

Region 6 - Enforcement & Compliance Assurance Division
INSPECTION REPORT

Inspection Date(s):	August 30, 2022 – September 1, 2022	
Media Program:	Air	
Regulatory Program(s)	Clean Air Act Section 112(r) and 40 Code of Federal Regulations (C.F.R.) Part 68 Chemical Accident Prevention Provisions – Risk Management Program (RMP)	
Company Name:	Stolt-Nielsen Limited	
Facility Name:	Stolthaven Houston, Inc.	
Facility Physical Location:	15602 Jacintoport Boulevard	
(city, state, zip code)	Houston, Texas 77015	
Mailing address:	15602 Jacintoport Boulevard	
(city, state, zip code)	Houston, Texas 77015	
County/Parish:	Harris County	
Facility Phone Number	281.860.6800	
Facility Contact:	Donna Fleming, PSM/RMP Coordinator	281.860.6883
	D.Fleming@stolt.com	
RMP ID:	100000117456	
Identification/Permit Number:	Air Operating Permit ID: O-1060	
FRS:	110024271786	
NAICS:	49311 General Warehousing and Storage	
SIC:	N/A	
Personnel participating in inspection:		
Charese Simpson	EPA Region 6	Inspector
Tim Friday	Stolthaven Houston	SHVN SHEQ Environmental
Donna Fleming	Stolthaven Houston	PSM/RMP Coordinator
EPA Lead Inspector Signature/Date		10.18.2022
	Charese Simpson	Date
Supervisor Signature/Date		
	Samuel Tates	Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

I, United States Environmental Protection Agency (EPA) Region 6 Inspector Charese Simpson, arrived at the Stolthaven Houston, Inc. (Stolthaven) facility at 9:00 AM on Tuesday, August 30, 2022, for an announced inspection. I met with Tim Friday (SHVN SHEQ Environmental) for an opening meeting. I presented my credentials and informed Stolthaven personnel that this was an EPA inspection to determine compliance with the federal Chemical Accident Prevention Program. The scope of the inspection was a partial compliance evaluation (PCE), which included an evaluation of the facility's compliance with the Clean Air Act (CAA) Section 112(r)(1) & (7), the General Duty Clause and the Chemical Accident Prevention Provisions in 40 C.F.R. Part 68. Stolthaven's Risk Management Plan (RMP) is listed as a Program Level Three (3) and Program Level Two (2) facility. I inquired if an employee representative was available pursuant to Section 112(r)(6)(L) of the CAA to participate in this inspection and was informed that the Stolthaven is a non-union facility.

FACILITY DESCRIPTION

Stolthaven is located at 15602 Jacintoport Boulevard, Houston, Texas 77015. Stolthaven owns and operates a bulk liquids storage and distribution terminal located on the north side of the Houston Ship Channel near Channelview in eastern Harris County, Texas. The facility currently consists of 188 above-ground storage tanks that vary in capacity from 2,000-barrels up to 110,000-barrels, five truck loading/unloading racks, four rail car loading/unloading racks, one dedicated barge dock, a finger pier jetty equipped with two separate marine vessel berths for handling barges and ships, and a new jetty for handling barges and ships. Bulk liquid products are received into the Stolthaven Houston Terminal by various modes of transportation: cargo containers including tank trucks, tank containers, flexi-bags, rail tank cars, barges, and marine parcel tankers. The received liquid products are stored on-site according to customer-specified requirements and are subsequently transferred off-site through one or more of the above-referenced transportation modes. Stolthaven also performs direct product transfers between marine vessels and rail tank cars with no intermediate storage in the facility's above-ground storage tanks. Similarly, land-based intermodal ("IMO") transfers directly between tank trucks, ISO tank containers, flexi-bags, and rail tank cars are also performed routinely at the Stolthaven Houston Terminal. Note that Stolthaven does not perform any chemical processing or chemical manufacturing operations on-site.

Stolthaven's regulated process includes three (3) current Program Level Three RMP-Covered Processes: P-Tank Farm Vinyl Acetate Monomer (VAM), D-Tank Farm Toluene Diisocyanate (TDI), and the Isopentane and Isopentane/n-Pentane blend Intermodal Transfer. In addition, Stolthaven has one (1) Program Level Two RMP-Covered Unit: Acrylonitrile Transfer Operations. Stolthaven handles the following Risk Management Program substances separately: Isopentane (CAS# Number 78-78-4), Pentane Blends (CAS# Number 109-66-0), Acrylonitrile (CAS# Number 107-13-1). In addition, Stolthaven handles two regulated toxic chemicals under the Risk Management Program: Toluene diisocyanate (unspecified isomer) [Benzene, 1,3-diisocyanatomethyl-] (CAS# 26471-62-5) and Vinyl acetate monomer [Acetic acid ethenyl ester] (CAS# 108-05-4).

Stolthaven has approximately 150 full-time employees that work at the site, in addition to the independent contractors that work at the plant.

Section II – OBSERVATIONS

On Wednesday, August 31, 2022, I was accompanied by Tim Friday (SHVN SHEQ Environmental) to conduct a tour of the site. I observed the covered processes, emergency equipment, and control room. Stolthaven's operators are able to access standard operating procedures (SOPs) electronically. In addition, I asked operators questions about their Management of Change (MOC) process and how to access an MOC when a change is made. Prior to the tour, I was provided with piping and instrumentation diagrams (P&IDs) of the process unit that assisted in the tour.

Subpart A – General

40 C.F.R. § 68.10 Applicability – Stolthaven is a Title V stationary source that has an air operating permit and more than threshold quantities of regulated substances (toxic and flammable) in its process streams; therefore, these regulations are applicable. Stolthaven is subject to the Occupational Safety and Health Administration (OSHA) process safety management (PSM) standard, 29 C.F.R. § 1910.119, and has 3, Program Level 3 processes and 1, Program Level 2 process under OSHA PSM.

40 C.F.R. § 68.12 General Requirements– I reviewed Stolthaven's RMP registration submitted on December 22, 2020. It listed the toxic and flammable chemicals for its Program 2 and 3 processes.

40 C.F.R. § 68.15 Management – Stolthaven developed a management system to oversee the implementation of risk management program elements, documented persons responsible for implementing the individual requirements of the risk management program, and defined the lines of authority using its RMP Management Organizational Chart, which lists responsibilities.

Subpart B – Hazard Assessment

40 C.F.R. § 68.20 Applicability – Stolthaven has 3, Program Level 3 processes and 1, Program Level 2 process subject to this subpart. Stolthaven is required to prepare an off-site consequence analysis and complete the five-year accident history.

40 C.F.R. § 68.22 Off-Site Consequence Analysis Parameters – Stolthaven used parameters required in this part to calculate flammable worst-case and alternative release scenarios. Stolthaven used Toxicity/Dispersion Models (DEGADIS and AFTOX), flammability models, and BREEZE Incident Analyst as the technique for modeling the release scenarios. For both the worst-case and alternative case scenarios involving flammables, the facility used the endpoints provided in Appendix A of 40 C.F.R. Part 68, appropriate wind speeds and stability classes, ambient temperatures and humidity values, values for height of the release, and surface roughness values for the release scenario analyses.

40 C.F.R. § 68.25 Worse-Case Release Scenario Analysis – During the inspection, I reviewed documentation from Stolthaven regarding the worst-case release scenario analysis for their flammable process. This analysis used the Toxicity/Dispersion Models (DEGADIS and AFTOX) and Flammability models within the BREEZE Incident Analyst, which is a dispersion modeling suite that includes toxic dispersion, fire, and explosion models. Stolthaven analyzed and reported in the RMP their worst-case release scenario, estimated to create the greatest distance to endpoint, and resulting from an accidental release of a regulated flammable substance from a covered process under worst-case conditions. The worst-case release quantity was determined by the greatest amount held in a single vessel, considering administrative controls that limit the maximum quantity released.

40 C.F.R. § 68.28 Alternative Release Scenario Analysis – Stolthaven identified and documented the alternative release scenario to represent all flammable substances held in a covered process, using a scenario that is likely to occur. Stolthaven utilizes the Toxicity/Dispersion Models (DEGADIS and AFTOX) and Flammability models within the BREEZE Incident Analyst. They maintain aerial photos showing the alternative release scenario endpoint distance radius and a circle centered on the approximate location of the unit that is considered in the alternative release scenario; therefore, meeting the requirements of the regulation.

40 C.F.R. § 68.30 Defining Off-Site Impacts - Population – Stolthaven used the most current (2010) Census Bureau population data and the distances to endpoints, as specified in the regulation, to calculate the population numbers reported in their RMP. In addition, Stolthaven utilizes the MARPLOT software to define the affected off-site population.

40 C.F.R. § 68.33 Defining Off-Site Impacts - Environment – Stolthaven identified environmental receptors in the distance to the endpoint or in the vicinity of the facility, as appropriate, in the area maps used for the modeling.

40 C.F.R. § 68.36 Review and Update – Stolthaven reviewed and updated the off-site consequence analyses at least once every five years, as required by this subpart.

40 C.F.R. § 68.39 Documentation – Stolthaven maintained records of the off-site consequence analyses, in accordance with this subpart. These records included:

- documentation of vessels or pipelines;
- substances selected for worse case and alternative release scenarios;
- documentation of estimated quantity released, release rate, and duration of release;
- methodology used to determine distance to endpoint; and,
- data used to estimate population and environmental receptors.

40 C.F.R. § 68.42 Five-year accident history – I reviewed Stolthaven's five-year accident history and OSHA 300 Logs from 2018 to present. I did not identify any accidental releases from the covered process that resulted in one or more of the following: on-site deaths, injuries, significant property damage on-site, known off-site deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage in its accident history.

Subpart D – Program 3 Prevention Program

40 C.F.R. § 68.65 Process Safety Information – Stolthaven compiled written process safety information, which includes information pertaining to the hazards of the regulated substances used or produced by the process, information pertaining to the technology of the process, and information pertaining to the equipment in the process. Safety Data Sheets (SDSs) for the process chemicals were provided and detailed process safety information was provided that contains the following data for the hazards of the substances used: toxicity information, permissible exposure limits, physical data, reactivity data, corrosivity data, thermal and chemical stability data, and the hazardous effects of inadvertent mixing of materials that could foreseeably occur. I reviewed documentation concerning the technology of the process, which included a block flow diagram, process chemistry, maximum intended inventory, safe upper and lower limits for such items as: temperatures, pressures, flows or compositions, and an evaluation of the consequences of deviation for each covered process. I reviewed documentation

pertaining to the equipment of the process, including materials of construction, piping and instrumentation diagrams (P&IDs), electrical classification, relief system design and design basis, ventilation system design, design codes and standards employed, material and energy balances, and safety systems.

40 C.F.R. § 68.67 Process hazard analysis (PHA) – I reviewed Stolthaven’s PHA procedure. Stolthaven performed PHAs that identified, evaluated, and controlled the hazards involved in the processes. The facility completes each PHA based on the five-year cycle from the previous PHA. Stolthaven conducts PHAs using the Hazard and Operability Study (HAZOP) methodology but may supplement with the “What-if” checklist methodology.

Each PHA I reviewed addressed the hazards of the process and included: identification of any incident that had a likely potential for catastrophic consequences; engineering and administrative controls applicable to hazards and their interrelationships; consequences of failure of engineering and administrative controls; stationary source siting factors; human factors; and, an evaluation of a range of the possible safety and health effects of failed controls.

Stolthaven established a system, Kenexis Open PHA®, to track and promptly address the team’s findings and recommendations. Stolthaven failed to have a written schedule of when actions are to be completed. In addition, there were several open recommendations from the Site-Wide PHA from September 2020 and the Acrylonitrile Handling PHA from December 2020 that were not promptly addressed. **[AOC #1 - 40 C.F.R. § 68.67(e)]**

The PHAs were performed by a team with expertise in engineering and process operations. The team included appropriate personnel from Stolthaven and other contractors with knowledge of the facility and in the specific PHA methodology used.

40 C.F.R. § 68.69 Operating Procedures – Stolthaven developed and implemented written operating procedures that provide instructions or steps for conducting activities associated with each covered process, consistent with the safety information. The operating procedures EPA reviewed addressed: the steps for each operating phase (initial and normal startup, normal operations, temporary operations, emergency operation and shutdown, normal shutdown, and startup following a turnaround or after emergency shutdown); the consequences of deviation and mechanisms to correct and/or avoid deviation; safety and health considerations; the properties of, and hazards presented by, chemicals used in the process; the precautions necessary to prevent exposure; quality control for raw materials; and, the safety systems and their functions. The covered unit has a shared drive where operating procedures are stored electronically. In addition, hard copies of the operating procedures are kept in the control room and are accessible to process operators. During the inspection, I reviewed Stolthaven’s safe work procedures, including lock out/tag out procedures and confined space entry procedures. The company utilizes confined space and safe work permits, which are required prior to any contractor entering a confined space. Stolthaven is required to annually certify that operating procedures are current and accurate. Stolthaven provided operating procedure certifications from the years 2020-2022. The operating procedures are current and accurate.

40 C.F.R. § 68.71 Training – I reviewed Stolthaven’s training program procedure and employee training records. The facility’s training program ensured that each employee presently operating a covered process and each employee newly assigned to a covered process are trained or tested to qualify as competent in an overview of the process and in the operating procedures that pertain to their duties. In

addition, Stolthaven's operators must go through a training program, which includes the following: on-the-job training, testing process that is computer based, and a series of field demonstration tests. Newly hired employees must complete the following trainings: Houston Safety Council training, site specific safety videos, site environmental, health, and safety training, and security training. Compliance Wire is Stolthaven's online training system to house training documents including verification that operators understood the training. Stolthaven failed to ensure that operators are completing their refresher training. I randomly selected 5 employee's trainings to review. Out of the 5 chosen, 2 employees did not complete their PSM/RMP or First-Aid training (Table 1). **[AOC #2 - 40 C.F.R. § 68.71(b)]** According to Stolthaven's "Annual Training Matrix for FY2022", the First-Aid refresher training frequency is every two years and PSM/RMP training is every three years from the initial training.

Table 1.

Operator	Refresher Training & Frequency	Dates	Notes
Employee #1	PSM/RMP training (every 3 years)	Most recent refresher training: October 2020. Previous refresher training: February 2013.	No refresher training for 2016 or 2019. *Employee was one year late in taking refresher training in 2020 from 2019.
Employee #2	First-Aid training (every 2 years)	Most recent refresher training: 2022 Previous refresher training: January 2020	No record of First-Aid refresher training in 2018.

40 C.F.R. § 68.73 Mechanical Integrity – I reviewed the written procedures Stolthaven established and implemented to maintain the ongoing integrity of its process equipment. I spoke with Stolthaven's Maintenance Manager who explained the facility's mechanical integrity program and procedures. I reviewed Stolthaven's inspection records for RMP covered equipment.

Stolthaven uses a third-party contractor (Rosen), who conducts Stolthaven's mechanical integrity inspection and testing. Third-party contractors are used to perform API 653 and 570 tank and pipeline inspections, respectively. In-house personnel perform other mechanical integrity tasks at the facility. Stolthaven houses records of scheduled, completed, and future inspections, preventative maintenance tasks, and mechanical integrity training. During the inspection, Stolthaven provided training records of personnel who are American Petroleum Institute (API) certified. I reviewed Stolthaven's ultrasonic thickness (UT) and external visual inspection reports for several Class 2 piping circuits. Stolthaven ensures that Class 2 piping circuits received UT and external visual inspections every five-years.

40 C.F.R. § 68.75 Management of Change (MOC) – I reviewed Stolthaven's MOC procedure. The written MOC procedure assured the facility managed changes to process chemicals, technology, equipment, procedures, and changes to stationary sources that effect a covered process. The procedure assured

that the following considerations were addressed prior to any change: technical basis for change, impact of change on safety and health, modifications to operating procedures, necessary time period for the change, and authorization requirements for a proposed change. At the time of the inspection, I reviewed several MOCs. Employees involved in operating a process and maintenance and contract employees whose job tasks will be affected by a change were trained prior to start up, according to the MOCs reviewed.

40 C.F.R. § 68.77 Pre-startup Safety Review (PSSR) – I reviewed Stolthaven’s selected pre-startup safety reviews for the associated MOCs. The PSSRs documented that, when the facility installed a new stationary source, or significantly modified an existing source, a review was conducted prior to the introduction of a regulated substance into the process, the construction and equipment design were completed in accordance with design specifications, and the required safety, operating, and maintenance and emergency procedures are in place, including training.

40 C.F.R. § 68.79 Compliance Audits – Stolthaven provided their most recent certified RMP Compliance Audits conducted in December 2016 and December 2019. Stolthaven has certified and completed a compliance audit every 3 years. Stolthaven is required to promptly determine and document an appropriate response to each of the findings of the compliance audit; however, Stolthaven failed to document those deficiencies were corrected promptly. **[AOC #3 - 40 C.F.R. § 68.79(d)]** Stolthaven has multiple findings from their 2016 and 2019 compliance audit that are still open. In addition, there is one repeat finding from their 2016 audit that is in their 2019 audit.

40 C.F.R. § 68.81 Incident Investigation – Stolthaven provided a list of all incident investigations that occurred within the past five years. Of those reviewed, the incident investigation team consisted of at least one person knowledgeable in the process involved. Stolthaven has an incident management standard work practice procedure for both near-miss and incident reporting. Stolthaven investigated each incident that resulted in, or could reasonably have resulted in, a catastrophic release of a regulated substance.

40 C.F.R. § 68.83 Employee Participation – Stolthaven developed a written plan of action regarding the implementation of the employee participation required by this section, which is integrated into the program elements. Stolthaven’s written plan describes how they consult with employees on the performance and development of process hazard analyses, and on the development of the other elements of process safety management required under the rule. The action plan provides employees access to process hazard analyses and to all other information that must be developed under this rule.

40 C.F.R. § 68.85 Hot Work Permit – Stolthaven provided their hot work and safe work procedure that detailed guidance for hot work/safe work activities at the site. Safe work and hot work are required for all activities involving cold work, vehicle entry, electrical work, excavations, welding, flame cutting, grinding, etc. I reviewed a sample of reports that consisted of spark producing work (welding/cutting). Several hot work permits I reviewed documented that fire prevention and protection requirements were implemented prior to beginning hot work operations. The permits I reviewed indicated the dates authorized for hot work. Stolthaven’s hot work permits indicated that a fire watch is required after hot work; however, some of the permits I reviewed did not indicate that a fire watch was present via signature. In addition, some of the hot work permits I reviewed indicated that a fire watch was required; however, a fire watch was not assigned. **[AOC #4 – 40 C.F.R. § 68.85(b)]**

40 C.F.R. § 68.87 Contractors – I reviewed Stolthaven’s contractor procedure. Stolthaven utilizes the Avetta contractor database to evaluate information regarding a contractor’s safety performance and programs. Contractors subscribing to the Avetta system are graded on the following components within the database: OSHA log verification status, verification status, OSHA citation verification status, insurance verification status, and deficiencies. All contractors must go through the site-specific training through the Houston Area Council. They are also informed of known potential hazards, provisions of the Emergency Action Plan (EAP), and health and safety procedures through the bid package, work permit procedure, and monthly safety meetings with Stolthaven’s Safety Department. The Stolthaven site implements safe work practices consistent with 40 C.F.R. § 68.69(d), to control the entrance and exit of the contract employees via the security gate and badging system.

Subpart E – Emergency Response

40 C.F.R. § 68.90 Applicability – Stolthaven is designated as a “responding” stationary source in case of an accidental release of a regulated substance; therefore, the facility shall comply with the requirements of 40 C.F.R. § 68.95.

40 C.F.R. § 68.93 Emergency Response Coordination Activities – Stolthaven coordinates with Channelview Fire Department and Local Emergency Planning Committee (LEPC) such as Channel Industries Mutual Aid (CIMA). During the time of the inspection, Stolthaven provided several documents of coordination with local authorities that included the names of the individuals involved, their contact information, and the nature of the coordination for the recent coordination activities that took place.

40 C.F.R. § 68.95 Emergency response program – I reviewed Stolthaven’s emergency response plan. The plan included: procedures for informing the public and local emergency response agencies about accidental releases and procedures and measures for emergency response after an accidental release of a regulated substance. Stolthaven’s plan failed to include proper documentation of first aid and emergency medical treatment necessary to treat accidental human exposures. **[AOC #5 – 40 C.F.R. § 68.95(a)(1)(ii)]** The emergency response plan included procedures for the use of emergency response equipment, and for its inspection, testing, and maintenance in relevant emergency response procedures.

40 C.F.R. § 68.96 Emergency Response Exercises – As part of coordination with local emergency response officials required by §68.93, Stolthaven consulted with officials to establish an appropriate frequency for field exercises.

Subpart G – Risk Management Plan

40 C.F.R. § 68.190 Updates – Stolthaven’s RMP was re-submitted on December 22, 2020.

40 C.F.R. § 68.195 Required corrections – Stolthaven’s next RMP registration re-submission is due by December 22, 2025, unless an update or correction is required by 40 C.F.R. § 68.190 or 40 C.F.R. § 68.195 prior to the five-year renewal deadline.

Section III – AREAS OF CONCERN

AOC 1 – 40 C.F.R § 68.67(e) Process Hazard Analysis (PHA)

“(e) The owner or operator shall establish a system to promptly address the team's findings and recommendations; assure that the recommendations are resolved in a timely manner and that the resolution is documented; document what actions are to be taken; complete actions as soon as possible; develop a written schedule of when these actions are to be completed.”

Stolthaven failed to have a written schedule of when actions are to be completed. In addition, there were several open recommendations from the Site-Wide PHA from September 2020 and the Acrylonitrile Handling PHA from December 2020 that were not promptly addressed.

AOC 2 – 40 C.F.R § 68.71(b) Training

“(b) Refresher training shall be provided at least every three years, and more often, if necessary, to each employee involved in operating a process to assure that the employee understands and adheres to the current operating procedures of the process.”

Stolthaven failed to ensure that operators are completing their refresher training. I randomly selected 5 employees training to review. Out of the 5 chosen, 2 employees did not complete their PSM/RMP or First-Aid training. (*Refer to Table 1*)

AOC 3 – 40 C.F.R § 68.79(d) Compliance Audits

“(d) The owner or operator shall promptly determine and document an appropriate response to each of the findings of the compliance audit, and document that deficiencies have been corrected.”

Stolthaven failed to document deficiencies were corrected promptly. Stolthaven has multiple findings from their 2016 and 2019 compliance audit that are still open. In addition, there's one repeat finding from their 2016 audit that is in their 2019 audit.

AOC 4 – 40 C.F.R § 68.85(b) Hot Work Permit

“(b) The permit shall document that the fire prevention and protection requirements in 29 CFR 1910.252(a) have been implemented prior to beginning the hot work operations; it shall indicate the date(s) authorized for hot work; and identify the object on which hot work is to be performed. The permit shall be kept on file until completion of the hot work operations.”

Stolthaven's hot work permit indicated that a fire watch is required after hot work; however, some of the permits I reviewed did not indicate that a fire watch was present via signature. In addition, some of the hot work permits I reviewed indicated that a fire watch was required; however, a fire watch was not assigned.

AOC 5 – 40 C.F.R § 68.95(a)(1)(ii) Emergency Response Program

“(a) The owner or operator shall develop and implement an emergency response program for the purpose of protecting public health and the environment. Such program shall include the following elements: (1) An emergency response plan, which shall be maintained at the stationary source and contain at least the following elements: (ii) Documentation of proper first-aid and emergency medical treatment necessary to treat accidental human exposures.”

Stolthaven's emergency response plan failed to include proper documentation of first aid and emergency medical treatment necessary to treat accidental human exposures.

Closing Meeting – I conducted a closing conference at Stolthaven Houston, Inc. on September 1, 2022. During the closing conference, I reviewed the Areas of Concern noted during the inspection.

Section IV – FOLLOW UP

No additional information was received by EPA after exiting the Facility on September 1, 2022.

Section V – LIST OF APPENDICES

There are no photos, videos, or other appendices to this report.