FRA) requirements. Senior management is briefed on and reviews all abnormal events associated with the transportation of priority products. When transporting by rail, to limit the risk inherent in transportation ASHTA utilizes only approved

railcars. Transportation to date by truck has been arranged by the third party fumigant provider and marketer under their ACC Responsible Care® practices. Should ASHTA distribute trucked material under our ACC Responsible Care® practices the carrier will be evaluated and approved in accordance with existing distribution procedures. The bottles are packaged in approved labeled and multilayered containment and protected packaging. Continued active membership on the CI Transportation Issues Team provides the company a means to stay abreast of the latest industry developments in equipment, procedures and practices to ensure the safest possible transportation of the priority product to the end user. In the event of a mishap during transportation leading to a release of the priority product, planning, preparation and training has been provided through the DOT Emergency Response Guidebook (Guide Number 165, Material ID1580. The information provided in the guide and the guidance included in Table 1 "Initial Isolation and Protective Action Distance" (the green section) are available to each community 's emergency response leaders. In addition, through the CHEMTREC organization further information and support can be provided to local emergency response team leaders in each community along the transportation route. It is expected that the qualified local emergency response leaders will utilize this information and placarding to provide the warning sheltering and evacuation required to protect the general public and limit exposure to children. The CHEMTREC organization is in in place specifically to provide support to the local community emergency response team leaders during such an event. ASHTA Chemicals maintains contact with CHEMTREC through the Manager EHS&Q and a qualified Duty Manager is assigned and available for communication 24 hours a day, 365 days a year to address this and other emergency issues. Despite these safeguards transportation events continue to be a possibility and the company supports the continued development of safer railcars, alternate transportation strategies, and the implementation of positive train control (PTC) by critical rail providers.

The unloading phase of this priority product lifecycle is also tightly controlled. This control is enforced by the implementation of procedure BDM 1.5 Product Safety Stewardship and Risk Assessment. This procedure in turn requires that priority products only be distributed through and sold to facilities approved through the distribution department in accordance with procedure MSD – C06 "Evaluation and Approval of Customers/Distributors of Higher Risk Products. This process ensures that the unloading facility understands and is committed to adhering to the ASHTA's requirements, and follows the FIFRA regulations. Because not all current entities unloading ASHTA's chloropicrin priority product are ACC members and practitioners of ACC Responsible Care®, the additional vetting of these facilities has had a high priority is progressing in advance of the ACC Product Safety Code target implementation dates.

The use of the product is as a soil fumigant under controlled conditions for application. In some sales, the customer acts as a distributor repackaging the product for additional end users. For this reason, ASHTA's surveying and site inspections have focused on the qualification verification, identification and certification of the final applicators by the distributor prior to dispensing the product. An additional risk to be addressed during these reviews is the scenario of the priority product being stolen and then used for unintended purposes. Site security of the facilities has been a large focus including business hours' security when the off hours' alarms are deactivated and otherwise locked gates are open for business.

As noted above the approval process required prior to allowing a customer or distributor to have access to priority product focuses on the implementation of safety and stewardship of that customer/distributor for the priority product. At this time is the policy of ASHTA Chemicals to only sell chloropicrin to fellow ACC members who practice Responsible Care®, or facilities that have had the full additional vetting to receive priority chemicals.

Because the product is fully used and absorbed in the soil as a cleansing or sterization process there is no waste phase. There is waste generated in the production phase and that is disposed on in accordance with Resource Conservation and Recovery Act (RCRA) regulations.