Plymouth

Cherokee

Union

South Dakota

Sioux City

100TH STREET

130TH STREET

CHARLES AVENUE

K 39

D 12

DELAWARE AVENUE

EASTLAND AVENUE

D 18

FAYETTE AVENUE

K 57

D 49

Pierson

120TH STREET

MASON AVENUE

PRESTON BOULEVARD

140TH STREET

LENOX AVENUE

L 25

145TH STREET

Moville

150TH STREET

Lawton

160TH STREET

HANCOCK AVENUE

D 22

Correctionville

155TH STREET

US 77

South Sioux City

IS 129

170TH STREET

D 30

200TH STREET

K 29

ELK CREEK ROAD

CARROLL AVENUE

COUNTY HOME ROAD

Bronson

GARNER AVENUE

GRUNDY AVENUE

D 30

K 67

IDA AVENUE

195TH STREET

KNOX AVENUE

Iowa

L 14

LUCAS AVENUE

L 36

Ida

NEWTON AVENUE

SIDNEY AVENUE

210TH STREET

NEL-316B 12in

Dakota

Sergeant Bluff

970

K 35

230TH STREET

KOSSUTH AVENUE

LEE AVENUE

D 38

Anthon

Woodbury

L 13

JEWELL AVENUE

L 21

K 64

245TH STREET

250TH STREET

TAYLOR AVENUE

240TH STREET

POCAHONTAS AVENUE

STORY AVENUE

L 37

D 50

260TH STREET

D 59

IAL-318 12in

Nebraska

D 51

252ND STREET

Climbing Hill

255TH STREET

D 54

K 25

Salix

D 53

D 25

HUMBOLT AVENUE

280TH STREET

290TH STREET

Oto

L 27

MINNESOTA AVENUE

OBRIEN AVENUE

OSCEOLA AVENUE

SAFFORD AVENUE

300TH STREET

UNION AVENUE

K 42

CALHOUN AVENUE

D 65

K 53

FRANKLIN AVENUE

310TH STREET

HANCOCK CIRCLE

Danbury

D 56

Thurston

CASS AVENUE

325TH STREET

Sloan

Hornick

335TH STREET

Smithland

L 22

Monona

Crawford

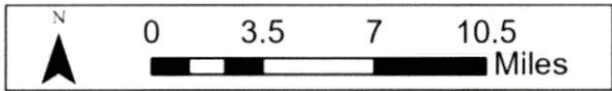## 21.06 mi of Anticipated Pipeline, Woodbury County, Iowa

— Proposed MCE Route
★ Participating Ethanol Plant
🟩 Pump Station - Active

▲ Mainline Valve
☐ Counties
☐ State Boundaries

SUMMIT CARBON SOLUTIONS

Date Exported: 7/17/23 10:51

N

0   3.5   7   10.5
Miles

Emergency Preparedness

Public Awareness is Vital to Continued Safe Operations

Summit Public Awareness Program will enhance ongoing SCS safety practices and contribute to a reduced likelihood and potential impact of a pipeline release. Assisting the public to remain informed helps reduce emergencies caused by third-party damage.

Key stakeholder groups for public awareness are:

- Residents and high consequence areas along the route
- Local public officials
- Local and state emergency response and planning agencies
- Local one-call system

What You Need to Know About CO2:

CO_2 is heavier than air and can gather in low-lying areas. It is most dangerous indoors or in confined spaces. It can reduce oxygen levels in environments where its concentration surpasses typical atmospheric standards.

You may see:
- White vapor cloud
- An area of frozen ground in the summer
- Bubbling in pools of water

You may hear:
- A sound of depressuring (loud hissing / whistling sound)
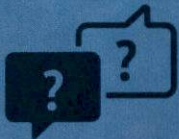
How safe are pipelines?

- **Pipelines are the safest mode of transportation (safer than truck or rail)**
- **The incident rate for oil & gas pipelines is .001% and CO2 pipelines are even safer**

Dispersion Modeling

Dispersion modeling is intended to highlight areas where enhanced integrity management approaches may be necessary to further mitigate risks and inform our emergency response plans.

Summit has completed and periodically updates a dispersion model and risk analysis to ensure compliance with the Pipeline and Hazardous Materials Safety Administration's (PHMSA) regulations.

The dispersion model and risk analysis aim to identify potential impacts to High Consequence Areas (HCAs) following the Integrity Management section of 49 CFR 195.452 guidelines. Less than 1% of the pipeline route is located in direct affect population derived HCAs, yet Summit is going above and beyond the regulatory requirement by completing this across the project footprint.

Our dispersion model is extremely conservative. We took the dispersion inputs and modeled them at their worst-case state.

Factors Considered in Summits Dispersion Models:

- Topography
- Weather conditions
- Size of release
- High Consequence Areas
- Modeled at Max Operating Pressure (higher than normal operating pressure)

Summit Carbon Solutions is going above and beyond. We are required to model HCAs. We are instead modeling the entire route.

Defining High Consequence Areas

Dispersion modeling is intended to highlight areas where enhanced integrity management approaches may be necessary to further mitigate risks and inform our emergency response plans.

- Densely populated zones
- Commercially navigable waterways
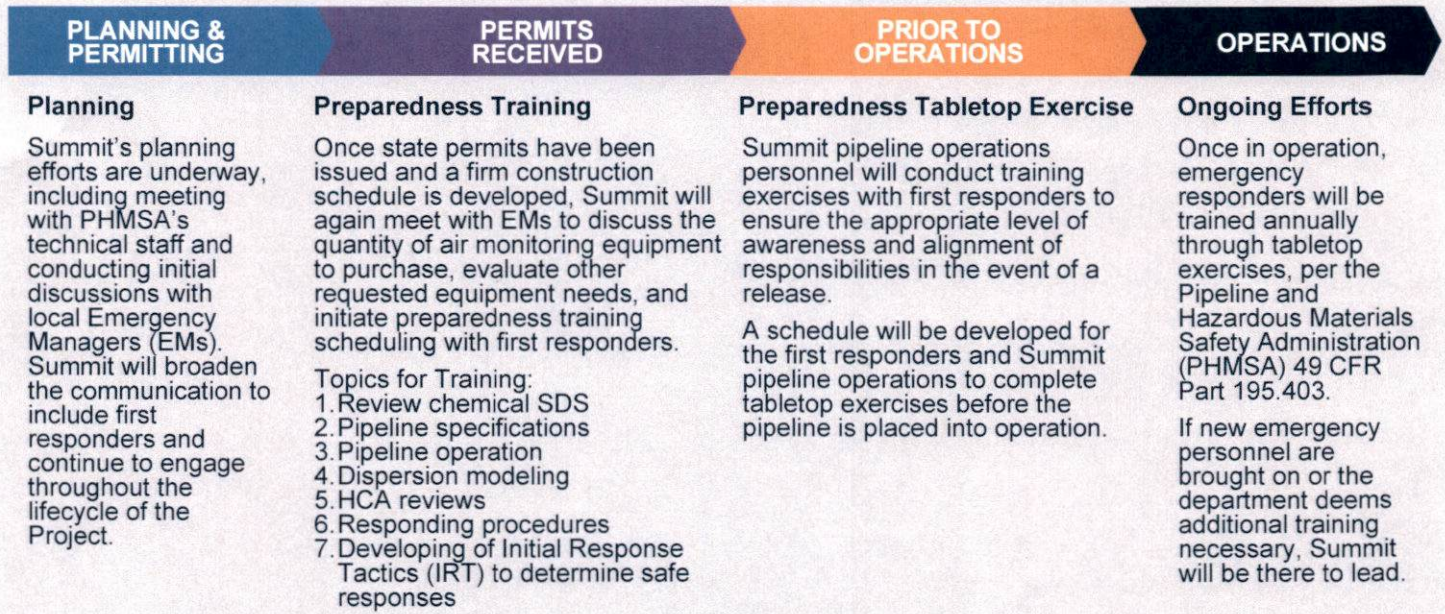- Environmentally sensitive areas

Leak Detection and Prevention Measures

For optimized leak detection and control, Summit will utilize technology and processes to create a real-time transient model (RTTM) in alignment with API RP 1130/1175.

24/7 Control Room
- Real-time, in-person monitoring of the entire Summit system
- Enabled remote operation when necessary, incorporating surge protection and automatic valve shutdown in the event of significant pressure fluctuations.

Computerized Pipeline Monitoring System
- Industry leading technology installed on more than 1,500 pipeline systems worldwide
- Monitors pressure across the entire system with instrumentation located at capture facilities, valve sites, pump stations, and sequestration sites.
- Ability to detect the smallest leak even during changes in operation
- Provides real-time information to the Control Room

Metering
- High-quality metering used at all capture and sequestration sites
- Monitors system balance to identify potential differences
- Managed by skilled Summit technicians ready to act when necessary

Emergency Preparedness

We've designed an Emergency Response Plan (ERP) that covers multiple factors and scenarios over the entire project route.

PLANNING & PERMITTING	PERMITS RECEIVED	PRIOR TO OPERATIONS	OPERATIONS

Planning

Summit's planning efforts are underway, including meeting with PHMSA's technical staff and conducting initial discussions with local Emergency Managers (EMs). Summit will broaden the communication to include first responders and continue to engage throughout the lifecycle of the Project.

Preparedness Training

Once state permits have been issued and a firm construction schedule is developed, Summit will again meet with EMs to discuss the quantity of air monitoring equipment to purchase, evaluate other requested equipment needs, and initiate preparedness training scheduling with first responders.

Topics for Training:
1. Review chemical SDS
2. Pipeline specifications
3. Pipeline operation
4. Dispersion modeling
5. HCA reviews
6. Responding procedures
7. Developing of Initial Response Tactics (IRT) to determine safe responses

Preparedness Tabletop Exercise

Summit pipeline operations personnel will conduct training exercises with first responders to ensure the appropriate level of awareness and alignment of responsibilities in the event of a release.

A schedule will be developed for the first responders and Summit pipeline operations to complete tabletop exercises before the pipeline is placed into operation.

Ongoing Efforts

Once in operation, emergency responders will be trained annually through tabletop exercises, per the Pipeline and Hazardous Materials Safety Administration (PHMSA) 49 CFR Part 195.403.

If new emergency personnel are brought on or the department deems additional training necessary, Summit will be there to lead.
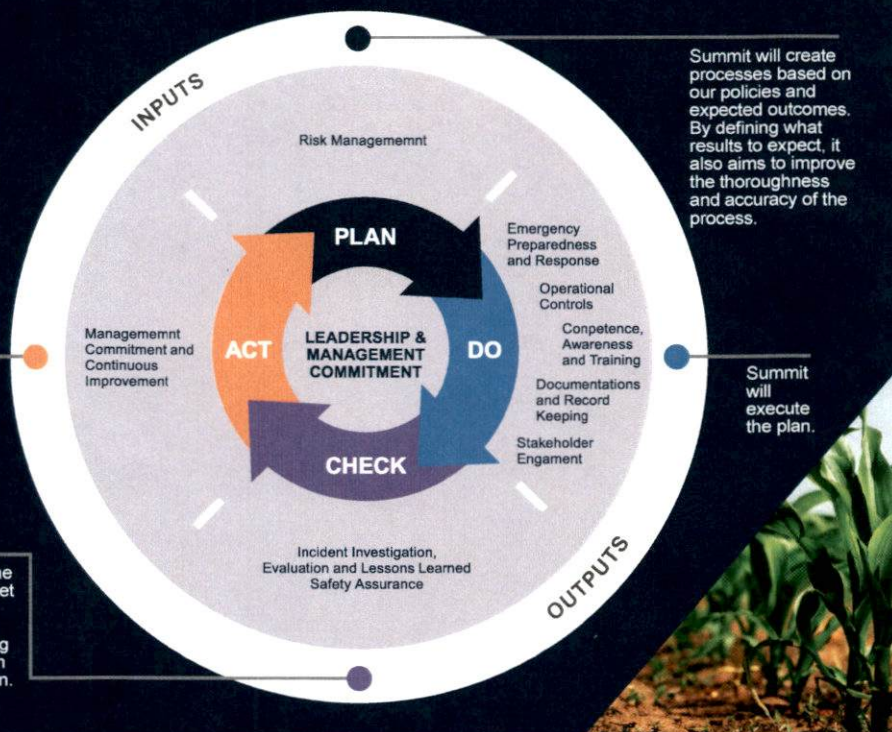
Managing Safety

The "Pipeline Safety Management Systems" (API 1173) is a guideline that offers a comprehensive approach to pipeline safety. It combines different activities like risk management, effective decision making, performance monitoring, fostering a safety culture, audits, and enhancing communication. The system surpasses existing safety programs by encouraging ongoing improvement through a "Plan-Do-Check-Act" cycle.

Summit will continuously improve our operations. This includes fixing discrepancies between real and expected results, identifying why these differences occurred, and deciding where to make changes to enhance the process or product.

Summit will check the results against the set goals. It's about identifying any differences by seeing if the implementation strayed from the plan.

Summit will create processes based on our policies and expected outcomes. By defining what results to expect, it also aims to improve the thoroughness and accuracy of the process.

Summit will execute the plan.

INPUTS

PLAN

ACT

LEADERSHIP & MANAGEMENT COMMITMENT

DO

CHECK

Risk Managememnt

Management Commitment and Continuous Improvement

Emergency Preparedness and Response

Operational Controls

Conpetence, Awareness and Training

Documentations and Record Keeping

Stakeholder Engament

Incident Investigation, Evaluation and Lessons Learned Safety Assurance

OUTPUTS

First Responder Preparedness Training Program

DRAFT

Revision: 0

4/10/2023

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Revision History

Rev. No.	Date	Description	Preparer	Reviewer	Approver
0		Issued for Review			

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1 Project Introduction

Summit Carbon Solutions (SCS) plans to develop a new interstate CO2 capture, transportation, and sequestration project. The Project will capture CO2 from multiple sources throughout Iowa, Minnesota, Nebraska, South Dakota, and North Dakota and deliver the CO2 to injection sites in North Dakota for permanent geological sequestration.

Add project overview figure

2 Standards and Regulations

This document refers to the following publications created within industry; where such reference is made, it shall be to the latest edition unless otherwise specified.

- Code of Federal Regulations (CFR)
    - 49 CFR 195 – Transportation of Hazardous Liquids by Pipeline
- American Petroleum Institute (API)
    - API RP 1162 - Public Awareness Programs for Pipeline Operators

3 Acronyms and Abbreviations

API: American Petroleum Institute

CFR: Code of Federal Regulations

4 Pre-Incident Awareness, Education, and Training

Public safety and environmental protection are the top priorities in any pipeline emergency response.

4.1 Priority to Protect Life

The operator's key messages to emergency officials should emphasize that public safety and environmental protection are the top priorities in any pipeline emergency response.

4.2 Pipeline Purpose and Reliability

Operators should consider providing a general explanation of the purpose of the pipeline and/or facilities.

4.3 Characteristics of CO_2

4.3.1 Physical Hazards

4.3.2 Oxygen Displacement

4.3.3 Exposure Limits

4.4 Hazard Awareness and Prevention Measures

Operators should provide a very broad overview of potential hazards, their potential consequences and the measures undertaken by the operator to prevent or mitigate the risks from pipelines.

4.4.1 Pipeline Location Information

4.4.2 Pipeline Markers

The audience should know how to identify a transmission pipeline ROW by recognition of pipeline markers-especially at road crossings, fence lines and street intersections.

4.4.3 Pipeline Mapping

The level of detail provided on the map should, at a minimum, include the line size, product transported and the approximate location of the pipeline, as well as any other information deemed reasonable and necessary by the operator.

4.4.4 Dispersion Modeling

4.4.5 HCA Reviews

4.4.6 One-Call Notification System

4.4.7 Public Awareness

Include activities to advise affected municipalities, school districts, businesses, and residents of pipeline facility locations.

4.4.8 Isolation Strategies

4.5 Leak Recognition and Response

4.5.1 How to Recognize a Pipeline Leak

Information should address how to recognize a pipeline leak through the senses of sight, unusual sound, and smell and describe any associated dangers as appropriate to the product type.

4.5.1.1 Physical Identification

4.5.1.2 Remote Identification

4.5.2 Emergency Responder Safety

PPE	When Should It Be Used
Hard hat, safety glasses, & steel toe boots	While participating in any active response operations
Leather gloves	When contacting piping or valves in close proximity to the release*
Hearing protection (earmuffs or ear plugs)	When working near the pipeline release or controlled blowdown stack
Self-Contained Breathing Apparatus (SCBA)	When entering an IDLH atmosphere or an atmosphere containing unknown levels of CO_2 or O_2
CO_2 Detector	While participating in any active response operations

* Local emergency response officials (fire dept, law enforcement, etc.) should never attempt to close a valve on a pipeline system, valve station, or facility.

4.5.3 Response to a Pipeline Leak

Information should address an outline of the appropriate actions to take if a pipeline leak or release is suspected.

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5 First Responder Facilities and Equipment Assessment

Operator provides a broad overview of the necessary facilities and equipment required for Carbon Dioxide pipelines. Includes equipment calibration and maintenance frequency.

Recommended Facilities/Equipment	Purpose	Recommended Maintenance Frequency

6 First Responder Procedure and Policy Assessment

Operator provides a broad overview of the necessary First Responder procedure and policy required for Carbon Dioxide pipelines. Includes evaluation approaches (drills) and recommended frequency.

Evaluation Approaches	Evaluation Techniques	Recommended Frequency