PSM
Technical Services, Inc.

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November 2, 2016

Mr. Karl Farris
Hiland Dairy
1133 E. Kearney
Springfield, MO 65803

Dear Mr. Farris,

Re: PSM Technical Services, Inc. Proposal No. 20574
Belfonte Ice Cream and Dairy Foods Co.
Ammonia Refrigeration Management (ARM Program) Services

PSM Technical Services, Inc. is pleased to present this proposal to Belfonte Ice Cream and Dairy Foods Co. to assist with the development and implementation of an Ammonia Refrigeration Management (ARM) Program for the anhydrous ammonia refrigeration process at the Kansas City, Missouri facility. Additional services will include ammonia inventory calculations, a "5-Year Independent Mechanical Integrity Inspection," preparation of equipment labels for ammonia refrigeration equipment identified on the existing process diagrams and during the mechanical integrity inspection, and an allowance of 16 hours of CAD services to update existing drawings to reflect items identified during the mechanical integrity inspection.

Thank you again for considering PSM Technical Services, Inc. to assist in developing and implementing this program. We will do our very best to earn and keep your trust and confidence in us.

Sincerely,
PSM
Technical Services, Inc.

Steven J. Mendygral, P.E.
President

REGULATORY BACKGROUND: PROCESS SAFETY MANAGEMENT

The Clean Air Act of 1990 directed the Occupational Safety and Health Administration (OSHA) to issue a regulation by November 15, 1991, to address workplace safety and health in facilities where highly hazardous chemical processes take place. The "Chemical Process Safety Management Standard" (PSM) was finalized on February 14, 1992, establishing procedures for process safety management designed to protect employees by preventing or minimizing the consequences of chemical accidents. The PSM standard contains a list of toxic, flammable, highly reactive and explosive substances, and the threshold quantity for each listed substance.

The Belfonte Ice Cream and Dairy Foods Company, Kansas City, Missouri, utilizes anhydrous ammonia (CAS No. 7664-41-7) as a refrigerant in its refrigeration process. Facilities that use, store, move, handle, process or manufacture highly hazardous chemicals in quantities above the listed threshold quantity are required to comply with the PSM Standard. Anhydrous ammonia is listed in Appendix A to §1910.119, the "List of Highly Hazardous Chemicals, Toxics and Reactives (Mandatory)." The listed threshold quantity for anhydrous ammonia is 10,000 pounds.

The anhydrous ammonia refrigeration process at the facility contains less than 10,000 pounds of anhydrous ammonia, and is not required to comply with the PSM Standard. However, it is the intent of Belfonte Ice Cream and Dairy Foods Co. to develop and implement an Ammonia Refrigeration Management (ARM) Program.

The Ammonia Refrigeration Management (ARM) Program is a voluntary program designed to help facilities manage their ammonia refrigeration systems in a safe and responsible manner. It is meant to be used by facilities that operate relatively small ammonia refrigeration systems which are not covered by the: Occupational Safety and Health Administration's (OSHA) Process Safety Management (PSM) Standard (29 CFR 191.0.119); the Environmental Protection Agency's (USEPA) Risk Management Program (RMP) Regulation (40 CFR Part 68); or any state-specific PSM or RMP requirements such as in New Jersey, Delaware and California. Typically facilities are not subject to PSM and RMP requirements if their ammonia charge is less than 10,000 lbs.

The ARM Program is designed to provide facilities the following benefits:

- **Safety:** Ensures that the refrigeration system is not susceptible to damage to minimize the number and severity of ammonia-related incidents.
- **Reliability:** Improves the operation and efficiency of the ammonia refrigeration system resulting in less downtime and lower operating costs.
- **Regulatory:** Provides documentation that facilities are complying with USEPA's General Duty Clause requirements (Section 112(r)(1) of the Clean Air Act) and with the General Duty Clause in Section 5(a)(1) of the Occupational Safety and Health Act (29 U.S.C. § 654(a)(1)).

SCOPE OF WORK: AMMONIA REFRIGERATION MANAGEMENT SERVICES

PSM Technical Services proposes to assist Belfonte Ice Cream and Dairy Foods Co. with its Ammonia Refrigeration Management Program through completion of the following tasks.

Task 1: Identification, Development, and Training of the ARM Team; Preliminary Assessment of Compliance Status

It is anticipated that essential Belfonte Ice Cream and Dairy Foods Co. representatives will be identified to serve as members of the ARM Team. The responsibilities of the ARM Team include identification of:

- Available process information;
- Available operating procedures;
- Current training or qualifications programs;
- Current maintenance practices;
- Existing safe work practices and procedures; and
- Other information, policies, procedures, or practices that may be incorporated into the ARM Program.

The ARM Team will be the focus group for the development, communication, and decision-making activities throughout the program. It is anticipated that the ARM Team will consist of members from the operating, maintenance, and safety departments, with experience in the anhydrous ammonia process. PSM Technical Services will train and mentor the ARM Team as the core group for the development and implementation of the ARM Program.

Utilizing the structure of the IIAR's "Ammonia Refrigeration Management" program guidelines, the ARM Team will conduct the "Records Review" (only) for each of the following program elements, identifying the presence of the following elements:

- Management System
- Refrigeration System Documentation
- Operating Procedures
- Preventive Maintenance Program
- Contractors
- Emergency Response Program
- Incident Investigations
- Training
- Hazard Review Procedures
- Refrigeration System Change Procedures

The records review will consist of an evaluation of the presence of each of the elements, and discussion and identification of existing programs, policies, and procedures that relate to the elements of the ARM Program. Other site information, such as organization charts, job classification, personnel assigned operational and maintenance responsibilities for the process or emergency response organizations will also be discussed to identify the departmental organizations and approximate number of personnel that may be affected by ARM compliance responsibilities.

Task 2: Development of the ARM Management System (Program Manual)

PSM Technical Services will prepare an ARM Program Manual consistent with the IIAR's "Ammonia Refrigeration Management" guidance document. This manual will serve as a set of guidelines for the individual elements of the Ammonia Refrigeration Management program. It will describe the criteria the facility personnel should use when identifying and managing process safety hazards. It will be designed and structured to conform to current safety and health policies and management practices, and to eliminate excessive rework of current safety practices. It will include existing procedures and practices whenever practical and appropriate.

PSM Technical Services will prepare a manual to be utilized for identification of specific objectives and tasks, and to identify the organizations or positions responsible for each. PSM Technical Services will prepare the final manual reflecting all ARM issues addressed during this project. In addition to the 10 elements of the ARM guidance document, an "Introduction" element will be created.

Facility staff will be interviewed to insure understanding of the requirements, proper identification of responsibilities, and clear representation of compliance actions.

Each ARM Program element management system will contain business diagrams (organization charts, block flow diagrams, spoke circle diagrams, pyramid drawings, etc.) to portray the actions and responsibilities outlined within each management system.

The completed ARM Program Manual will be utilized to develop the facility's "Compliance Calendar," identifying:

- Recurring requirements for each element,
- The facility position responsible for addressing those requirements,
- The schedule associated with each requirement, and
- A worksheet for each requirement, detailing the task, references, and document criteria.

Task 3: Refrigeration System Documentation

PSM Technical Services will provide services to assist the facility in:

- Identification, inventory, and presentation of requisite process equipment information; &
- Development of the documentation required by this element.

PSM Technical Services will develop and/or update existing block-flow diagrams and process drawings required by the ARM Program for the process and process-equipment configurations utilized at the facility.

Task 4: Operating Instructions

PSM Technical Services will provide services to assist the facility in:

- Identification of operating instructions required by the ARM Program;
- Development of operating instruction not present at the facility ;
- Presentation of these operating instructions in a format approved by the facility, and satisfying the criteria required by the ARM Program; and
- Development of the documentation required by this element.

Task 5: Preventive Maintenance

PSM Technical Services will provide services to assist the facility in:

- Identification of equipment to be addressed under this element;
- Identification of manufacturer recommendations of maintenance, inspection, and/or testing actions for such equipment;
- Documentation of current facility maintenance, inspection, and/or testing of equipment;
- Presentation in matrix form of equipment; mechanical integrity actions; frequencies of such actions; facility personnel resource requirements; non-facility resource requirements;
- Development of the documentation required by this element.

Task 6: Contractors

PSM Technical Services will provide services to assist the facility in:

- Development of "Plant Safety Rules for Contractors," reflecting the required information regarding potential hazards related to contractor work, as well as applicable facility safety rules and emergency response provisions;
- Development of contractor safety performance assessment criteria; and
- Development of the documentation required by this element.

Task 7: Emergency Response Program

PSM Technical Services will provide services to assist the facility in:

- Review of the existing "Emergency Action Plan" to identify all ARM requirements, and to recommend modification as necessary;
- Reflection of the "Emergency Action Plan" into the ARM Program Manual; and
- Development of the documentation required by this element.

Task 8: Incident Investigation

PSM Technical Services will provide services to assist the facility in:

- Review of the existing "Incident Investigation Procedure" to identify all PSM requirements, and to recommend modification as necessary;
- Reflection of the "Incident Investigation Procedure" into the ARM Program Manual; and
- Development of the documentation required by this element.

Task 9: Training

PSM Technical Services, Inc. will develop training programs and media to address the requirements of the ARM Program. This program is intended for an audience of ammonia refrigeration personnel. It may also be beneficial to personnel whose job responsibilities may be involved with anhydrous ammonia refrigeration indirectly (e.g. off-shift supervisors, non-refrigeration mechanics). This program will address and present the following topics:

1. Refrigeration: Introduction
2. Basic Thermodynamics for Refrigeration Processes
3. Basic Ammonia Refrigeration
4. Evaporator Equipment
5. Compressor Equipment
6. Evaporative Condenser Equipment
7. Oil Draining Procedures
8. Emergency Operations (including shutdown): Belfonte Ice Cream and Dairy Foods Co. "Emergency Action Plan"

Training guides and testing verifications (quizzes) will be prepared for each training presentation.

Task 10: Hazard Review Procedures

PSM Technical Services will provide services to assist the facility in the conduct of a Process Hazard Analysis (PHA). It is anticipated that the PHA will be conducted utilizing the "What-If / Checklist" technique. The purpose of a What-If / Checklist Analysis is to identify hazards, hazardous situations, or specific accident events that could produce an undesirable consequence. An experienced group of facility personnel identify possible accident situations, their consequences, and existing safeguards, then suggest alternatives for risk reduction. The method can involve examination of possible deviations form the design, construction, modification, and operating intent. It requires a basic understanding of the process to be evaluated, along with the ability to mentally combine possible deviations from the design intent that could result in an accident. The What-If / Checklist Analysis will generate a list of questions and answers about the process. It may also result in a tabular listing of hazardous situations, their consequences, safeguards, and possible options for risk reduction.

PSM Technical Services will:

- Coordinate development of requisite chemical, technology, and equipment information in preparation of the PHA;
- Prepare the PHA participants through a review of the PHA techniques, its intent, its conduct, and its expected outcome;
- Facilitate the conduct of the PHA, utilizing facility personnel, information, and resources. The PHA will follow the International Institute of Ammonia Refrigeration (IIAR) Guidelines for the conduct of a "What-If / Checklist" PHA study. The study will be conducted and documented utilizing Primatech "PHA Works (v 5.04)" software. It is anticipated that 2-4 sessions of 3-hour duration will be required, and that the on-site portion of this study will be completed in one working site visit.
- Develop documentation required for preparation, conduct, and output of the PHA; and
- Develop the documentation required by this element.

Task 11: Refrigeration System Change Procedures

PSM Technical Services will provide services to assist the facility in:

- Development of the Management of Change conceptual process;
- Development of the Management of Change check list to reflect the conceptual process; and
- Development of the documentation required by this element.

About the Deliverables:

The following deliverable manuals will be provided as the PSM Program development progresses:

1. ARM Program Manual - providing guidelines for the individual elements of Ammonia Refrigeration Management associated with the anhydrous ammonia process as described in Task 2, "ARM Program Manual."
2. Operating Procedures Manual – providing step-by-step, photograph-enhanced operating procedures for the required phases of the anhydrous ammonia process.
3. Process Hazard Analysis Resource and Reference Manual – providing an overview of PHA requirements, the "What-If " methodology, the prompt questions, the risk matrix, and appropriate process reference materials.
4. Preventive Maintenance Manual – providing the requisite list of ARM-covered equipment, and checklist test and inspection documents as described in Task 5, "Preventive Maintenance."
5. Refrigeration System Change Procedures Manual - providing guidelines, instructions, and checklists for the preparation and conduct of Management of Change for changes to process chemistry, technology, or equipment performed by the facility.
6. Training Manual – providing PowerPoint presentations for each of the elements of the ARM Program developed in the ARM Program Manual, and also the "Introduction" chapter.
7. "Ammonia Safety Awareness" and "Ammonia Refrigeration" Trainers Manual - providing agenda, outline, presentation and handout materials and quizzes for the training programs.
8. Plant Safety Rules for Contractors Manual - providing guidelines, instructions and information for contractors working on or near the PSM-covered process.
9. Emergency Action Plan and Fire Prevention Program Manual - providing guidelines, instruction and guidance as required by OSHA's Employee Emergency Plans and Fire Prevention Plans (29 CFR 1910.38(a)) and OSHA's Employee Alarm Systems (29 CFR 1910.165).

All project documentation will be prepared utilizing standard Microsoft Office products. All project files will be delivered on a stand-alone hard drive, providing a convenient means for the facility to update documentation as the PSM Program requires.

SCOPE OF WORK: DRAFTING SERVICES

PSM Technical Services, Inc. will include 16 hours of drafting services to updated existing drawings, provided that the existing drawings are available in "AutoCad" or similar electron program files.

SCOPE OF WORK: EQUIPMENT IDENTIFICATION

PSM Technical Services, Inc. will prepare and deliver to Belfonte Ice Cream and Dairy Foods Co. equipment labels for each ammonia refrigeration equipment (compressors, condensers, pressure vessels, evaporators, heat exchangers and pumps) in accordance with the criteria of IIAR Bulletin 114, "Guidelines for Identification of Ammonia Refrigeration Piping and System Components."

Installation of these labels will be the responsibility of Belfonte Ice Cream and Dairy Foods Co..

SCOPE OF WORK: AMMONIA INVENTORY SERVICES

The PSM standard and RMP rule each set the threshold quantity for anhydrous ammonia at 10,000 pounds per process. The threshold quantity determination is based on the number of pounds of anhydrous ammonia in the process. An inventory greater than 10,000 pounds establishes the requirement for PSM and RMP compliance.

For end-users that operate industrial refrigeration systems using anhydrous ammonia as the refrigerant, estimating and documenting the normal and maximum refrigerant inventory takes on heightened importance. The heightened importance is attributable to regulations that govern the use of toxic substances (including anhydrous ammonia) in industrial processes.

The two most significant regulations that arise in this case are OSHA's Process Safety Management (PSM) standard and EPA's Risk Management Program (RMP). In cases where the quantity of refrigerant exceeds a defined maximum limit, end-users are required to comply with the provisions of both the PSM and RMP standards. Even in cases where the total inventory of a system is less than the threshold quantity, inventory calculations are still useful for assessing process risks.

In addition to establishing whether or not the system inventory meets or exceeds the threshold quantity for coverage under the PSM Standard, the PSM standard also requires plants to establish the "maximum intended inventory" [1910.119(d)(2)(i)(C)]. There are two aspects of the maximum intended inventory that need to be clarified (1) maximum intended system inventory and (2) maximum intended component or subsystem inventory.

The maximum intended system inventory represents the greatest quantity of refrigerant contained within the system at any instant in time. Some refer to this as the "top off" amount. That is, all levels in the system are normal and the quantity of refrigerant contained within the high pressure receiver would be at its maximum level/charge. This quantity is needed to establish whether the system falls under the scope of the PSM standard.

The maximum intended component or subsystem inventory is the greatest quantity of ammonia that could be contained within a component or subsystem while continuing system operation. For heat exchangers such as condensers and evaporators, the maximum intended inventory is assumed to be the total quantity that could be contained within that component assuming the refrigerant is in a liquid state. For vessels with controlled levels such as recirculators, intercoolers, and suction traps, the maximum intended inventory would be the quantity of liquid contained within the vessel when the liquid level is just below the high level cutout. It is important to note that the maximum intended system inventory is not the sum of the maximum intended inventory of each subsystem or component. The maximum intended inventory of components or subsystems are needed to support: structural engineering for each subsystem or component, risk evaluation as part of the process hazard analysis process, and, possibly, off-site consequence analysis based on the quantity of refrigerant within the largest subsystem.

This tool (the IRC "Charge Management Tool) can help estimate the amount of charge in your refrigeration system. It does so by calculating each individual piece of equipment, given input parameters. This equipment can be organized into areas, and reports can be compiled.

PSM Technical Services, Inc. will conduct this ammonia inventory and document the results utilizing the IRC "Charge Management Tool."

SCOPE OF WORK: "5-YEAR INDEPENDENT MECHANICAL INTEGRITY INSPECTION SERVICES"

PSM Technical Services, Inc. proposes to provide Mechanical Integrity Equipment Inspection services to Belfonte Ice Cream and Dairy Foods Co., Kansas City, Missouri. Equipment presented on the facility's ammonia refrigeration process drawing will constitute the equipment inventory. These inspection services will include:

- Conducting a "walk-down" and verify existing Piping and Instrumentation Diagrams (P&IDs) or Refrigeration Process Drawings. Marked-up copies will be provided to the plant's PSM Coordinator.
- Preparing an IIAR Bulletin 109 to document the inspection results for each equipment item identified.
- Conducting photo documentation of each equipment item identified, for reference purposes, and, to amplify any deficiencies notes.
- Checking condition, location & accuracy of identification signs and nameplates.
- Inspecting system, equipment & piping anchoring, supports and fasteners.
- Identifications of possible traffic hazards.
- Documenting equipment modifications and alterations on the current refrigeration process diagram(s).
- Evaluating operation, use and condition of fans, belts, guards, housings, sheaves, coils, fins, solenoids, safety limit-switches, alarms.
- Identifying excessive vibration.
- Identifying the areas that may be considered for thickness tests when vapor barrier is broken, or when corrosion, moisture or ice is present.
- Reviewing preventive maintenance program.
- Visual inspection of gauges, indicators, sensors, float-switches, and control panels.
- Assess and document overall condition, corrosion, excessive ice build-up or dirt.
- Examining cleanliness of engineroom, aisle markers, and emergency showers/eyewash stations.
- Preparing final documentation, report, and recommendations.

In those circumstances where immediate, safe access to ammonia refrigeration equipment to be inspected is not possible, PSM Technical Services, Inc. will attempt photo-documentation, and will review operating issues / exceptions with plant personnel and document those conditions on the applicable inspection reports.

SPECIAL NOTE:

PSM Technical Services, Inc. will require an "ammonia refrigeration process diagram" (identifying all ammonia refrigeration process equipment) or an equivalent "list of PSM-covered equipment," AND a floor plan of the facility so that we may adequately prepare for our site visit. It is necessary that this information be received by PSM Technical Services, Inc. no later than 10 working days PRIOR to the scheduled site visit.

COST AND SCHEDULE

PSM Technical Services will perform the stated scope of work for a fixed fee of $18,500, plus reimbursable expenses for travel, lodging and meals.

PSM Technical Services is prepared to begin this project within 15 working days of receipt of authorization to proceed. It is anticipated that this project will complete within 12 weeks, dependent upon the availability of Belfonte Ice Cream and Dairy Foods Co. personnel. A detailed schedule will be proposed to accommodate facility personnel shortly after acceptance of this proposal.

It is anticipated that the site visits will require the presence and participation of essential plant personnel for the following:

1. An initial information gathering and assessment, and presentation of program services overview to plant staff;
2. Presentation and review of operating procedures; presentation of training programs; and conduct of the process hazard analysis;
3. Final presentation and training of / instructions to the plant ARM team.

PSM
Technical Services, Inc.
12114 W. Waterford Avenue
Greenfield, Wisconsin 53228

Invoice

Date	Invoice #
2/2/2017	745

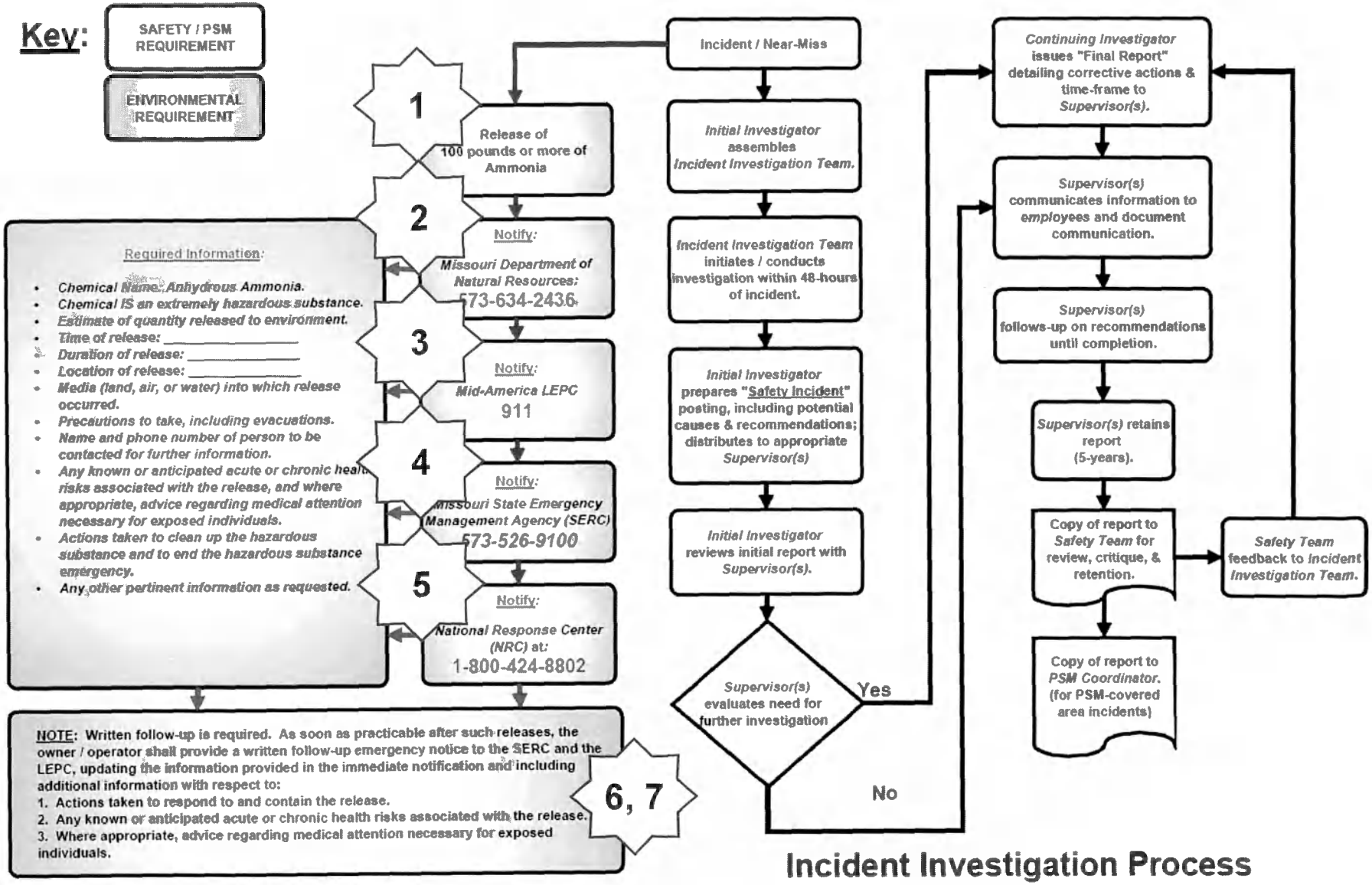
Bill To

Mr. Karl Farris
Hiland Dairy
1133 E. Kearney
Springfield, MO 65803

Terms	Net 10	P.O. No.	Verbal

Quantity	Description	Rate	Amount
0.4	Contract Fee: PSM Technical Services, Inc. Proposal No. 20574 Belfonte Ice Cream and Dairy Foods Co. Ammonia Refrigeration Management (ARM Program) Services	18,500.00	7,400.00
	STEVEN J MENDYGRAL-14001-18002211212 - Airline Fee	50.00	50.00
	STEVEN J MENDYGRAL-14001-18002211212 - Airline Fee	50.00	50.00
	STEVEN J MENDYGRAL-14001-18002211212 - Airline Fee	556.20	556.20
	STEVEN J MENDYGRAL-14001-18002211212 - Airline Fee	556.20	556.20
	STEVEN J MENDYGRAL-14001-10418676 800-352-7900 - Rental Car	233.02	233.02
	STEVEN J MENDYGRAL-14001-0110131603 734-229-1445 - Meals	41.95	41.95
	STEVEN J MENDYGRAL-14001-041077971 816-483-3883 - Meals	45.33	45.33
	STEVEN J MENDYGRAL-14001-541667 PARKING LOT & GARAGE - Milwaukee Airport	39.00	39.00
	STEVEN J MENDYGRAL-14001-R/A# 605423545 800-352-7900 - Meals	41.32	41.32
	STEVEN J MENDYGRAL-14001-99999997013 8168422869 - Meals	56.15	56.15
	STEVEN J MENDYGRAL-14001-87024699 816-923-3000 - Lodging (2)	319.43	319.43
	STEVEN J MENDYGRAL-14001-87024698 816-923-3000 - Lodging (3)	498.62	498.62
	Total Reimbursable Expenses		2,487.22

	Total	$9,887.22



Incident Investigation Process