Spirtas Wrecking Company
951 Skinker Parkway
St. Louis, Missouri 63112

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FINAL

EFFECTIVE DATE: 20223

DOCUMENT TITLE:

General Work Plan
To include HASP

SITE:
Duck Creek Power Plant
Canton, Illinois

PAGE 1 OF 147

PREPARED BY:

Philip Kennedy DATE: March 01,2023
Project Manager

REVIEWED BY:

Elizabeth Macheca DATE: March 01,2023
Administrator

Russell David DATE: March 01,2023
Site Superintendent

APPROVED BY:

Dianna Tickner DATE: March 01, 2023

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

1.1 Abbreviations

The abbreviations listed below, when used in this [Preliminary] work plan, have the following meaning:

RPR	Resident Project Representative
ACM	Asbestos Containing Material
PACM	Presumed asbestos containing materials
PCB's	Polychlorinated biphenyls and/or remediation waste
CFR	Code of Federal Regulations
DOT	Department of Transportation
EPA	U. S. Environmental Protection Agency
DEZ	Demolition Exclusion Zone
LO/TO	Lockout/Tagout
MLA	Material Laydown Area
OSHA	Occupational Safety & Health Administration
RCRA	Resource Conservation and Recovery Act
TPOC	Technical Point of Contact
TCLP	Toxicity Characteristic Leaching Procedure
WAC	Waste Acceptance Criteria

2.0 PROJECT SCOPE

The Work consists of the abatement, demolition and site restoration of selected remaining controls and structures associated with the Duck Creek Power Plant and as defined in the project specifications and referred in Sections 011100 Summary of Work and Scope of Work Matrix.

3.0 ORGANIZATION AND ADMINISTRATION

3.1 Project Administration

SWC will administer the work from a temporary trailer to be located at the Project site, specifically the area west of the plant in close proximity to the substation. This temporary office will be used by SWC for its administrative work, RPR and management, safety orientations and meetings, and project meetings.

3.1.1 Proposed Schedule, Work Hours & Staffing

SWC has prepared a preliminary MS Project schedule to be submitted in PDF format. During the project SWC will update the project schedule at weekly intervals and as per specification 13200. The schedule is based on SWC work hours of Monday thru Friday 7:00 to 5:30. The holidays will be shown as "non-working" days on the schedule.

Table 3.1.1 Project Staff

Title	Project Team	Onsite
Project Manager	Philip Kennedy	As Needed
Site Superintendent	Russell David	Full Time
SE&H Manager	Michael Varela	Full Time
Equipment Operator	Leo O`Brien	Full Time
Equipment Operator	Seth Van Pelt	Full Time
Equipment Operator	Brad Gibbs	Full Time
Equipment Operator	John Pollitt	Full Time
Equipment Operator	Rodney Zimmerman	Full Time
Equipment Operator	William Sparks	Full Time
Equipment Operator	Joshua Jenkins	Full time
Laborer	Josh Gauthier	Full Time
Laborer	Cody Greear	Full Time
Laborer	Zakery Partin	Full Time
Laborer	Bradley Friday	Full Time
Laborer	Jason Mahr	Full Time
Laborer	TBD	Full Time

3.1.2 List of Subcontractors and associated Scope of Work

Company Name	Work Description
Precision Environmental	ACM Testing & Abatement
Demtech	Explosive Demolition
Sauls Seismic Engineers, Inc.	Seismic Monitoring
Sitex	Air Monitoring
Special Inspections and Design	Engineering Services
ITS	Electrical

3.2 Onsite Interfacing with RPR

SWC to interface with onsite RPR on a daily basis. The SWC Superintendent, Safety Representative and Project Manager will inform and communicate project progress and issues with the RPR.

3.3 Incident Reporting

Incidents will be reported to the respective organization and within the prescribed time as per the SWC HASP and Project Specification. Incidents will be communicated to RPR immediately by either the SWC E S & H, PM or Administrative office.

3.4 Routine OSHA Reporting

SWC will report any routine OSHA matters from its administrative (St. Louis) offices.

3.5 Reporting Requirements, Permits and Requests

SWC ES & H will be responsible for all OSHA reporting.

3.5.1 Environmental Compliance

SWC and its subcontractors will adhere to all local, state and federal environmental requirements.

3.6 Project Records

All project records such as manifests, disposal tickets, and other information will be submitted to IEPA and BOA-FOS in a formal close out package. Information will be sent to 1021 N. Grand Ave. East MC #41 Springfield, IL 62702. Daily logs with safety meeting topics and sign in sheets will be forwarded to RPR on a daily basis. All papers and records will be submitted as per specifications. A copy of the formal close out package will also be sent to Peter Brusky, IEPA at peter.brusky@illinois.gov.

4.0 PROJECT MOBILIZATION

4.1 Safety Management System

PRECISION ENVIRONMENTAL KEY PERSONNEL AND EMERGENCY CONTACTS

Title	Name	Cell Phone	Email
Project Manager	Garrett Orlandi	(216) 244-2211	gorlandi@precision-env.com
General Superintendent	Emory Wolf	(216) 214-2474	ewolf@precision-env.com
Project Supervisor / Designated Competent Person / Health & Safety Officer	TBD	TBD	TBD
Risk/Safety Director	Ray Wiecek	(216) 276-0024	rwiecek@precision-env.com
Environmental Health & Safety Manager	Tyler Jasinski	(440) 840-2562	tjasinski@precision-env.com
Field Safety Specialist	Randy Cadorini, CHST	(216) 214-0423	rcadorini@precision-env.com
Occupational Hospital	OSF Occupational Health	(309) 624-7299	n/a
Nearest Emergency Room	Mason District Hospital – Emergency Room	(309) 543-4431	n/a

Non-Life Threatening Injury Evaluation	WorkCare – Incident Intervention	(888) 449-7787	n/a

Safety Policy Statement

This plan contains the minimum requirements for an effective site-specific Health & Safety Plan (HASP) by Precision Environmental Company for the work to be completed at the Duck Creek Power Plant. This HASP shall be implemented and maintained by Precision Environmental Company and Precision ProCut. This HASP applies to all field employees of our companies.

The leadership team is responsible for ensuring that all SH&E policies and procedures are clearly communicated and understood by all employees. Managers and supervisors are expected to enforce the rules fairly and uniformly.

All employees are responsible for using safe work practices, following all directives, policies and procedures, and assisting in maintaining a safe work environment.
Our system of ensuring that all workers comply with the rules and maintain a safe work environment includes the following.

- Informing workers of the provisions of this HASP
- Evaluating the safety performance of all workers
- Recognizing employees who consistently perform safe work practices
- Providing training to workers whose safety performance is deficient
- Disciplining workers for failure to comply with proper work practices

EXECUTIVE SAFETY COMMITMENT

	SAFETY MANAGEMENT SYSTEM	SMS #1.1	
PRECISION Environmental Co. ProCUT	Safety Policy Statement	Issued: 09/16	Reviewed: 07/19

1.0 Introduction

Employees and customers are and always will be our greatest resource. Precision Environmental Company and Precision ProCUT recognize the need and responsibility for the safety of their employees and that accident prevention is an integral part of efficient production and product quality.

2.0 Goals

- Prevent **ALL** work related injuries and illnesses.
- Prevent any adverse impact to the environment from our work operations.
- Prevent any damage to property or equipment.
- Exceed our client's expectations.

3.0 Leadership Responsibilities

The management of Precision Environmental Company and Precision ProCUT will take all possible and practical efforts to provide a safe and healthy place of employment for our employees.
Management Shall:

- Implement and enforce all Safety, Health and Environmental Policies and Procedures.
- Give safety the primary importance in the planning and operation of all company activities.
- Safety is our top priority along with quality, quantity, and the costs of providing services.
- Track safety performance in relationship to our ultimate goals.

4.0 Employee Responsibilities

All employees are responsible for their own safety, their fellow employees, and the public.
Employees Shall:

- Perform their work in a professional, safe manner and adhere to work practices and rules established for their safety.
- **STOP** any activity that may have a negative impact on Safety, Health, or the Environment.
- Immediately report Safety, Health or Environmental, incidents to their supervisor.
- Provide feedback and openly engage with others regarding safety.

Precision Environmental Company
Precision ProCUT

Tony DiGeronimo, President

Site Supervision shall sign and date this page stating they have read this document and will comply with all safety practices and procedures contained within. Employees must understand they have stop work authority and that our Leadership supports employees correcting unsafe acts/conditions.

Site Supervisor: _____

Signature: _____

Date: _____

SCOPE OF WORK

- Attend site orientation(s) prior to work assignment (layout, ingress; egress; emergency evacuation, phones)
    - Must attend Precision site safety orientation prior to the start of work (review of HASP)
    - Verify proof of current Union Drug Card (CISAP or equivalent)
- Review HASP and attachments with all arriving employees/visitors.
- Conduct Daily Safety Meeting / Daily JHA on FieldFlo.
- Mobilization / lay down of tools and equipment.
- Perform daily inspection on all mobile equipment.
- Construction of Containment(s), regulated work area(s), etc,- set up of decon units and AFD's.
- Demarcate and set-up work areas.
- Selective Demolition – Selective demolition as necessary to perform abatement work.
- Asbestos Abatement – Removal and disposal of Asbestos Containing Materials (ACM) per the project survey and specifications scope.
    - Pipe insulation
    - Electrical wire insulation
    - Gaskets
    - Transite
    - Turbine shell coating
    - Floor tile and mastic
- Load out and disposal of ACM materials.
- Load out and disposal of construction debris.
- Decontaminate personnel and equipment.
- Perform Post Job Safety Briefing
- Demobilize from site.

JOB HAZARD ANALYSIS (JHA)

ITEM	HAZARD	PREVENTION
General Work Area	Slip / trip / fall	• Designated pathways cleared of debris. • Establish lighting prior to the start of any low light conditions.
General Work Area – lifting	Sprain / Strain	• Stage equipment to minimize long distance carrying. • Split heavy loads into smaller loads. • Request assistance for heavy or awkward loads. • Lift with legs- not back. • Keep heavy loads in front of the torso; avoid overreaching and extension of arms.
Prolonged exposure to elements	Heat/Cold Stress	• Monitor employees. • Proper layers should be worn to prevent cold related injury (frostbite) • Salt or ice melt shall be applied to areas where ice accumulation has occurred. • Heat index shall be reviewed at the start of the shift. • Mandatory breaks shall be taken when temperatures exceed 80 degrees Fahrenheit.

JOB HAZARD ANALYSIS (JHA)		
ITEM	**HAZARD**	**PREVENTION**
Break time	Ingestion of toxins	• Follow decontamination procedures, thoroughly wash hands and face before eating, drinking, or smoking during break.
Use of hand tools	Pinch points Strain-sprain Difficult- positions Cut-hazards	• Use proper holding and supporting techniques when turning wrenches, screwdrivers, and other torque-enhancing tools. • Ensure proper direction and grip on hammers and all other manual demolition hand tools prior to use. Ensure use of full body weight for counterbalance – use proper footing stance. • Ensure that workers are trained and experienced with the tool they are using. • Maintain appropriate PPE for each task. • Inspections should be completed prior to use for any defects, missing guards, frayed cords, or other condition that may cause improper use or incident. • Tools shall be removed from service if found to have defects.
Fuel/Oil Spill Prevention and Control	Spilled Oil	• Inspect daily all fuel hoses, fuel storage containers, lubrication equipment, etc. for drips, leaks or signs of damage. • Inspect all equipment and vehicles for significant fuel and oil leaks. • Spill kits shall be available at the project site for cleanup of oils.
Noise Control	Hazardous Noise	• Equipment that may exceed 85 dbA should be used in conjunction with hearing protection. • Hearing protection must be worn during operation of equipment and by personnel within the work area of operation of such equipment.
Stairway/ladder use to access work area.	Slip / trip / fall	• Maintain 3-point contact while accessing ladders and stairways. No worker may extend beyond an arm's reach to either side of ladder without fall protection. • Stay within catwalk/handrail protected areas if available. • Keep access areas free of debris and equipment to prevent trip hazards. • Ladders must be inspected daily prior to use. • Ladders last. Utilize lifts prior to resorting to a ladder. • Inspect weight ratings and ensure all stickers are present. • Ladders must be placed on level surfaces.
Use of ladders	Slip / trip / fall	• Maintain 3- point contact during access. • Extension ladders must extend 3 ft. from landing and be secured. • A-Frame ladders must be fully extended, do not stand on top two rungs of the ladder. A-frame ladders may not be used as extension ladders. • Ladders should be used last. A powered lift should be used for elevated work prior to resorting to ladders.
Hand Held Power Tools, electrical equipment.	Electrical Shock	• All electrical equipment must be GFCI protected. • Plug all handheld tools into a GFCI. • A qualified electrician must install temporary electrical panels and verify they are safe for use. • Cords shall not be in poor condition and must be inspected prior to

JOB HAZARD ANALYSIS (JHA)		
ITEM	**HAZARD**	**PREVENTION**
		use. • No visible defects shall be present on any cords in use. Cord protection ramps shall be used in areas where equipment needs to cross over cords.
Asbestos	Asbestos Inhalation/Ingestion	• PPE listed below. • Training / Licensing requirements listed below. • Use of Class I work methods for gross removal of thermal system insulation, Plaster, and any mechanical removal methods used for any ACM. • Use of Class II work methods for electrical wire insulation, transite, gaskets, and turbine shell coating. • Wet methods at all times. • Follow proper decontamination procedures. • All waste shall be double bagged. • Personal air samples shall be taken daily during work activities.
Low Light Conditions	Slip /trip/fall Struck by Poor Communication	• Set up of portable / temporary lighting throughout the project. • Designate walkways and pathways. • All employees must be equipped with a headlamp. • Hi-Visibility clothing. • Housekeeping shall be routine to prevent slip/trip/fall.
Aerial Work Platforms (Scissor Lift or Boom Lift)	Struck by Fall Improper operation Tip over Falling debris Overhead (Electrical	• 100% tie off to manufacturers anchorage point at all times. • Feet must always remain on the platform of the scissor lift. • Operators must be certified/trained. • Daily inspections shall be completed prior to use. • 100% tie of with retractable lanyards ONLY. • Any gas-powered equipment operated indoors shall be equipped with CO scrubbers. Continuous monitoring for CO shall be performed. • Baskets must be in a lowered position prior to movement. • Areas where aerial lifts are being used must be taped off due to the overhead hazard.
Powered Industrial Truck Operation (Rough Terrain or Sit Down)	Struck by Improper operation Tip over Overhead-Electrical	• Equipment must use spotter when working near walkways. • Seatbelts must be worn at all times on the equipment. • Certification must be valid; retraining shall be done every 3 years. • Capacity of the equipment shall be known by the operator as well as the general weight of items to be lifted. • Back up alarm must be present and functional. Fire extinguishers shall be current and tagged.

JOB HAZARD ANALYSIS (JHA)		
ITEM	**HAZARD**	**PREVENTION**
		• PITs shall not be operated near low hanging power lines. • No one shall pass under suspended loads. Load out areas shall be demarcated; access shall be restricted to authorized personnel only. • Capacity of the machine and the loads shall be known to prevent tip over or catastrophic failure.
Scaffolding	Falls Improper construction / improper use.	• A competent person must erect scaffolding. • Inspect all scaffolding daily. • All platforms must be fully guard railed and planked. • Workers shall use a scissor lift over scaffolding where possible. • Workers must tie-off above 6' if the scaffolding is not equipped with guardrails (toe-board, mid-rail, and top-rail). • While in use, baker scaffolding must have the wheels locked out to prevent movement during work.
Fall Protection (Various types / uses throughout project).	Falls	• ALL leading edges with a drop equal or greater to 6' shall be fully protected with guardrail systems and / or have installed personal fall arrest systems. • Fall protection systems shall be installed and inspected by a competent person. • All workers need to have proper training on fall protection to be authorized to work at heights. • All fall protection components must be inspected prior to each use by the user. •
Selective Demolition	Silica, struck by, flying objects, falling objects, sprain/strain	• Workers shall follow OSHA Table 1 controls for all silica generating work. • Workers shall be medically cleared for respirator use and fit tested for the respiratory protection to be worn. • Safety eyewear shall be work that meets the Z87+ ANSI rating. • Workers shall not lift block over 50lbs. Mechanical means should be used for large concrete objects. • Overhead work shall be done using full-face negative pressure respiratory protection. • Material shall be removed in manageable sections to prevent being struck by falling/flying objects. • Wet methods should be used at all times to limit the amount of airborne dust. • Chutes shall be protected and barricaded. Load out boxes shall not be overloaded.

EMERGENCY ACTION PLAN	
ELEMENT	**LOCATION, SPECIFICATION OR REASON FOR USE**
MEDICAL AMBULANCE	911
POLICE	911
FIRE	911
NEAREST HOSPITAL	911
PERSON IN CHARGE / QUALIFIED FIRST AID	TBD
EMERGENCY NOTIFICATION ALARM	Verbal / Radio / Cell Phones
NEAREST PHONE	PEC Supervisor's cell phone
FIRST AID KIT	CPR/FA trained personnel will be staffed on site. First aid kit located in PEC Supervisor vehicles and at the PEC Supervisor's job office
FIRE EXTINGUISHER	PEC Supervisor's Vehicle and on all equipment. Fire Extinguishers shall be placed throughout the worksite with a maximum travel distance of 100'
EYEWASH STATION AND EMERGENCY SHOWER	Each Staging area will be equipped with Eye Wash stations. Supervisor will determine location on site.

EMERGENCY MEDICAL TREATMENT AND FIRST AID	
Eyes	• Flush each eye continuously for 15 minutes. • Tilt head to side to ensure liquid runs onto floor not other eye. • Refer to EMT for evaluation.
Skin	• Remove contaminated clothing immediately. • Wash skin continuously for 15 minutes. • Refer to physician if redness, swelling, or pain persists after washing
Breathing	• Call 911; • Remove to fresh air immediately; • begin CPR until EMT arrives
Ingestion	• Aspiration hazard • Do not induce vomiting. • Do not give anything by mouth.

INCIDENT REPORTING REQUIREMENTS	
• **FIRST AID** • **EMERGENCIES (FIRE / POLICE)** • **INJURIES/MEDICAL TREATMENT** • **VEHICLE ACCIDENT** • **NEAR MISS** • **ENVIRONMENTAL SPILL**	• Employees <u>immediately report</u> all accidents, injuries, incidents, or near misses to the project supervisor. • The supervisor will immediately notify the Precision Environmental Safety Team ○ Ray Wiecek: 216-276-0024 ○ Randy Cadorini: 216-214-0423 ○ Tyler Jasinski: 440-840-2562 • Safety Director will provide employee disposition guidelines and coordinate an accident investigation by either himself or the Project Manager/Site Supervisor. • Safety Director will relay information to the Spirtas Wrecking Co. and the Precision Environmental General Superintendent. • The supervisor or Safety will transport the employee for post-accident drug testing if possible.

Employee Participation, Consultation, and Incident Reporting

Open, two-way communication between the leadership team and line employees on safety, health, and environmental (SH&E) issues is essential to an injury-free, productive, and environmentally sound workplace. The following system provides for the flow of this information.

- Continually maintaining an environment where any worker can report SH&E concerns without any risk of retribution.
- A collaborative approach to resolving worker SH&E concerns, using worker knowledge and experience in developing appropriate risk control measures.

- New worker orientation, including specific orientation to SH&E policies and procedures
- Reviews of the Precision Environmental HASP
- Workplace SH&E training programs
- Regular Safety Meetings
- Posted or distributed SH&E information (awareness programs)
- Procedures to anonymously inform management of workplace hazards, exposures, or risks
- An employee (or labor/management) SH&E team that: 1) meets regularly and prepares written records, 2) reviews results of periodic scheduled inspections, 3) reviews incident investigations, 4) assesses work risk, 5) reviews reports of hazards, exposures, or adverse environmental conditions, and 6) makes suggestions to management to prevent future incidents.

SAFETY DISCIPLINARY PROCEDURES

Precision Environmental intends to follow the disciplinary policies as necessary.

- **Safety Violation Category 1:** (could result in serious injury, fatality, or property damage)

1st Offense –The rest of the day plus (1) twenty-four (24) hour suspension of employee from the project. Verbal warning to supervisor responsible for employee documented on the safety violation notification form. Employee must be retrained prior to resuming work. Upon employee's return, the employer shall show proof of retraining by a competent person to the project superintendent. Employee may choose the option to create a toolbox training concerning the violation and then conduct the training to the rest of their crew prior to returning to work.

2nd Offense – Indefinite suspension of employee and written warning to supervisor.

- **Safety Violation Category 2:** (could result in injury or property damage)

If 3 or more employees are in violation, the supervisor shall receive a verbal warning. 1st

Offense – documented verbal warning and notification to supervisor.

2nd Offense - Written warning to worker, and verbal warning to supervisor on violation notification form. Retraining of worker will be required to resume work.

3rd Offense - Suspension determined by severity of violation and written warnings. Both the employee and supervisor will need retrained to resume work.

- **Negligence/Disregard/Sabotage:** (dangerous, violent, destructive, or defiant behavior)

1st Offense – immediate removal from project

- **Failure to sign violation will result in immediate dismissal from the project.**

DRUG FREE WORKPLACE PROGRAM & MEDICAL SURVEILLANCE

Type	Frequency	Pre Job**	Post Job
Precision's 310 members participate in the CISAP program. 894 / Shop / Office / and Non-Union employees are entered into a CISAP equivalent screening pool managed by Mobile Medical Corp.			
Precision DFWP Program - CISAP at a minimum	Administered by Mobile Medical	Yes	N/A
Medical Clearance- 29 CFR 1926.1101 (Asbestos)	Annual	Yes	N/A
Medical Clearance- 29 CFR 1910.134 (Respiratory Protection)	Annual	Yes	N/A
Medical Clearance- 29 CFR 1926.1153 (Crystalline Silica)	Tri-Annual	Yes	N/A
Respirator Fit Test	Annual	Yes	N/A
Blood Lead / ZPP**	Ongoing – dictated by air monitoring.	Yes	Dictated by air monitoring
**** Not required if these have already been done as part of annual physical examination****			

SUPPLEMENT – PPE REQUIREMENTS (EPA LEVELS OF PROTECTION: A-D)

TASK	Level	Respiratory Protection	ADDITIONAL PPE
Mandatory Minimum (REQUIRED 100% AT ALL TIMES).	D	N/A	Hardhats, safety glasses (including prescription / over the glasses), steel-toed safety work boots, Task appropriate gloves.
Containment construction / demarcation of work areas.	**D**	N/A	Hardhats, safety glasses, hi-visibility clothing, steel-toed safety work boots, task appropriate gloves.
Manual removal / Disposal and load out of Asbestos Containing materials.	**C**	NIOSH Approved Full Face Respirator Equipped with P-100 Filters	Hardhats, safety glasses, hi-visibility clothing, steel-toed safety work boots, task appropriate gloves. Tyvek / Cotton Coveralls.
Non-ACM demolition work.	**C**	NIOSH Approved full face Respirator Equipped with P-100 Filters	Hardhats, safety glasses, hi-visibility clothing, steel-toed safety work boots, task appropriate gloves.

SUPPLEMENT – TRAINING & LICENSING REQUIREMENTS

Personnel	Type
Supervisor	OSHA 30 Hour Construction / 30 Hour Refresher
Supervisor	First Aid/ CPR & AED
All Employees	EPA Model Accreditation Plan Initial Asbestos Supervisor or Worker Certification
All Employees	Current 8 Hour EPA Approved Asbestos Supervisor or Worker Refresher
All Employees	Illinois DPH Asbestos Supervisor or Worker Licensure
All Employees	Hazard Communication 29 CFR 1910.1200
All Employees	Respiratory Protection 29 CFR 1910.134
Silica Generation Activities	Crystalline Silica 29 CFR 1910.1153
Operator (Forklift's)	Powered Industrial Trucks 29 CFR 1910.178

DECONTAMINATION PLAN

DECONTAMINATION PLAN	• Establish 5-Stage and / or remote decontamination unit adjacent to the work area. • All constructed decontamination units will consist of a clean room, buffer room, shower room, buffer room, and equipment room each separated from each other and the work area by air locks and accessible through doorways protected with (2) overlapping polyethylene sheets. • Ensure hot water supply is adequate for the work force. • Provide safe walkway / poly sheeting represents slip hazard. • Place empty lined drums or plastic bags for contaminated PPE. • HEPA Vacuum outer Tyvek Suit, remove debris that may have collected from hardhat or brim of respirator. • Remove Tyvek- roll down, place into disposal container. • Sit down and remove boots. • **Remove gloves.** • **Remove respirator (Within Shower).** • **Clean respirator.** • **Wash hands and face.**
EQUIPMENT DECONTAMINATION	• All equipment (hand tools, moving equipment, etc.) that enters into a containment area shall remain in the containment area until decontaminated. • Wash all equipment down with water. • HEPA Vac. • Repeat wash.

HAZARD COMMUNICATION
(SDS'S AVAILABLE UPON REQUEST)

CHEMICAL / CAS	CHEMICAL PROPERTIES	EXPOSURE LIMITS	ROUTES OF ENTRY	SYMPTOMS
Asbestos	Fibrous solid to dust-like powder. White to grey-brown. Odorless.	PEL: 0.1 fibers/cc^3 Ceiling: 1.0 fibers/cc^3	Inhalation Ingestion	Long-term respiratory issues. Cancer/asbestosis
Carbon Monoxide (Running Equipment)	Colorless / odorless gas	PEL: 50ppm NIOSH C: 200ppm IDLH: 1200 ppm	Inhalation	Headache, nausea, weakness, exhaustion.
Silica (impacted demolition activities).	Colorless / odorless solid	PEL: 50ug/m3	Inhalation Ingestion	Cough, wheezing, breathing difficulty, Silicosis
Gasoline (Equipment Refueling)	Clear liquid with a characteristic odor.	PEL Benzene = 1 ppm PEL Toluene = 200 ppm PEL Ethyl Benzene = 100 ppm PEL Xylene = 100 ppm	Inhalation Ingestion Skin Contact	Mild eye irritation; skin irritant; moderate degree toxicity from inhalation; aspiration hazard from ingestion; possible cancer hazard
Diesel (Equipment Refueling)	Brown slightly viscous liquid, with characteristic odor.	PEL Ethyl Benzene = 100 ppm PEL Naphthalene= 10 ppm PEL Kerosene = None IDLH = N/A	Inhalation Ingestion Skin Contact	Mild eye irritation; skin irritant; moderate degree toxicity from inhalation; aspiration hazard from ingestion; possible cancer hazard

AIR MONITORING

Type		Instrument	Action Level	Monitoring Procedure	Analytical Method
Asbestos – Personal Sampling (Worker Exposure).		Sensidyne BDX II Abatement Air Sampler – Low Flow Personal Pump	OSHA PEL: 0.1 fibers/cc³ Ceiling: 1.0 fibers/cc³	Place / clip cassette within the breathing area of employee. Collect for representative (8) hr. sample. As well as excursion case anticipated	NIOSH 7400- PCM Asbestos
Carbon Monoxide – Direct Read (Worker Exposure)	MSA Altair 2X – CO Single Gas Monitor				
Crystalline Silica (as necessary if deviating from table 1 controls)	Sensidyne BDX II – flow personal pump			exposure, approximate 45-60 minutes). Repeat monitoring for each day.	

4.2 Development of Plans, Procedures and Hazard Analysis

SWC to develop plans and procedures in house and in conjunction with listed or hired subcontractors. All plans and procedures will be submitted to Vistra prior to commencement of those activities. These plans will include:

- *Site specific health and safety plan*
- *Execution Plan (Work Plan)*
- *Spill Control Plan with Work Plan for inspection and draining of piping*
- *SWPPP Implementation Plan*
- *Noise Control Plan*
- *Duct Control Plan*
- *Dewatering Plan*
- *Traffic Control Plan*
- *Emergency Plan*
- *Waste Management Plan*

Additionally, SWC will provide to Vistra its permitting and notification items, Safety Data Sheets, and other safety and regulatory items.

4.2.1 Hazard Analysis JSA

SWC to utilize the following JSA form for daily activities and discussion. This form to be completed and submitted to RPR along with daily paperwork.

PJB FORM

SUPERVISOR/FOREMAN: _____ **DATE:**

PROJECT: **JOB#** 23-0010

DESCRIPTION OF WORK:

Required PPE

- D Safety Glasses
- D Hard Hat
- D Leather Boots
- D Gloves
- D Fire Resistant Clothing
- 0 Face Shield
- D Respirator
- D Fall Protection
- D Ear Plugs

Required Permits

- D HotWork
- D **Excavation**
- D Confined Space
- D Lock out Tag Out

Eguiement Oeerations

- D Spotter
- 0 Spill Kit
- D 3 Points Contact Entry/Exit
- 0 Lower Boom/Brake
- D Power Lines
- 0 Exclusion Zone (30', 75', 100')
- 0 Containments (Idle> 8 hrs.)

Miscellaneous

- D House Keeping
- D Heat Stress
- D Lead Paint or Asbestos
- D Dust Concerns (ash/silica)
- D Ground Fault Circuit Interrupter
- D Other

SPIRTAS WRECKING COMPANY
951 SKINKER PARKWAY
ST. LOUIS, MISSOURI 63112
314-862-9800

IlJemrncll I□fora:iatio□

P.O.C. Name _____
Phone# _____
Safety Rep Name _____
Phone# _____
Environmental Name _____
Phone# _____

STOP WORK FOR I. D. L. H.
(IMMEDIATE DANGER TO LIFE OR HEALTH)

DATE	NAME (orintl	SIGNATURE	POST JOB INJURY FREE

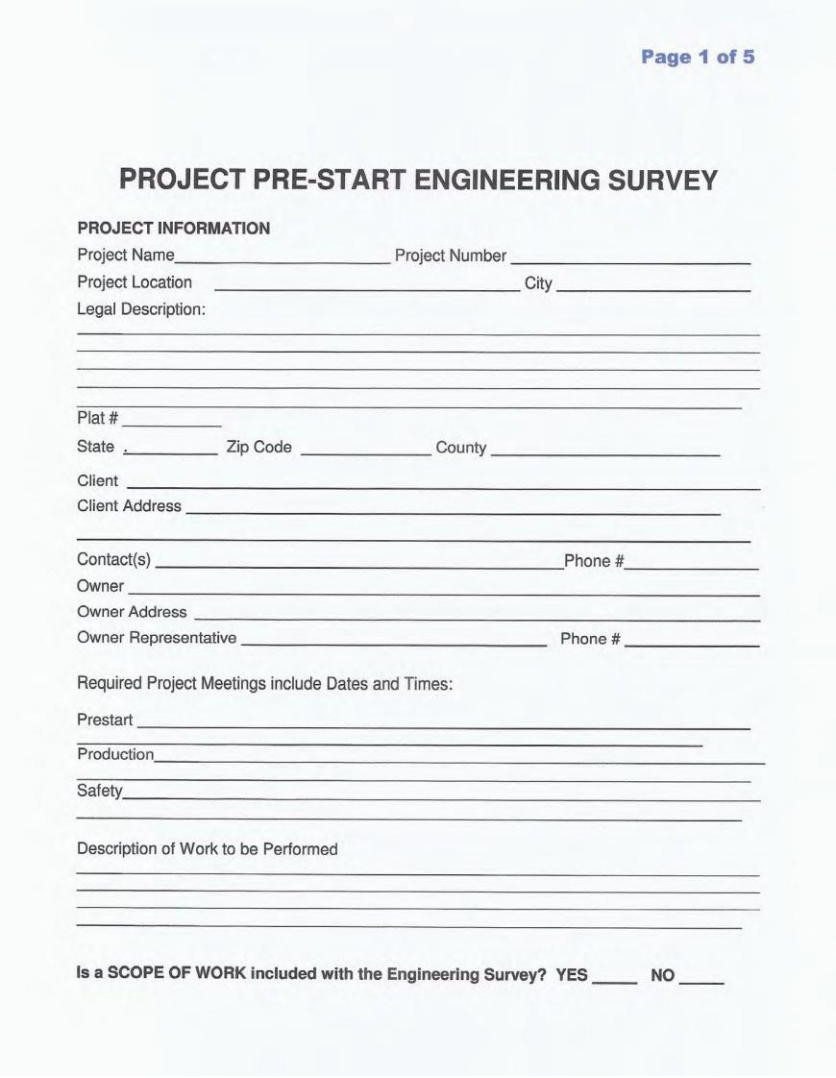
See attachments

4.3 Establish and Connect Utility Services

SWC to obtain/provide temporary electrical service to its portable office trailer. A telephone service will be installed inside office. Other telephone service will be the use of handheld devices. SWC and its subcontractor will utilize the existing well water at the facility for its work. SWC will attach the necessary components to utilize well water including a generator to power well pump and the associated piping / fittings. All other utility service will be terminated (made cold/dark) prior to mobilization including electrical, sewer, and communication. There is currently no gas service to plant. SWC and its subcontractor will provide electrical service for its work performance.

4.4 Engineering Assessment of the Facility

SWC will complete the following Project Pre-Start Engineering Report (a full five-page report will be submitted for Project). This survey will be attached to the formal work plan to be submitted to RPR for approval prior to commencing work.



Page 1 of 5

PROJECT PRE-START ENGINEERING SURVEY

PROJECT INFORMATION

Project Name_____ Project Number _____

Project Location _____ City _____

Legal Description:

_____

_____

_____

_____

_____

Plat # _____

State _____ Zip Code _____ County _____

Client _____

Client Address _____

_____

Contact(s) _____ Phone #_____

Owner _____

Owner Address _____

Owner Representative _____ Phone # _____

Required Project Meetings include Dates and Times:

Prestart _____

_____

Production_____

_____

Safety_____

_____

Description of Work to be Performed

_____

_____

_____

_____

Is a SCOPE OF WORK included with the Engineering Survey? YES _____ NO _____

5.0 PROJECT EXECUTION

5.1 Site Preparation

SWC to make all preparations upon mobilization including establishing of the project office, DEZ, installation of protection and/or signage of save items (electrical substation, combustion turbine, ash pond closure area, shed, diesel fuel storage tank) and delineation

of approved road travel areas. SWC will install these items as depicted on the preliminary site drawing.

5.1.1 Work Zone Delineation (DEZ)

SWC to make all persons working at site, as well as project visitors, aware of the DEZ through the initial site orientation and daily toolbox meeting topic. This will include areas that are not allowed access except by approved demolition or remediation personnel. Also, specific traffic routes will be utilized to route trucks in and out of site as depicted in Appendix A. (see Appendix A Figure 1)

5.1.2 Site Access Controls

Site access will be granted to approved Project personnel only. SWC will monitor all incoming Duck Creek Power Plant Demolition Project personnel and vehicular traffic coming into site during normal working hours. Site access is through the Vistra Security gate. Security guards will log personnel in and out of plant.

5.1.3 Lockout/Tag-out Verification

SWC, as part of its OSHA pre-work survey, will conduct a walk down with RPR to ensure all utilities are locked out and /or disconnected. This will include all plant electrical power and lighting systems to insure these are cold and dark. Power was disconnected on or about 04/01/23.

5.2 Demolition of the Duck Creek Power Plant

The demolition of the Duck Creek Power Plant will be by conventional and use of explosive methods.

5.2.1 Description of DEMO Equipment and Tools

SWC plans the use of the following equipment (or similar) to accomplish the work:

Fleet No.:	Model*	Attachments	Weight	Year	Cab Protect	UC Protect	Quick Connect	Attach plumbing
270	CAT 336 Excavator	Quest Heavy Duty Grapple for 336	37 Tons	2019	Y	Y	Y	Y
247	CAT 385BL Excavator	LaBounty UPX950 Shear	86 Tons	2004	Y	Y	Y	Y
NA	CAT 352 Excavator				Y	Y	Y	Y
272	CAT 349 FL Excavator	Quest Heavy Duty Grapple for 349	48 Tons	2017	N	Y	Y	Y
554	CAT Skid Steer Loader	LaBounty Grapple and Bucket	4.2 Tons	2017	Y	Y	Y	Y
	CAT 950M Wheel Loader							
000256	Kobelco SK210 Excavator							
NA	Freight Liner Water truck							
NA	CAT 349FL Excavator							

Model **(DEX):** **D**emolition Equipped **EX**cavator
Attachment: **G**/Grapple; **B**/Bucket; **P**/Processor; **S**/Shear; **MP**/Multi-processor; **B**/Breaker; **SS-G**/Skid Steer Grapple; **M**/Magnet
Cab Protect: DEX has operator guard protection installed
UC: Undercarriage protection (to prevent hose puncture)
Quick Connect: Hydraulic connector for DEX attachments
Attach Plumbing: Equipped with appropriate lines for hydraulic tool adaption

5.2.2 Demolition Strategy and Approach for this Project

SWC to mobilize subcontractor and perform asbestos abatement. During the subcontractor abatement phase, SWC to perform the general condition items such as installation of the DEZ safety fences, protection of save items (combustion turbine) and other protection, as well as SWPPP items. SWC will also remove the remaining transformer and ship off site intact. Additionally, SWC will be mobilizing DEX equipment and other necessary tools and equipment needed for demolition. SWC will use the Project Matrix as a basis for the general approach and is as follows:

General Matrix Considerations for Project Scope:

1. Environmental Activities
   a) ACM abatement activities as listed.
   b) Sample suspicious materials for ACM (wiring, boiler and stack).
   c) Removal of remaining transformer.
   d) Controlled flushing of remaining lubricants and oils.
   e) Controlled draining of process piping; water treatment tanks.
   f) Remove DC batteries (if any).
   g) Remove ballasts and bulbs as required.
   h) Removal of fixed heavy metal containing circuitry.
   i) Removal of electronic waste as necessary including computers.

j) Removal of miscellaneous containers, drums, totes, and cylinders.3
k) Removal of transformer pads to two feet below final grade.
l) Characterization and disposal of waste to include:
    i. Hazardous waste;
    ii. Asbestos-containing waste;
    iii. PCB-contaminated waste;
    iv. Universal wastes;
    v. Potentially contaminated ground or surface water;
    vi. Other waste prohibited for disposal at solid waste facility.
m) No nonfriable ACM will be left in place in areas where explosive demo is to be used. Demo will not start in any given plant area until asbestos abatement has been completed in that given area.

2. SWPPP -National Pollutant Discharge Elimination System (NPDES)
    a) Keep and maintain Plan in Project office.
    b) Off-site vehicle or equipment tracking of soil shall be minimized.
    c) If soil is tracked on any portion of pavements or structures used by public traffic on or adjacent to the construction site, SWC will clean the pavement at the end of each day of operation.
    d) A hose wash down station will be utilized if the tracking of soil off-site is evident.
    e) Sediment will be retained on site and not be allowed to enter storm inlets or receiving water.
    f) Sediment runoff from the site will be controlled by installing silt fences.
    g) Other measures will include the control of dust and stockpiled materials, prompt disposal of scrap metals, and the use of secondary containments.
    h) If any Cat I nonfriable ACM is to be left in place in other areas of the facility, the plan will make it clear that Demolition of those areas will be performed with awareness of the need to maintain Cat I nonfriable ACM in good, nonregulated condition throughout demolition, disposal, and deposit at a landfill. The methods used to demolish these areas will be employed with every effort made to minimize breakage of unregulated Cat I nonfriable ACM so as not to render it in regulated condition. If unregulated ACM becomes regulated in the course of demolition, that debris will be appropriately managed as RACM from that point forward.
3. Demolition
    a) Completion of protection and sampling clearance of abatement.
    b) Obtain clearance from RPR to commence demolition.
    c) Demolish superstructure.
        a. General Sequencing (see sequencing and drawing in Appendix B)
    d) Demolish all equipment, piping, components within footprint.
    e) Demolish pedestals, interior walls and break up slab.
    f) Process materials and remove rebar.
    g) Dispose of all materials not intended for use as backfill.
4. Site Restoration
    a) Utilize processed materials from demolition (6” minus) of site or borrow area (if necessary) to backfill areas.

General Sequencing for Demolition: see attached site map

1. Phase 1: Material Handling Equipment
Phase 2: Air Pollution Control
Phase 3: Coal Handling
Phase 4: Turbine Building/Administration Building
Phase 5: Boiler House, Old Stack, and New Stack

The General Sequence Image can be viewed in Appendix B .Additional Narrative

SWC will utilize three Kebelco 500s, two CAT skid steers, and one JLG aerial lift (Demolition Equipped Excavator with shear attachment) to perform demolition of the Duck Creek Power Plant. This demolition procedure will be performed until entire structure has been systematically demolished and is safely on the ground. The demolition debris will be removed from the site and sorted, processed and loaded out. This debris will include combustible material, scrap steel, bricks, roofing material and other miscellaneous debris. These materials will be sorted into three types:

1. *Non-recyclable combustible materials/roof material;*
2. *Recyclable Scrap metal including rebar; and*
3. *Aggregates/Brick (to be used for site fill).*

All combustible materials will be shipped off site and properly disposed. Scrap metals will be downsized and shipped off site to be recycled. Remaining aggregate materials such as block, brick and concrete will be processed and used on site as fill material and staged in the MLA for use during site restoration.

5.2.3 Site Restoration

SWC will back fill areas as per specification using on site material and processed to a 12 inch minus sized material.

6.0 DEMOBILIZATION

SWC to demobilize following completion of punch list work items. The Close Out package containing documentation for administrative fulfillment will be compiled and forwarded in a timely manner.

7.0 DUST CONTROL PLANS

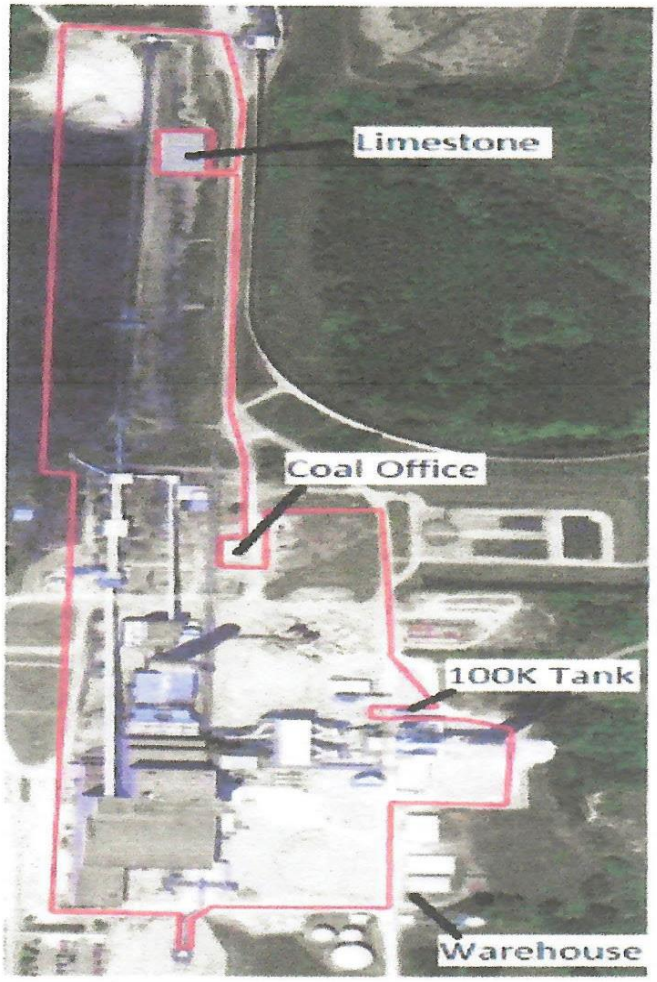
The Fugitive Dust Control Plan, the Dust Control Update Attachment to Demolition Plan, and the Dust Mitigation Plan for Smokestack Demolition can be viewed in Appendix C.

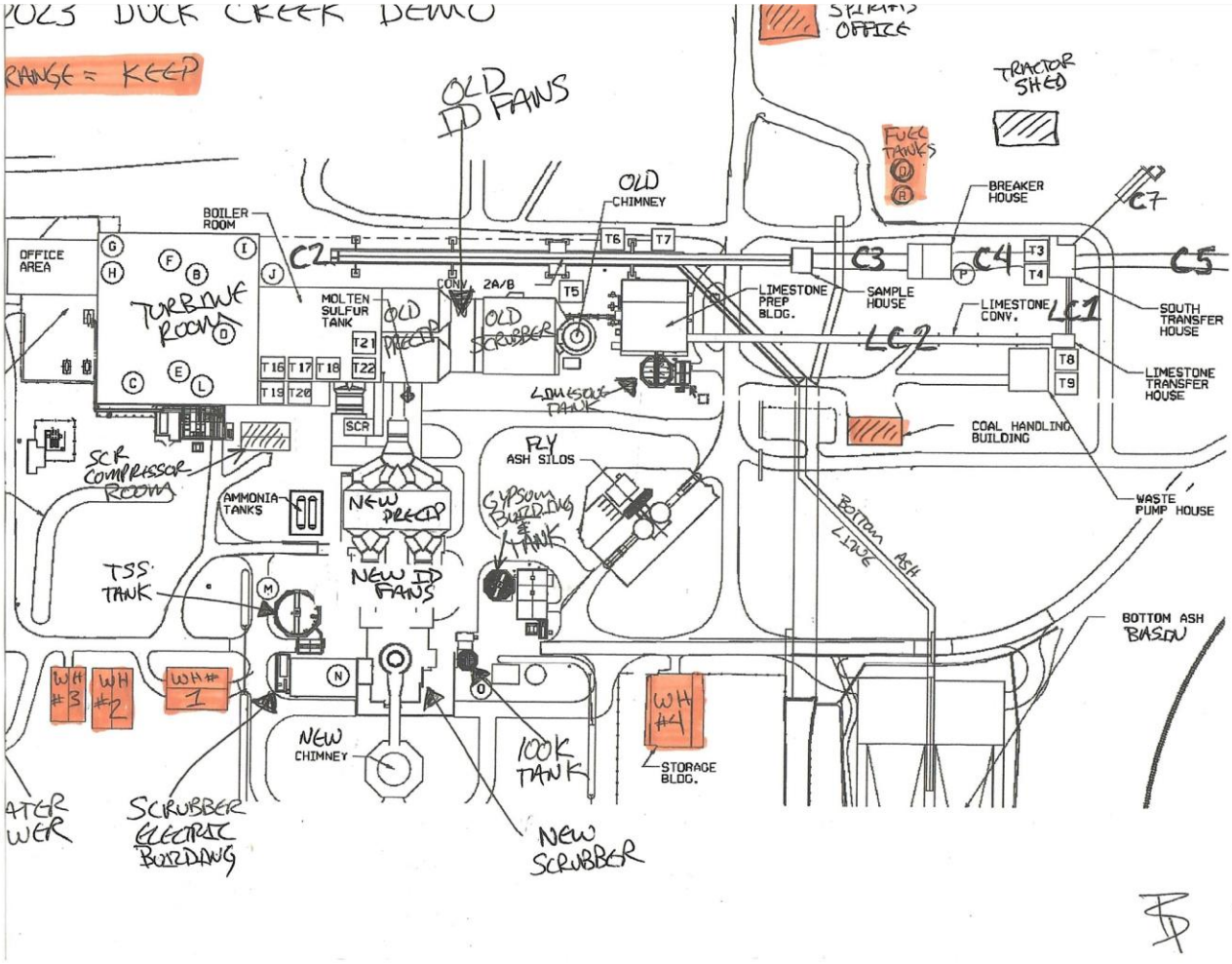
APPENDIX A

WORK ZONE DELINEATION

Appendix A

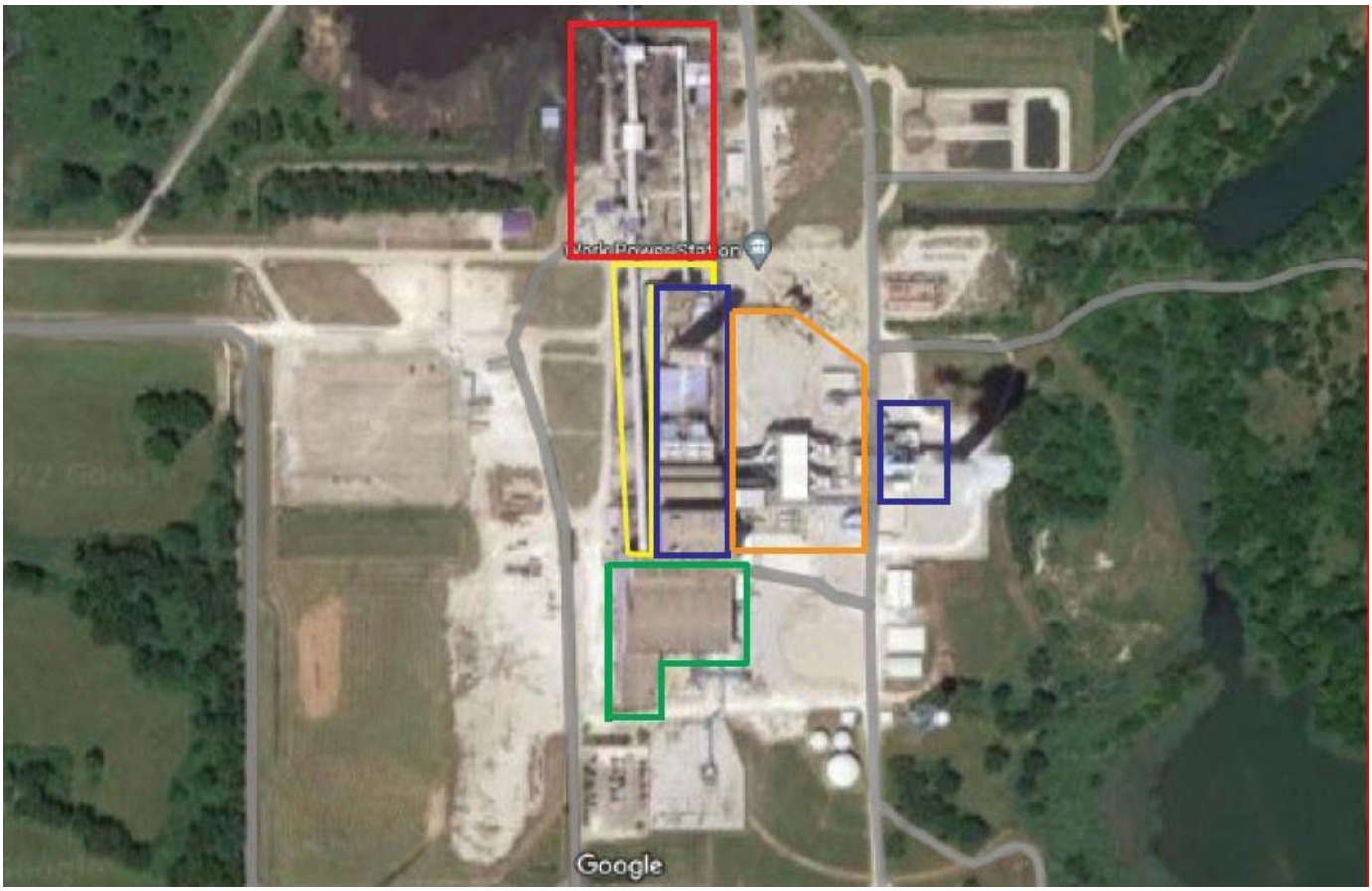
Bid Figure 1




2023 DUCK CREEK DEMO
RANGE = KEEP
OLD ID FANS
OLD CHIMNEY
TRACTOR SHED
FUEL TANKS
BREAKER HOUSE
C7
C5
C4
C3
C2
C1
LC2
LC1
BOILER ROOM
OFFICE AREA
TURBINE ROOM
MOLTEN SULFUR TANK
OLD PRECIP
OLD SCRUBBER
CONV. 2A/B
LIMESTONE PREP BLDG.
SAMPLE HOUSE
LIMESTONE CONV.
SOUTH TRANSFER HOUSE
LIMESTONE TRANSFER HOUSE
COAL HANDLING BUILDING
WASTE PUMP HOUSE
SCR COMPRESSOR ROOMS
AMMONIA TANKS
NEW PRECIP
FLY ASH SILOS
GYPSUM BUILDING & TANK
BOTTOM ASH LINE
TSS TANK
NEW ID FANS
BOTTOM ASH BASIN
WH #3
WH #2
WH #1
WH #4
NEW CHIMNEY
100K TANK
STORAGE BLDG.
SCRUBBER ELECTRIC BUILDING
NEW SCRUBBER

APPENDIX B

GENERAL SEQUENCE IMAGE



Phase 1: Red
Coal/Limestone Handling Equipment

Phase 2: Yellow
Coal Handling

Phase 3: Green
Turbine Building/Administration Building

Phase 4: Blue
Boiler House, Old Stack, and New Stack

Phase 5: Orange
Air Pollution Control

APPENDIX C

FUGITIVE DUST CONTROL AND DUST MITIGATION PLANS

FUGITIVE DUST CONTROL PLAN

Duck Creek Power Station

Canton, Fulton County, Illinois

December 2022

Prepared for:
Spirtas Wrecking Company
St. Louis, MO

Fugitive Dust Control Plan

Duck Creek Power Station
Canton, Fulton County, Illinois

Prepared for:

Spirtas Wrecking Company

951 Skinker Parkway

St. Louis, MO 63112

TABLE OF CONTENTS

Page

1.0 INTRODUCTION

Spirtas Wrecking Company has prepared this Fugitive Dust Control Plan (FDCP) to identify the measures that will be taken to reduce the potential for particulate emissions associated with demolition activities at the Duck Creek Power Plant located in Canton, Fulton County, Illinois (the Site). A Site Layout Map is provided in the Removal Action Work Plan. This FDCP will be implemented in conjunction with the Air Monitoring Plan also prepared for these demolition activities, which describes the air monitoring activities to be performed during the work.

The purpose of this FDCP is to identify the steps that will be taken to reduce the potential for particulate emissions during demolition activities. The FDCP includes activity-specific dust control criteria and dust suppression procedures. Best management practices (BMPs) will be implemented throughout the project. BMPs include wetting active demolition areas, minimizing or ceasing activities during periods of high wind, sweeping or wetting paved areas, wetting unpaved areas, application of dust suppressant materials and covering stockpiles. This FDCP provides specific information about the generation and control of dust emissions during the excavation of soil material, stockpiling of these materials and other activities associated with the demolition. This plan is to be used in conjunction with the Demolition Work Plan, Site-Specific Health and Safety Plan (HASP), and the Air Monitoring Plan developed for this project. The following section details potential dust sources and dust control methods.

1.1 Site Description and Project Overview

The site is Canton, Fulton County, Illinois. The Site is located in a predominately underdeveloped area with outlying agricultural, cooling ponds, and lakes surrounding the site.

Initial activities include the abatement and disposal of Asbestos Containing Materials (ACM) as well as the collection and disposal of Other Regulated Materials (ORM). Then, the demolition of the power station structures to levels immediately adjacent to the elevation of prevailing adjacent ground level in each location. During work activities, periodic air monitoring, and fugitive dusk control will be conducted. In addition, Spirtas will coordinate traffic and road control at the Site. Following demolition activities, wastes will be disposed of or recycled properly.

Demolition activities will begin on outer buildings in Spring of 2023. The Boiler House and stacks will be demolished on October 15, 2023.

1.2 Wind Monitoring and Dust Prevention Team

The FDCP will be implemented and overseen by Spirtas personnel. Spirtas personnel have the authority to implement additional dust control provisions and stop work provisions based on the results of the air monitoring described in the Air Monitoring Plan. Spirtas personnel will also maintain and revise the FDCP as needed to reduce the potential for dust emissions during demolition activities.

1.3 Fugitive Dust Control Objectives and Approach

The objectives of the FDCP are as follows:

- Provide an early warning system to alert Demolition Contractor when concentrations of respirable dust in ambient air are approaching Action Levels due to removal activities.
- Provide a plan for preemptively limiting and controlling respirable dust during removal activities
- Determine whether construction controls are effective in reducing ambient air concentrations of specific compounds to below Action Levels, and make appropriate and necessary adjustments.
- Develop a permanent record that includes a database of the total quantity of loaded or unloaded material in cubic yards or tons, total application of water, total amount of street cleaning and sweeping, instances of work-stopping weather events, results of the real-time air monitoring, and instances of dust approaching or exceeding the Action Levels.
- Control dust and ensure dust does not migrate from the project limits.

2.0 MONITORING ACTIVITIES

Spirtas is the Air Monitoring Contractor for this project. Spirtas will be responsible for the collection, evaluation, presentation, and data management of the real-time air monitoring results. Other Spirtas responsibilities include maintenance of sampling equipment and developing on-site recommendations for response actions. SITEX will be responsible for Air Monitoring during the demolition with explosive events for the Boiler House and Stacks.

The plan for a full scale air monitoring program is detailed in the AMP and generally consists of the following:

- 2 perimeter air monitoring stations will be deployed as shown on Figure 1 of the *Air Monitoring Plan*. Mobilization and air monitoring equipment preparation for the Site will be initiated prior to the start of removal activities. The perimeter air monitoring stations will monitor ambient air continuously while removal activities are being conducted. Bulk material stockpiles will not be maintained at the Site. Small stockpiles will only be temporarily formed when pulling soil within the reach of the excavator while loading a truck; therefore, continuous 24/7 air monitoring will not be necessary.
- Three days of baseline air monitoring will be conducted for the Site before any removal activities occur.
- In addition to the air monitoring stations, a dedicated weather station will be established at the Site and operated to continuously monitor meteorological conditions during the removal activities.

The air monitoring during the two demolitions with explosive events will be conducted by SITEX. Two types of sampling will be done to include stationary area air sampling and nonstationary mobile direct reading sampling. Stationary area air sampling will be conducted using a low volume GILAIR 3 sampling pump placed on tripods at stationary location illustrated in the map. Stationary area air samples will be collected using a sampling train consisting of clear Tygon tubing attached to the sampling pump, and at the other end of the tubing, a pre-weighed polyvinyl chloride 37-millimeter sized cassette will be attached. The ese samples will be analyzed for total particulate dust using the modified NIOSH 0500 Method. SITEX will also use a hand-held TSI DustTrak direct reading instrument. This instrument will be carried to various locations outside the exclusion zone to directly measure ambient airborne particulate matter. Both sampling methods will be compared to the National Ambient Air Quality Standards for particulates of 10 microns and smaller (PM10). Air monitoring data and documentation from all instruments will be included in the final report. See the attached map for projected locations of air monitoring equipment. This map has also been added to the Plan.

2.1 Nature of the Dust

The Site is within a heavy industrial area. This FDCP is being developed to compliment upcoming demolition activities including excavation, disposal, and regrading of the Site.

3.0 DUST CONTROL PLAN

Control of dust will be a high priority during demolition activities. The primary mechanism for dust control will be the use of water trucks with a spray bar, misters and hoses. Proactive controls will be instituted to reduce the amount of dust generation during Site activities, including enforcement of low-speed limits for vehicular traffic, decontamination of trucks leaving the demolition work areas and height limits for stockpiles, if applicable.

Spirtas will implement a dust control training program for all Site personnel. This training program will review the potential sources of dust, individual responsibilities, and actions for controlling dust as described in this plan. The training will emphasize the importance of dust control to the overall success of the demolition activities and familiarize Site management with the air monitoring requirements and appropriate dust control procedures that must be adhered to in accordance with this plan to minimize dust generation.

4.0 POTENTIAL DUST GENERATION ACTIVITIES AND PROPOSED CONTROLS

Demolition activities will have the potential to generate emissions in the form of fugitive dust. Dust control methods will vary based on the activities occurring at the Site. Activities to be conducted during the demolition activities which have the potential to generate duct, and the respective dust control measures, are described in the summary table below.

Activity	Proposed Dust Control Measures	Verification Method
Demolition	Wet down material before demolitions, use water-spray during demolition, keep ground wet for falling debris	Daily Visual Monitoring
Processing	Wet down material before processing, use dust suppression system during processing	
Stockpiles	Keep material met by applying water-spray onto piled debris	
Excavation	Use wet methods during excavation, apply water on ground/soil to be excavated	
Truck/Traffic Movement	Wet down paved and unpaved roads needed per weather conditions, provide wash stations to prevent track-out, tarp cover for trucks leaving the project site	

4.1 Dust Suppression Measure Details

At the Duck Creek Power Plant demolition project site, fugitive dust emissions are likely to be generated from the following site activities. Demolition will not occur if the proper wind speed/direction/and/or temperature are not achieved. Demolition will not occur without all BMPS's in the dust plan in place and in working order. Proposed dust-controls measures for each of these activities are described here:

4.1.1 Structural Demolition

Demolition work will be completed using high reach excavators, hydraulic excavators, wheel loaders, and skid steers in order to raze the existing Duck Creek Power Plant structures.

4.1.2 Turbine Hall, and Associated Coal Conveyor Bay and Boiler House

High Reach excavators equipped with shears will dismantle the remaining Turbine Hall, Coal Conveyor Bay, and Boiler House in a top down, bay-by-bay manner to the extent they can be reached from grade. Once the upper decks are removed, the standard reach excavators equipped with processors and shears will remove the lower decks, equipment, and masonry in a bay-by-bay manner top-down. The Bays will be worked primarily in a West to East manner completing each structure separately. Prior to beginning work at each day shift, the structure will be sprayed down and thoroughly wetted utilizing a combination of mister and direct spray. These areas will have

mister and direct spray continuing throughout demolition activities to control emissions. The structure and ground surrounding the Turbine Hall and associated units, including any ground that could be impacted by the demolition, will be wetted thoroughly prior to and during the razing effort. The Turbine Hall being taken down will have a top-down watering prior to being razed creating a waterfall effect to control and minimize dust emissions. During the razing event, dust suppression equipment and additional water will be utilized and applied strategically based on weather conditions, wind direction, and building demolition lay-down plan to minimize emissions. All known ACM was removed from the Coal Conveyor and Boiler House structures during the abatement phase of the project. If any suspect ACM is discovered during demolition by Spirtas's supervisor, demolition activities will be stopped immediately. The suspect material will be sampled for ACM and appropriate remedial actions, in compliance with all applicable regulations, will be put in place to address it.

4.1.3 Watering

The Demolition Contractor shall conduct operations and maintain the Site as to minimize the creation and dispersion of respirable dust. Clean water, provided by the Demolition Contractor, shall be applied to the Site to prevent dust during excavation, loading/unloading, and backfilling activities. BMPs will be upkept and observations will be conducted by a qualified person to determine if they are performing as intended to prevent dust from spreading off site. Roads within the work area will be wet down periodically by a tanker truck with a spray bar throughout the demolition shift. Observations will be conducted by a qualified person to determine when more water is required. If it is deemed necessary, the frequency of water will be increased. Excavation areas and on-site roadways will be kept damp, as necessary, without creating ponding or mists that travel beyond the Site boundaries. The watering operations shall be sufficient to control fugitive dust. Spirtas assumes that tanker trucks will be utilized to provide and apply clean water for removal activities. Water shall be applied in a manner to prevent runoff. As a contingency measure, Spirtas will have erosion and sedimentation controls, such as silt fencing, sediment logs, or manhole silt screens, installed as necessary to manage runoff. Roads will be watered daily. Water misters will be used and placed strategically around the site to prevent dust mitigation outside the project limits. Water misters will be running continually as demolition activities are in progress.

Water shall be applied in a manner to prevent runoff. As a contingency measure, Spirtas will have erosion and sedimentation controls, such as silt fencing, sediment logs, or manhole silt screens, installed as necessary to manage runoff.

The interior of stacks and the exterior of the boiler house will be wetted with water cannons prior to demolition. After the implosion of the stacks and boiler house, while they are falling, direct water from cannons as well as water misters will be used to further ensure no migration of dust or debris offsite.

The six misters will be placed around the stacks/boiler house to prevent dust migration from the site to its nearest off-site neighbors. If the wind direction changes from the forecasted direction, one of the six misters may be moved to another location depending on the wind direction. This adaptability should allow for better dust suppression. Water cannons will also be used during the demolition events. Regardless of precipitation as a means to mitigate dust generation, proper BMPs will still be used including dust suppression equipment.

4.1.4 Sorting and Substructure Removal

Once the sections of the Turbine Hall and related structures are demolished to grade, materials will be segregated for disposal by support equipment. Work will be phased to stop structural demolition activities at a safe point prior to the end of each shift. Stockpiled materials will be wetted periodically during each shift and visually inspected in accordance with Section 4.0 and 4.1.6 of this FDCP. Dust suppression equipment will be adjusted as needed. All materials will be sorted and segregated as work progresses in order to maximize recycling efforts. Haul-off of the materials not being stockpiled for reuse will be continuous as work progresses in order to minimize any processed materials on-site. Once Turbine Hall demolition is completed, work will commence on slab-on-grade and foundation removal in the affected area. This process will be completed utilizing hydraulic excavators equipped with buckets, breakers and wrecking balls to break concrete in manageable sections. Slab and Foundation areas will be wetted before demolition of these areas commences. Dust suppression equipment will be in place and direct spray will be utilized to reduce the potential for source emissions. Spirtas personnel will visually monitor all work throughout the shift and adjust engineering controls as needed to minimize emissions.

4.1.5 Roadways

In order to keep roadways clean and free of accumulation, Spirtas will coordinate with the City of Canton, Illinois for routine street sweeping during removal activities. The street sweeper must be equipped with a water spray and vacuum system to prevent fugitive dust. Street sweeping must be completed at the end of every day or as needed, but at a minimum of once a day. Parts of Chessen Lane that will be impacted by demolition will be maintained in a "broom clean" condition at all times by using a skid steer loader equipped with a power broom or manual tools (e.g., push broom, shovels, etc.). All trucks are to take the most efficient and direct route to the disposal facility as possible as described in the Transportation and Road Control Plan. Truck washing will be done on vehicles via water hose before leaving the project site if they are tracking mud.

4.1.6 Windy/Freezing Days

Meteorological conditions forecasted (by Weather Channel) for the workday will be reviewed and discussed. On windy days, the road dust suppression method will include increasing the frequency of water application to areas at risk of migrating dust. A qualified person will be consistently monitoring the demolition to determine if more water is needed. If wind speeds are over 10 miles per hour sustained or gusts of 15 miles per hour or more, an explosive event will not take place. On Freezing temperature days, a non-toxic chemical additive to prevent the water from freezing will be included in the water application. If temperatures reach below freezing where water BMPs are not operating correctly, demolition activities that create dust will be suspended until appropriate temperatures are reached. If there is significant freezing for multiple days in a row the demolition work schedule may be adjusted or suspended.

4.1.7 Visual Monitoring Activities and Frequency

The site personnel will conduct visual monitoring of all dust-generating activities at the site. Prior to start of every shift, the inspector will review the scope of work and associated dust control measures to be utilized for each activity on that shift. While conducting visual monitoring of all demolition related activities, any observation of visible fugitive dust emissions will be recorded and reported immediately. Spirtas, at this time, will temporarily halt all applicable dust-generating activities and review the dust-control measures.

The reason(s) for the visible fugitive emission event will be discussed in detail by Spirtas will implement necessary changes to existing dust-control measures so that it does not happen again.

The inspector will document all such events in project logs. These events will be discussed in daily briefings and weekly meetings to inform Spirtas and its crew.

The description and minimum frequency of visual monitoring activities by personnel are outlined in the table below.

Activity/Area	Description	Frequency
Demolition Areas	Each demolition area will be observed for the presence of visible emissions and the application of required control measures.	3 times per day and at all times during active demolition
Processing	Each processing area will be observed for the presence of visible emissions and the application of required control measures.	3 times per day and at all times during processing
Stockpiles	Each stockpile will be observed for presence of visible emissions and the application of required control measures.	3 times per day and during addition to removal from stockpiles
Excavation Areas	Each demolition excavation area will be observed for the presence of visible emissions and the application of required control measures.	3 times per day during excavation as well as when excavation activity is not occurring
Truck/Traffic Movement	Each segment of roadway or traffic area will be observed for the presence of visible emissions and the application of required control measures.	3 times per day
Site Boundary	The property line(s) downwind of operations will be observed for the presence of visible emissions.	3 times per day and at all times during demolition

5.0 EMERGENCY PLAN

5.1 Emergency Contact List

In the event that Action Levels have been exceeded or removal activities have been suspended for any reason, utilize the following emergency contact lists to inform the necessary personnel of the incident.

5.1.1 Primary Contact List

Organization	Contact	Order	Contact Number
Spirtas	Philip Kennedy	1	313-506-9440
Vistra	Dianna Tickner	2	618-343-7929

5.2 Contingency Plan

The demolition and other related site activities are required to be conducted in a manner that prevents offsite migration of fugitive dust. Any observation of fugitive dust emission will require a response from Spirtas in terms of performing a detailed review of site activities and dust control methods and then modifying the procedures and/or improving of the dust suppression methods. These include but are not limited to:

- Increase frequency, volume, and/or coverage of water misting, sprays, and foggers to prevent debris and soil from drying.
- Provide additional dust suppression systems and operating personnel during the task duration.
- Reduce the pace of, or cease, dust producing activity until the problem is corrected.
- Remove accumulated debris and soil from problematic areas, and/or cover, enclose, or isolate dust generating areas/surfaces to shield them from the wind.

- Modify operating procedures and methods to eliminate problematic conditions.
- Increase level of worker awareness and train them on implementation of any new or modified operating procedures.

5.3 Reporting

5.3.1 Record of the Material

Daily summaries of the amount of material, in tons or cubic yards that has been removed or delivered will be maintained. These records will include the number of trucks leaving the facility, including empty trucks, and all manifests for the disposal of material at the landfill.

5.3.2 Record of Water

A record of water application will be maintained from periodic water meter readings, including number of times applied and a daily total of water used in gallons. Records shall also include the manner of application, such as spraying or misting. Any incidents of pooling or runoff will be noted as well, including the areas of the Site affected by the incident.

5.3.3 Record of Street Sweeping

A record of street sweeping will be maintained, including the time of day that street cleaning was performed.

5.3.4 Other Record Keeping Items

Copies of up-to-date records such as JSAs will be kept as attachments in Appendix B. These documents will be kept up to date with a copy of the plan onsite.

5.3.5 Deviations

Any deviations from the plan should be reported to Vikash Bhakta and Peter Brusky of the Illinois Environmental Protection Agency (IEPA). Vikash Bhakta can be contacted via email at Vikash.Bhakta@Illinois.gov and Peter Brusky can be contacted via email at Peter.Brusky@illinois.gov. Any changes to the Work Plan including Fugitive Dust Control Plan will be submitted to IEPA for approval prior to being implemented.

5.3.6 IEPA Submittal

Two hard copies of this final report shall be submitted to the Illinois Environmental Protection Agency within 30 days of the completion of site work or by April 1, 2021, whichever is later. Drone video taken during the demolition with explosives will be included in the final report.

6.0 REFERENCES

USEPA. National Ambient Air Quality Standards for Particulate Matter, Final Rule, 40 CFR Parts 50, 21, 52 et al.

USEPA. National Exposure Research Laboratory, Human Exposure & Atmospheric Sciences Division (MD-D205-03), List of Designated Reference and Equivalent Methods for Particulate Matter, June 18, 2015.

USEPA. EPA Guidance for Quality Assurance Project Plans, EPA QA/G-5, EPA/600/R-98/018, February 1998.

USEPA. Guidance for the Data Quality Objectives Process, EPA QA/G-4, EPA/600/R-96/005, August, 2000.

USEPA. *Guidance for the Data Quality Objectives Process for Hazardous Waste Sites*, EPA QA/G-4HW EPA/600/R-00/007, January 2000.

USEPA. *Guidance on Systematic Planning using the Data Quality Objectives Process,* EPA**QA/G-4,** EPA/240/B-06/001, February 2006.

USEPA. Integrated Risk Information System, October, 2009

IEPA. Air Quality Information, 2020. https://www2.illinois.gov/epa/topics/air-quality/Pages/default.aspx.

IEPA. Asbestos Information and Overview, 2020. https://www2.illinois.gov/epa/topics/air-quality/asbestos/Pages/default.aspx.

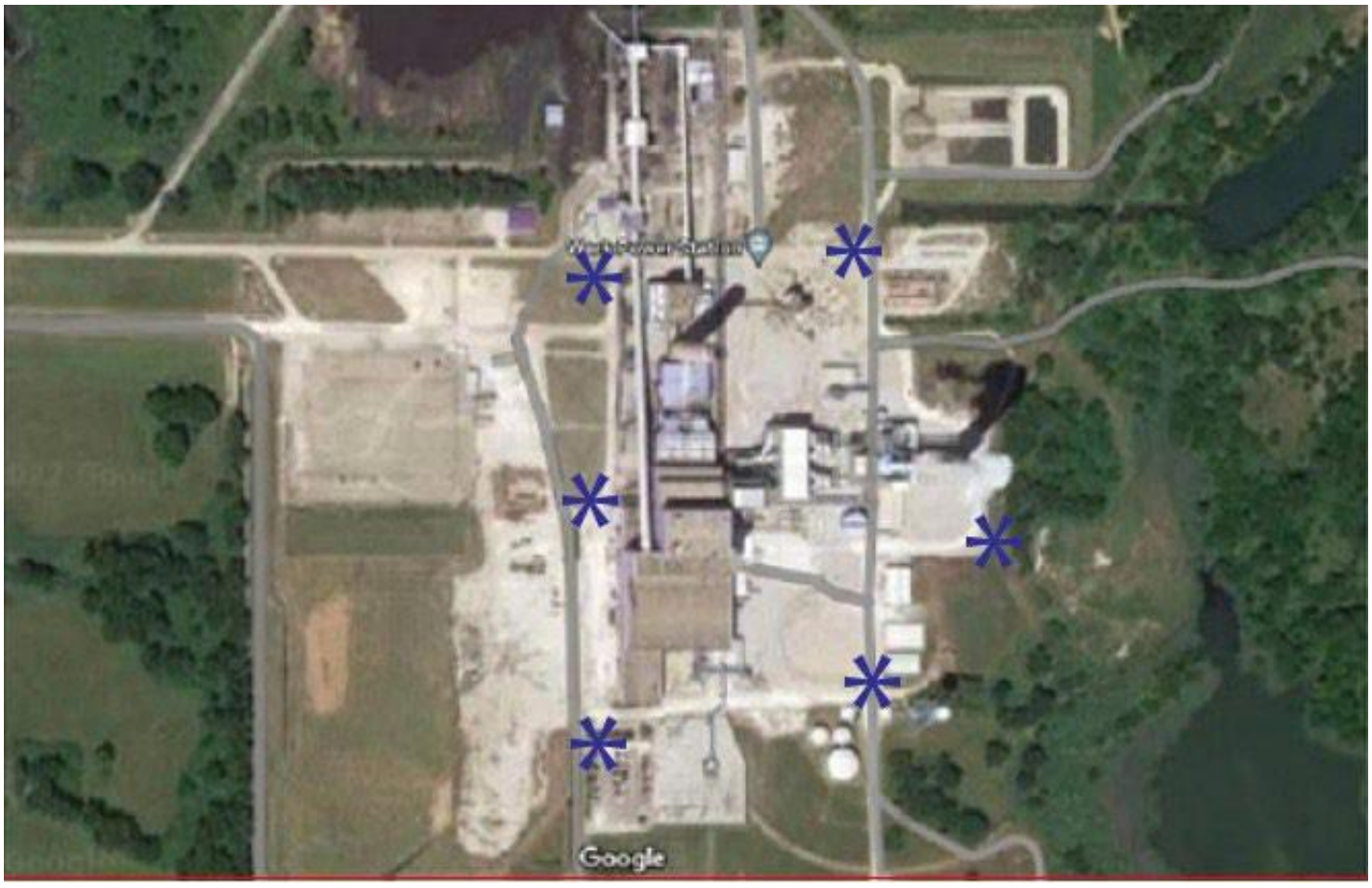
APPENDIX D

Dust Control Plan With Potential

Water Mister

WaterTruck

Locations



Appendix E
Explosive Plan

NATIONALLY RECOGNIZED LEADER IN STRUCTURAL DEMOLITION

Jobsite: Duck Creek **Date:** MM/DD/YR TBD **Time:** TBD am/pm

Shot Day Sequence of Events:

1. All parties involved in operations and safety zone control present.
2. Safety coordination meeting:

a) Safety check points issued to personnel (check points pre-determined)
b) Numbered radios issued to check point personnel
c) Back up cell phone numbers provided and confirmed

Timeline: (*Times are subject to change per the GC)*

2hrs prior – Pre-Blast meeting [All Hands-on Deck] Go over all personnel assigned safety check point location number and what to expect on radio communications.

1hr 15mins prior - All personnel go to assigned positions and perform radio check.

15mins prior - First radio check all check point locations Safety Zone. "All Clear" Seismic personnel - instruments operational and personnel in safe location

5mins prior - Confirm all GC personnel and any spectators in safe locations, Cameras up and running. 5-minute warning siren.

1min prior - 1 minute warning siren. Second and last radio check from all check point locations and exclusion zones. ("ALL CLEAR" will be relayed over the radios)

TBD shot time - If "ALL CLEAR", commence the 10second count down: "10, 9, 8, 7, 6", over the radios, followed by a silent "5, 4, 3, 2, 1" (which will provide a small window of safety) followed by "Fire in the hole" [if no security breaches].

"Shot takes place"

After smoke has cleared blast area – Demtech Blasters go to blast site to perform post blast inspection [looking for any undetonated explosives] and will sound the "All Clear"

TBD – Demtech will announce the "ALL CLEAR", GC is approved to collapse exclusion zones and open roads.

NOTE: Should some unforeseen anomaly occur, Demtech takes full control of the situation! [From a safe distance]. Safety check point personnel stay at locations until advised otherwise. Safety Zone around effected area will be established. Situation will be analyzed, and a plan will be formulated.
With no explosives related dangers present – DEMTECH GIVES "ALL CLEAR" All Clear Siren sounded. All check point control personnel to return to site location.
Demtech and GC personnel allowed to proceed to blast site.

Seismographs to be retrieved and downloaded. Cameras retrieved and footage downloaded.

Demtech to review Seismic data retrieved and camera videos.
Demtech to fill out blast report and submit to GC for review.

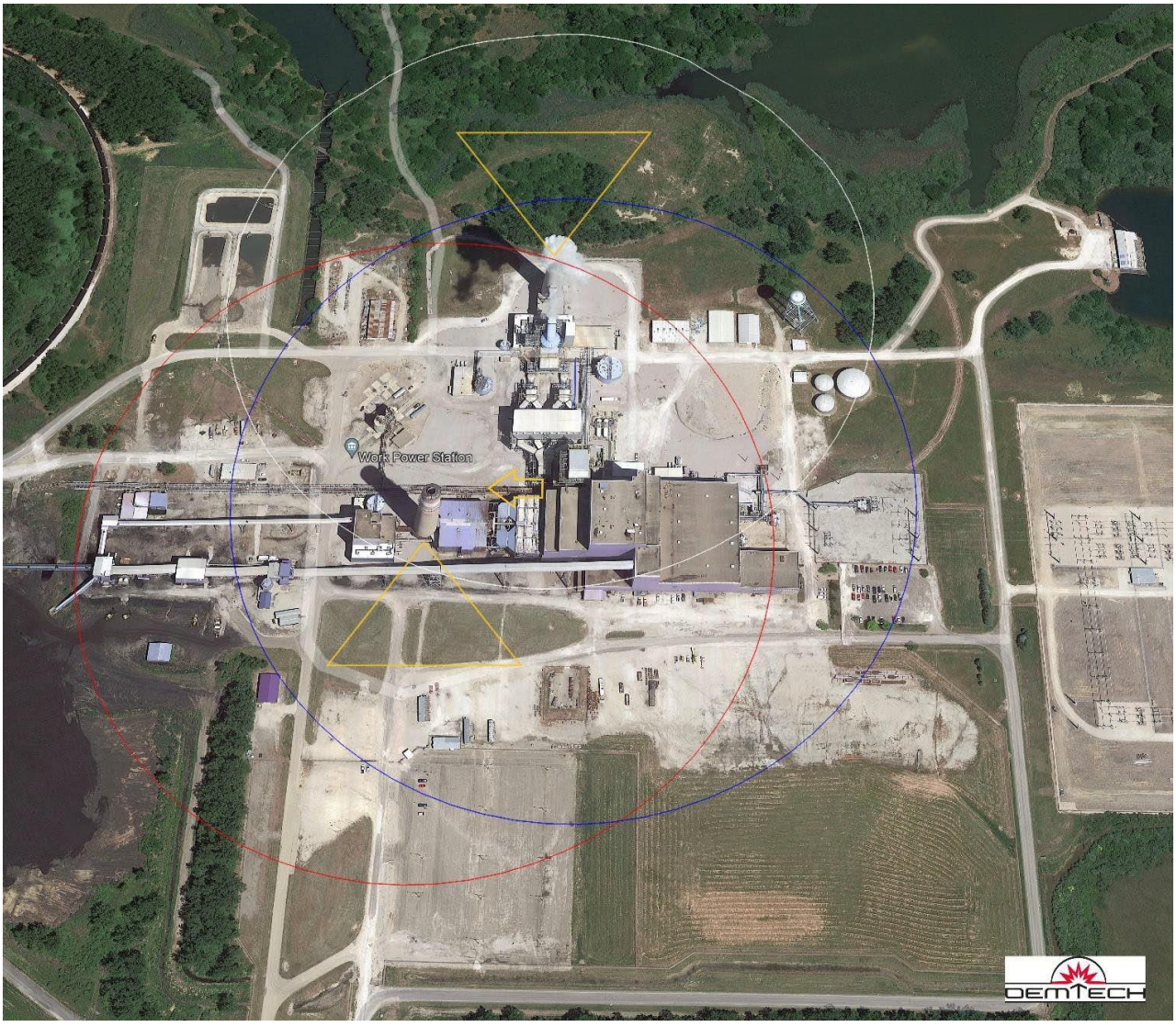
Exclusion Zones and Fall Direction

800’ exclusion zone:
No personnel will be allowed to be within the 800’ exclusion zones, depicted in red, white, and blue circles.

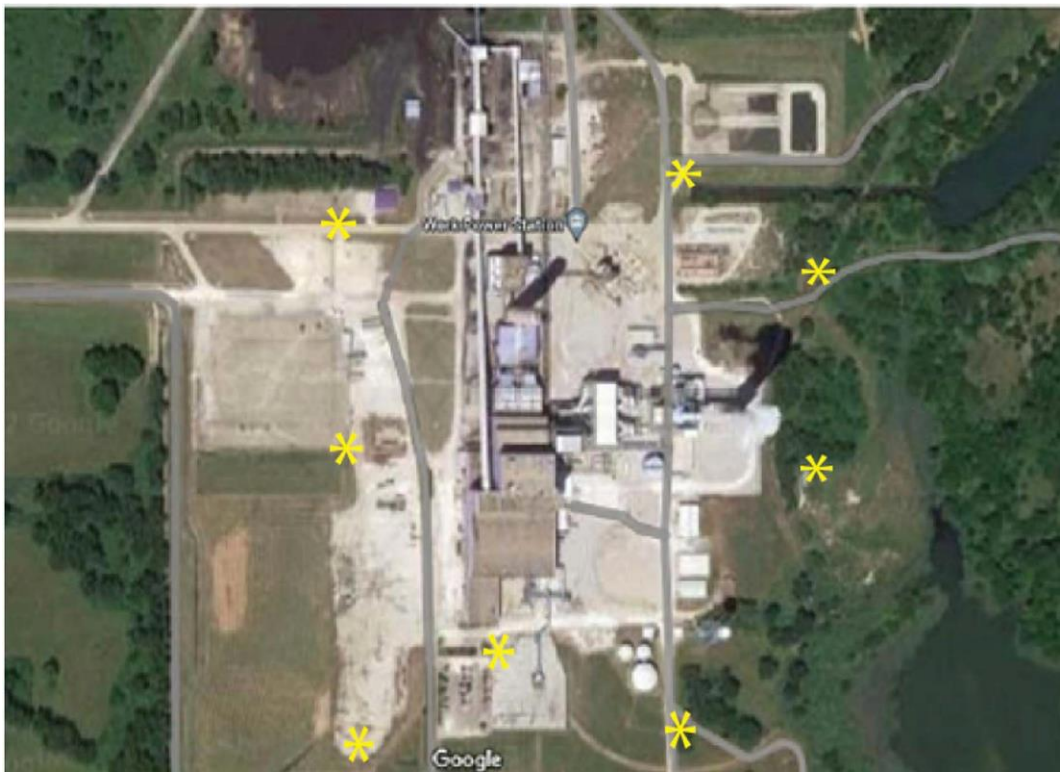
Fall Direction:
Fall direction for the stacks are depicted by the yellow triangles as the recommended impact zones. Fall direction for the Boiler House is depicted by the yellow arrow.

Seismograph locations:
Seismograph locations will be dependent which structures will be on site at the Time of blasting operations and TBD based on final consultation with GC, Demtech and the sub-contracted seismic company.

Road Closures:
Road closures will be TBD



APPENDIX F
Seismograph Potential Locations



APPENDIX G

Federal Aviation Administration Information

Federal Aviation Administration Information

- The Federal Aviation Administration (FAA) will be contacted by Spirtas Wrecking Company to inform the FAA about the light beacon removal on the 2 Stacks that will be demolished on 10-15-2023. A NOTAM will be issued on that same day.
- The beacon's Reference Number will be posted once issued.
- The beacon's location is 40.465760,-89.984579.
- NOTAM:# CTK02178
- Lights Terminated 03/01/23 @12 Noon CT
- Current Stack Demo Schedule: 06/01/23 @ 8am CT
- MSL: 580'
- AGL: Old Stack 515'
- AGL: New Stack 585'
- Distance to Airport: Ingersoll Airport KCTK-CTK is 11 miles
- Distance to Airport: Peoria International Airport is 34 miles

Appendix H

Project Limits & Exclusion Zone

Appendix I

FORMS

SPIRTAS WRECKING COMPANY

PJB FORM

SUPERVISOR/FOREMAN: _____ **DATE:** _____

PROJECT: _____ **JOB#** 23-0010

DESCRIPTION OF WORK: _____

Required PPE

- ☐ Safety Glasses
- ☐ Hard Hat
- ☐ Leather Boots
- ☐ Gloves
- ☐ Fire Resistant Clothing
- ☐ Face Shield
- ☐ Respirator
- ☐ Fall Protection
- ☐ Ear Plugs

Required Permits

- ☐ Hot Work
- ☐ Excavation
- ☐ Confined Space
- ☐ Lock out Tag Out

Equipment Operations

- ☐ Spotter
- ☐ Spill Kit
- ☐ 3 Points Contact Entry/Exit
- ☐ Lower Boom/Brake
- ☐ Power Lines
- ☐ Exclusion Zone (30', 75', 100')
- ☐ Containments (Idle > 8 hrs.)

Miscellaneous

- ☐ House Keeping
- ☐ Heat Stress
- ☐ Lead Paint or Asbestos
- ☐ Dust Concerns (ash/silica)
- ☐ Ground Fault Circuit Interrupter
- ☐ Other

SPIRTAS WRECKING COMPANY
951 SKINKER PARKWAY
ST. LOUIS, MISSOURI 63112
314-862-9800

Emergency Information

P.O.C. Name _____
Phone # _____
Safety Rep Name _____
Phone # _____
Environmental Name _____
Phone # _____

STOP WORK FOR I. D. L. H.
(IMMEDIATE DANGER TO LIFE OR HEALTH)

DATE	NAME (print)	SIGNATURE	POST JOB INJURY FREE

SUPERVISOR/FOREMAN: Russ David DATE: 8-8-23

PROJECT: Duck Creek Power Plant JOB# 23-0010

DESCRIPTION OF WORK: Load scrap trucks

Continue wrecking floors in turbine building and cleaning up

General site clean up

Burners down size heavy iron

Burners cut bottom of hoppers on EAST side of New Precip

DemTech continue drilling Old Stack

Required PPE

- [x] Safety Glasses
- [x] Hard Hat
- [x] Leather Boots
- [x] Gloves
- [x] Fire Resistant Clothing
- [x] Face Shield
- [x] Respirator
- [x] Fall Protection
- [x] Ear Plugs

Required Permits

- [ ] Hot Work
- [ ] Excavation
- [ ] Confined Space
- [ ] Lock out Tag Out

Equipment Operations

- [ ] Spotter
- [ ] Spill Kit
- [x] 3 Points Contact Entry/Exit
- [ ] Lower Boom/Brake
- [x] Power Lines
- [ ] Exclusion Zone (30', 75', 100')
- [ ] Containments (Idle > 8 hrs.)

Miscellaneous

- [ ] House Keeping
- [ ] Heat Stress
- [ ] Lead Paint or Asbestos
- [ ] Dust Concerns (ash/silica)
- [ ] Ground Fault Circuit Interrupter
- [ ] Other

SPIRTAS WRECKING COMPANY
951 SKINKER PARKWAY
ST. LOUIS, MISSOURI 63112
314-862-9800

Emergency Information

P.O.C. Name Phil Kennedy
Phone # 313-506-9440
Safety Rep Name Mike Varela
Phone # 314-750-2855
Environmental Name Brandon Potter
Phone # 618-210-3418

STOP WORK FOR I. D. L. H.
(IMMEDIATE DANGER TO LIFE OR HEALTH)

DATE	NAME (print)	SIGNATURE	POST JOB INJURY FREE
8-8-23	Mike Varela		
	Jason Mahr		
8-8-23	Bill Sparks		
8-8-23	Leo [illegible]		
8-8-23	Brad Gibbs		
8-8-23	John Pollitt		
8-8-23	Josh Jenkins		
8-8-23	Zachary Porter		
8-8-23	Rodney Zimmerman		
8-8-23	Josh Guthrie		
8-8-23	Russ David		
8-8-23	DAN SNYDER		

PROJECT PRE-START ENGINEERING SURVEY

PROJECT INFORMATION

Project Name Duck Creek Project Number 23-0010

Project Location 40.465760-89.984579 City Canton

Legal Description: Owner-Vistra Corp

Nameplate capacity:441 MW

Units and in-Service Date 441 MW 1976 Unit retirement 12/13/2019

Plat# _____

State Illinois Zip Code 61520 County Fulton

Client _____

Client Address _____

Contact(s) Phone# _____

Owner Vistra Corp

Owner Address 1500 Eastport Plaza

Collinsville, IL

Owner Representative Dianna Tickner Phone# 613-381-3124

Required Project Meetings include Dates and Times:

Prestart 02-15-23

Production Daily

Safety Daily

Description of Work to be Performed: Demolition of all Structures within the project work zone down to grade. Below grade concrete remains in place.

Is a SCOPE OF WORK included with the Engineering Survey? YES X NO

(Find RFP under Separate Cover)

			Water Application Form		
Time	Operator Name/#	Vehicle ID	Applied Location	Vehicle Capacity (In Gallons)	Total Applied (In Gallons)

					Weather Report				
Date	Time	Wind Direction	Hourly Rain (inches)	Daily Rain (Inches)	Barometric Pressure (Inches Hg)	Wind Speed (MPH)	Dewpoint (Degrees F)	Ambient Air Temperature	Wind Chill (Degrees F)
2/24/23	Noon	SE	0	0	29.67	8	42.8	H-50 L-48.2	38
2/25/23	Noon	ENE	0	0	30.18	11	42.0	H-42 L-26	36
2/26/23	Noon	SSW	.01	.784	29.11	10	50.0	H-54.2 L-42.8	45
2/27/23	Noon	SSW	.01	.784	29.11	11	50	H-57.2 L-42.8	45
2/28/23	Noon	E	0	0	29.92	5	44.6	H-51.8 L-44.0	42
3/1/23	Noon	NW	0	0	29.77	7	55.4	H-62.6 L-33.8	53
3/2/23	Noon	ENE	0	0	29.98	4	42.8	H-43.94 L-33.8	41
3/3/23	Noon	NE	.02	.401	29.45	14	39.2	H-39.2 L-32.0	31
3/4/23	Noon	SW	.01	.01	29.97	5	44.6	H-53.6 L-26.6	42
3/5/23	Noon	SSE	0	0	30.22	7	48.2	H-57.9 L-30.2	47
3/6/23	Noon	WNW	0	.001	29.83	7	62.6	H-66.2 L-41.0	62
3/7/23	Noon	ENE	0	0	30.4	11	46.4	H-50.0 L-37.04	41
3/8/23	Noon	ESE	0	0	30.45	19	44.6	H-48.92 L-39.02	37
3/9/23	Noon	ENE	.001	.185	30.18	13	39.2	H-44.6 L33.8	31
3/10/23	Noon	NW	0	0	30.01	16	35.6	H-37.44 L-32.0	26
3/11/23	Noon	SE	.03	0.421	30.03	7	39.2	H-42.98 L-330.8	34
3/12/23	Noon	WNW	.01	.07	29.92	8	39.2	H-42.8 L-30.02	34
3/13/23	Noon	NNW	0	0	30.16	9	33.8	H-35.6 L-28.4	26
3/14/23	Noon	SSW	0	0	30.41	3	35.6	H-42.8 L-28.4	33
3/15/23	Noon	S	0	0	30.19	18	48.2	H-53.6 L-26.6	41
3/16/23	Noon	SSE	.01	.08	29.75	18	42.8	H-56.3 L-37.04	38
3/17/23	Noon	WNW	.001	.022	29.92	16	30.2	H-37.4 L-24.8	19

3/18/23	Noon	WNW	.001	.028	30.19	15	19.4	H-30.2 L-12.02	5
3/19/23	Noon	SSW	0	0	30.39	14	30.2	H-39.2 L-15.8	20
3/20/23	Noon	SSW	0	0	30.13	15	46.4	H-57.2 L-24.8	40
3/21/23	Noon	S	.001	.002	30.13	12	50	H-53.96 L-35.06	45
3/22/23	Noon	SSE	.26	.451	29.95	6	46.4	H-51.8 L-39.2	43
3/23/23	6:40am	NNE	.1	.8	29.87	11	47	H-50 L-41	41
3/24/23	7:00am	NE	.05	.35	29.99	7	30	H-52 L-34	28
3/27/23	7:00am	NNW	0	0	30.11	7	32	H-52 L-32	26
3/28/23	7:00am	NW	0	0	30.33	3	29	H-52 L-34	35
3/29/23	7:00am	SW	0	0	30.24	8	29	H-49 L-34	28
3/30/23	7:00am	ESE	0	0	30.25	8	26	H-66 L-32	25
4/3/23	7:00am	ENE	.2	.25	29.69	11	48	H-82 L-49	50
4/5/23	7:00am	NE	0	0	30.31	18	51	H-69 L-44	54
4/6/23	7:00am	NW	0	0	29.58	9	31	H-59 L-41	33
4/11/23	7:00am	SSW	0	0	30.27	4	41	H-77 L-47	46
4/12/23	7:00am	SW	0	0	30.06	8	47	H-79 L-54	53
4/13/23	7:00am	SSW	0	0	29.90	4	43	H-80 L-52	51
4/14/23	7:00am	SE	0	0	29.79	4	43	H-79 L-54	53
4/15/23	7:00am	S	0	.75	29.78	6	53	H-80 L-60	60
4/17/23	7:00am	WNW	0	0.5	29.78	19	27	H-58 L-35	25
4/18/23	7:00am	ENE	0	0	29.96	2	31	H-65 L-49	35
4/19/23	7:00am	ESE	0.5	0.5	29.87	8	41	H-79 L-49	46
4/20/23	7:00am	SSE	0.5	0.5	29.77	11	43	H-74 L-53	61
4/24/23	7:00am	WNW	0	0	30.17	7	27	H-49 L-34	30
4/25/23	7:00am	ESE	.1	0.05	30.09	4	40	H-59 L-44	43

4/26/23	7:00am	ENE	0	0	30.29	6	28	H-59 L-35	31
4/27/23	7:00am	NE	0	0	29.81	3	53.6	H-69.8 L-39.2	
4/28/23	7:00am	SE	0	0	29.79	5	57.2	H-73.4 L-44.6	
4/29/23	7:00am	W	0	0	26.65	7	44.6	H-64.4 L-44.6	
4/30/23	7:00am	NNW	0	0	29.59	12	44.6	H-50 L-42.08	
5/1/23	7:00am	W	0	0	29.63	6	50	H-62.6 L-44.06	
5/2/23	7:00am	N	0	0	29.83	5	53.6	H-62.96 L-42.08	
5/3/23	7:00am	0	0	0	29.96	0	46.4	H-62.6 L-39.02	
5/4/23	7:00am	S	0	0	29.95	7	60.8	H-75.2 L-41	
5/5/23	7:00am	S	0	0	30.0	12	62.6	H-77 L-50	
5/6/23	7:00am	SSW	.001	.15	29.91	27	69.9	H-75.2 L-60.08	
5/7/23	7:00am	ESE	.001	.283	29.85	21	66.2	H-84.2 L-60.8	
5/8/23	7:00am	NNE	0	.392	30.0	4	57.2	H-71.96 L-57.02	
5/9/23	7:00am	ENE	0	.1	30.11	8	49	H-75 L-52	52
5/10/23	7:00am	ESE	0	0	30.16	6	48	H-78 L-53	54
5/11/23	7:00am	ESE	0	0	30.05	6	49	H-78 L-57	58
5/12/23	7:00am	ESE	.1	.1	29.95	6	64	H-81 L-66	68
5/13/23	7:00am	E	.25	.55	30.03	3	64	H-84 L-63	66
5/15/23	7:00am	ENE	0.05	.25	30.29	9	48	H-70 L-56	55
5/16/23	7:00am	NNW	0	0	30.00	5	50	H-75 L-56	56
5/17/23	7:00am	NE	0	0	29.94	9	41	H-75 L-52	52
5/18/23	7:00am	E	0	0	30.02	3	53.6	H-80 L-50	
5/19/23	7:00am	SW	0	0	29.94	3	64	H-71 L-55	
5/20/23	7:00am	NNW	0	0	30.19	6	50	H-73 L-48	
5/21/23	7:00am	SW	0	0	30.21	3	53	H-80 L-48	

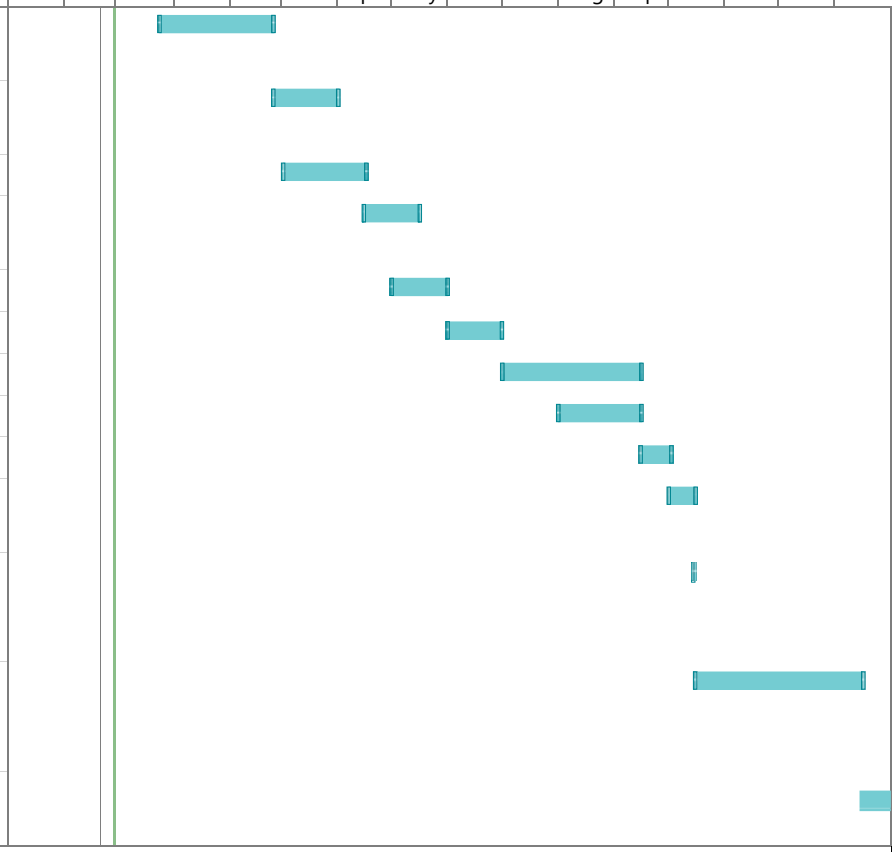
5/22/23	7:00am	E	0	0	30.12	1	49	H-81 L-54	56
5/23/22	7:00am	ENE	0	0	30.10	3	50	H-84 L-54	57
5/24/23	7:00am	ENE	0	0	30.10	3	50	H-84 L-54	57
5/25/23	7:00am	ENE	0	0	30.21	12	55.4	H-73 L-55	
5/26/23	7:00am	NE	0	0	30.33	7	51.8	H-78 L-46	
5/27/23	7:00am	ENE	0	0	30.27	7	55.4	H-82 L-48	
5/28/23	7:00am	ENE	0	0	30.15	4	60.8	H-84 L-57	
5/29/23	7:00am	ENE	0	0	30.04	4	60.8	H-87 L-53	
5/30/23	7:00am	ENE	0	0	29.99	3	64.4	H-91 L-57	
5/31/23	7:00am	S	0	0	29.97	2	56	H-88 L-64	66
6/01/23	7:00am	SE	0	0	30.01	7	61	H-89 L-65	69
6/2/23	7:00am	ENE	0	0	30.03	3	63	H-91 L-67	72
6/3/23	7:00am	NE	0	0.05	29.98	6	53	H-91 L-65	67
6/3/23	7:00am	NE	0	0	30.04	5	47	H-84 L-57	59
6/5/23	7:00am	NE	0	0	30.04	5	47	H-84 L-57	59
6/6/23	7:00am	NNW	0	0	30.01	3	60	H-91 L-57	
6/7/23	7:00am	NNE	0.01	0.04	29.89	4	60	H-69 L-60	
6/8/23	7:00am	NNE	0	0	29.91	5	40	H-79 L-52	53
6/9/23	7:00am	NW	0	0	29.95	2	41	H-80 L-52	54
6/12/23	7:00am	NW	0	0.5	29.96	6	44	H-72 L-49	50
6/13/23	7:00am	W	0	0	29.74	8	62	H-82 L-60	
6/14/23	7:00am	NNW	0	0	29.68	2	53	H-82 L-62	
6/19/23	7:00am	NNE	0	0	29.80	5	60	H-88 L-64	67
6/21/23	7:00am	E	0	0	30.03	9	58	H-89 L-66	68
6/22/23	7:00am	NE	0	0	30.03	6	60	H-88 L-64	68

6/23/23	7:00am	NNE	0	0	29.96	3	59	H-88 L-62	66
6/24/23	7:00am	SSE	0	.3	29.92	3	57	H-92 L-61	65
6/26/23	7:00am	WNW	0	0	29.73	13	61	H-81 L-63	68
6/27/23	7:00am	NNW	0	0	29.90	7	60	H-85 L-63	65
6/28/23	7:00am	ESE	.05	0	29.97	7	57	H-84 L-61	63
7/7/23	7:00am	N	0	.45	30.02	6	52	H-79 L-58	59
7/8/23	7:00am	NNE	.3	.35	29.89	7	60	H-78 L-62	63
7/10/23	7:00am	SW	0	0	29.95	3	57	H-86 L-59	61
7/11/23	7:00am	SW	0	.1	29.91	4	60	H-89 L-63	65
7/12/23	7:00am	SW	0	.037	29.89	4	64	H-88 L-66	
7/13/23	7:00am	NE	0	.15	29.86	4	61	H-84 L-63	65
7/17/23	7:00am	WNW	0	0	29.94	4	63	H-81 L-65	68
7/18/23	7:00am	NNE	0	0	30.00	3	56	H-79 L-61	62
7/19/23	7:00am	E	0	0	30.02	4	58	H-86 L-59	62
7/25/23	7:00am	ESE	0	0	30.05	4	65	H-95 L-66	71

Reports; APPENDIX J (To be Attached: Air Monitoring and Seismic Results)

Appendix K
Duck Creek Power Plant
Demolition Project
Schedule Gantt Chart

ID	Task Name	Start	Finish	Calendar Days
1	60 Day Notification Requirement and NESHAPS Notification	Fri 12/23/22	Thu 2/23/23	63
2	ACM / ORM Abatement, Oil Removal, and any necessary industrial cleaning	Fri 2/24/23	Fri 3/31/23	36
3	New Scrubber East of new stack	Wed 3/1/23	Sat 4/15/23	46
4	All other structures West of the power block. (except the new stack)	Sat 4/15/23	Mon 5/15/23	31
5	All structures North of the old stack	Mon 5/1/23	Wed 5/31/23	31
6	Balance of the coal handling structures	Thu 6/1/23	Fri 6/30/23	30
7	Precipitator/Scrubbers	Sat 7/1/23	Fri 9/15/23	77
8	Turbine Building	Tue 8/1/23	Fri 9/15/23	46
9	Gut bottom two floors of the Boilerhouse	Fri 9/15/23	Sun 10/1/23	17
10	Install protective measures to ensure Switchyard is not damaged	Sun 10/1/23	Sun 10/15/23	15
11	Explosives; new Stack 8:00 am; old stack 8:20 am; boilerhouse 8:40 am; turbine pedestals 9:00 am	Sun 09/17/23	Sun 09/17/23	1
12	Boiler House, two stacks, turbine pedestals: separate, process, and load out building materials	Sun 10/15/23	Mon 12/31/23	78
13	Backfill, site restoration	Mon 12/01/24	Wed 12/31/23	31



Project: Gantt Chart Duck Creek
Date: Tue 11/29/22

Task
Split
Milestone
Summary
Project Summary
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
External Tasks
External Milestone
Deadline
Progress
Manual Progress

Appendix L

MSDS Sheets

SAFETY DATA SHEET

Propane

Section 1. Identification

GHS product identifier : Propane

Chemical name : propane

Other means of identification : Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied; E 944; HC-290; R290; E 944; PETROLEUM GAS, LIQUEFIED; PROPYL HYDRID; Normal propane

Product type : Liquefied gas.

Product use : Synthetic/Analytical chemistry.

Synonym : Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied; E 944; HC-290; R290; E 944; PETROLEUM GAS, LIQUEFIED; PROPYL HYDRID; Normal propane

SDS # : 001045

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

24-hour telephone : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE GASES - Category 1
GASES UNDER PRESSURE - Liquefied gas

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Extremely flammable gas.
Contains gas under pressure; may explode if heated. May cause frostbite.
May displace oxygen and cause rapid suffocation.
May form explosive mixtures with air.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Approach suspected leak area with caution.

Prevention : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response : Leaking gas fire: Do not extinguish, unless leak can be stopped safely. In case of leakage, eliminate all ignition sources.

Storage : Protect from sunlight. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : Liquid can cause burns similar to frostbite.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : propane

Other means of identification : Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied; E 944; HC-290; R290; E 944; PETROLEUM GAS, LIQUEFIED; PROPYL HYDRID; Normal propane

Product code : 001045

CAS number/other identifiers

CAS number : 74-98-6

Ingredient name	%	CAS number
Propane	100	74-98-6

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Skin contact : Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area.

Ingestion : Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. As this product rapidly becomes a gas when released, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Liquid can cause burns similar to frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : Ingestion of liquid can cause burns similar to frostbite.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:, frostbite

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:, frostbite

Ingestion : Adverse symptoms may include the following:, frostbite

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

Section 4. First aid measures

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Propane	**NIOSH REL (United States, 10/2020).** TWA: 1800 mg/m³ 10 hours. TWA: 1000 ppm 10 hours. **OSHA PEL (United States, 5/2018).** TWA: 1800 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 1800 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **ACGIH TLV (United States, 1/2021). Oxygen Depletion [Asphyxiant]. Explosive potential.**

Biological exposure indices

No exposure indices known.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Section 8. Exposure controls/personal protection

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side- shields.

Skin protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Hand protection

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti- static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Thermal hazards : If there is a risk of contact with the liquid, all protective equipment worn should be suitable for use with extremely low temperature materials.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless.

Odor : Odorless.

Odor threshold : Not available.

pH : Not applicable.

Melting point : -187.6°C (-305.7°F)

Boiling point : -161.48°C (-258.7°F)

Critical temperature : 96.55°C (205.8°F)

Flash point : Closed cup: -104°C (-155.2°F) Open cup: -104°C (-155.2°F)

Evaporation rate : Not available.

Flammability (solid, gas) : Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and oxidizing materials.

Lower and upper explosive (flammable) limits : Lower: 1.8% Upper: 8.4%

Vapor pressure : 109 (psig)

Vapor density : 1.6 (Air = 1)

Specific Volume (ft^3/lb) : 8.6207

Gas Density (lb/ft^3) : 0.116 (25°C / 77 to °F)

Relative density : Not applicable.

Section 9. Physical and chemical properties

Solubility in water : 0.0244 g/l

Partition coefficient: n-octanol/water : 1.09

Auto-ignition temperature : 450°C (842°F)

Decomposition temperature : Not available.

Flow time (ISO 2431) : Not available.

Molecular weight : 44.11 g/mole

Aerosol product

Heat of combustion : -46012932 J/kg

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow gas to accumulate in low or confined areas.

Incompatible materials : Oxidizers

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available

Section 11. Toxicological information

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Liquid can cause burns similar to frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Ingestion : Ingestion of liquid can cause burns similar to frostbite.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:, frostbite

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:, frostbite

Ingestion : Adverse symptoms may include the following:, frostbite

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Propane	1.09	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty pressure vessels should be returned to the supplier. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1978	UN1978	UN1978	UN1978	UN1978
UN proper shipping name	PROPANE SEE ALSO PETROLEUM GASES, LIQUEFIED	PROPANE	PROPANO	PROPANE	Propane
Transport hazard class(es)	2.1 	2.1 	2.1 	2.1 	2.1 
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Additional information

Section 14. Transport information

DOT Classification : **Limited quantity** Yes.
Packaging instruction Exceptions: 306. Non-bulk: 304. Bulk: 314, 315.
Quantity limitation Passenger aircraft/rail: Forbidden. Cargo aircraft: 150 kg.
Special provisions 19, T50, N95

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).
Explosive Limit and Limited Quantity Index 0.125
ERAP Index 3000
Passenger Carrying Vessel Index 110
Passenger Carrying Road or Rail Index Forbidden
Special provisions 88

IMDG : **Emergency schedules** F-D, S-U
Special provisions 392

IATA : **Quantity limitation** Passenger and Cargo Aircraft: Forbidden. Packaging instructions: Forbidden. Cargo Aircraft Only: 150 kg. Packaging instructions: 200. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.
Special provisions A1

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined
Clean Air Act (CAA) 112 regulated flammable substances: propane

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

California Prop. 65

Section 15. Regulatory information

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

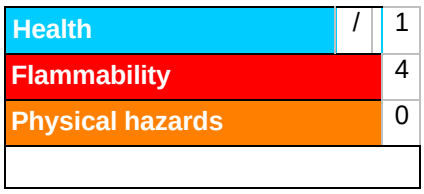
Not listed.

Inventory list

Australia	:	This material is listed or exempted.
Canada	:	This material is listed or exempted.
China	:	This material is listed or exempted.
Eurasian Economic Union	:	**Russian Federation inventory**: Not determined.
Japan	:	**Japan inventory (CSCL)**: This material is listed or exempted. **Japan inventory (ISHL)**: This material is listed or exempted.
New Zealand	:	This material is listed or exempted.
Philippines	:	This material is listed or exempted.
Republic of Korea	:	This material is listed or exempted.
Taiwan	:	This material is listed or exempted.
Thailand	:	This material is listed or exempted.
Turkey	:	This material is listed or exempted.
United States	:	This material is active or exempted.
Viet Nam	:	This material is listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)

Section 16. Other information

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Procedure used to derive the classification

Classification	Justification
FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Liquefied gas	Expert judgment Expert judgment

History

Date of printing : 10/8/2022

Date of issue/Date of revision : 10/8/2022

Date of previous issue : 6/15/2022

Version : 1.02

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

SDS ID NO.: 0290MAR019 **Revision date** 10/01/2020

1. IDENTIFICATION

Product Name Marathon Petroleum No. 2 Diesel

Synonym No. 2 Ultra Low Sulfur Diesel (15 ppm Sulfur Max); No. 2 Low Sulfur Diesel (500 ppm Sulfur Max); ULSD No. 2; ULSD No. 2, dyed; ULSD No. 2 with Additives; ULSD No. 2 w/o Additives; ULSD No. 2 Winter Blends; No 2 MV15 CFI; Export Diesel; No. 2 Fuel Oil; Heating Oil; No. 2 Non-Road Locomotive Marine, Dyed; MGO; ULSD; LSD; NRLM; CARB Diesel

Product code 0290MAR019

Chemical family Complex Hydrocarbon Substance

Recommended use Fuel.

Restrictions on use All others.

Manufacturer, Importer, or Responsible Party Name and Address

MARATHON PETROLEUM COMPANY LP
539 South Main Street
Findlay, OH 45840

SDS Information 1-419-421-3070 (M-F; 8-5 EST)

24 Hour Emergency Telephone CHEMTREC: 1-800-424-9300 (CCN# 13740)

2. HAZARD IDENTIFICATION

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Classification

Flammable liquids	Category 3
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Carcinogenicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 2
Aspiration toxicity	Category 1
Chronic aquatic toxicity	Category 2

Hazards Not Otherwise Classified (HNOC)
Static accumulating flammable liquid

Label Elements

Danger

FLAMMABLE LIQUID AND VAPOR
May accumulate electrostatic charge and ignite or explode
May be fatal if swallowed and enters airways
Harmful if inhaled
Causes skin irritation
May cause respiratory irritation

May cause drowsiness or dizziness
Suspected of causing cancer
May cause damage to organs (thymus, liver, bone marrow) through prolonged or repeated exposure
Toxic to aquatic life with long lasting effects

Appearance Yellow to Red Liquid **Physical State** Liquid **Odor** Hydrocarbon

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use only non-sparking tools.
Use explosion-proof electrical/ventilating/lighting/equipment
Take precautionary measures against static discharge
Do not breathe mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Wash hands and any possibly exposed skin thoroughly after handling
Avoid release to the environment

Precautionary Statements - Response
IF exposed or concerned: Get medical attention
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
If skin irritation occurs: Get medical attention
Wash contaminated clothing before reuse
If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a poison center or doctor if you feel unwell
If swallowed: Immediately call a poison center or doctor
Do NOT induce vomiting
In case of fire: Use water spray, fog or regular foam for extinction
Collect spillage

Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed
Keep cool
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container at an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

May contain up to 5% Biodiesel.

Composition Information

Name	CAS Number	% Concentration
No. 2 Diesel Fuel	68476-34-6	50-100
Kerosine (petroleum)	8008-20-6	0-50

Fuels, Diesel, C9-18-Alkane Branched and Linear	1159170-26-9	0-5
Alkanes, C10-C20 branched and linear	928771-01-1	0-5
Naphthalene	91-20-3	0.3-2.6

All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

4. FIRST AID MEASURES

First aid measures

General advice

In case of accident or if you feel unwell, seek medical advice immediately (show directions for use or safety data sheet if possible).

Inhalation

Remove to fresh air. If not breathing, utilize bag valve mask or other form of barrier device to institute rescue breathing. If breathing is difficult, ensure airway is clear, give oxygen and continue to monitor. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). Keep affected person warm and at rest. Get immediate medical attention.

Skin contact

Immediately wash exposed skin with plenty of soap and water while removing contaminated clothing and shoes. May be absorbed through the skin in harmful amounts. Get medical attention if irritation persists. Any injection injury from high pressure equipment should be evaluated immediately by a physician as potentially serious (See NOTES TO PHYSICIAN).

Place contaminated clothing in closed container until cleaned or discarded. If clothing is to be laundered, inform the person performing the operation of contaminant's hazardous properties. Destroy contaminated, non-chemical resistant footwear.

Eye contact

Flush immediately with large amounts of water for at least 15 minutes. Gently remove contacts while flushing. Eyelids should be held away from the eyeball to ensure thorough rinsing. Gently remove contacts while flushing. Get medical attention if irritation persists.

Ingestion

Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis. If spontaneous vomiting occurs, keep head below hips, or if patient is lying down, turn body and head to side to prevent aspiration and monitor for breathing difficulty. Never give anything by mouth to an unconscious person. Keep affected person warm and at rest. Get immediate medical attention.

Most important signs and symptoms, both short-term and delayed with overexposure

Adverse effects

Irritating to the skin and mucous membranes. Symptoms may include redness, itching, and inflammation. May cause nausea, vomiting, diarrhea, and signs of nervous system depression: headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Aspiration hazard. May cause coughing, chest pains, shortness of breath, pulmonary edema and/or chemical pneumonitis. Prolonged or repeated exposure may cause adverse effects to the thymus, liver, and bone marrow. Repeated or prolonged skin contact may cause drying, reddening, itching and cracking.

Indication of any immediate medical attention and special treatment needed

Notes to physician

INHALATION: This material (or a component) sensitizes the myocardium to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material. Administration of sympathomimetic drugs should be avoided.

SKIN: Leaks or accidents involving high-pressure equipment may inject a stream of material through the skin and initially produce an injury that may not appear serious. Only a small puncture wound may appear on the skin surface but, without proper treatment and depending on the nature, original pressure, volume, and location of the injected material, can compromise blood supply to an affected body part. Prompt surgical debridement of the wound may be necessary to prevent irreversible loss of function and/or the affected body part. High pressure injection injuries may be SERIOUS SURGICAL EMERGENCIES.

INGESTION: This material represents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

For small fires, Class B fire extinguishing media such as CO2, dry chemical, foam or water spray can be used. For large fires, water spray, fog or foam can be used. Firefighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Unsuitable extinguishing media

Do not use straight water streams to avoid spreading fire.

Specific hazards arising from the chemical

This product has been determined to be a flammable liquid per the OSHA Hazard Communication Standard and should be handled accordingly. May accumulate electrostatic charge and ignite or explode. Vapors may travel along the ground or be moved by ventilation and ignited by many sources such as pilot lights, sparks, electric motors, static discharge, or other ignition sources at locations distant from material handling. Flashback can occur along vapor trail. For additional fire related information, see NFPA 30 or the Emergency Response Guidebook 128.

Hazardous combustion products

Smoke, carbon monoxide, and other products of incomplete combustion.

Explosion data

Sensitivity to mechanical impact: No.

Sensitivity to static discharge: Yes.

Special protective equipment and precautions for firefighters

Firefighters should wear full protective clothing and positive-pressure self-contained breathing apparatus (SCBA) with a full face-piece, as appropriate. Avoid using straight water streams. Water spray and foam must be applied carefully to avoid frothing and from as far a distance as possible. Avoid excessive water spray application. Keep surrounding area cool with water spray from a distance and prevent further ignition of combustible material. Keep run-off water out of sewers and water sources.

Additional firefighting tactics

FIRES INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after the fire is out. Do not direct water at source of leak or safety devices; icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles: if this is impossible, withdraw from area and let fire burn.

EVACUATION: Consider initial downwind evacuation for at least 1000 feet. If tank, rail car or tank truck is involved in a fire, ISOLATE for 5280 feet (1 mile) in all directions; also, consider initial evacuation of 5280 feet (1 mile) in all directions.

NFPA	Health 1	Flammability 2	Instability 0	Special Hazard -

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Keep public away. Isolate and evacuate area. Shut off source if safe to do so. Eliminate all ignition sources. All contaminated surfaces will be slippery.

Protective equipment

Use personal protection measures as recommended in Section 8.

Emergency procedures

Advise authorities and National Response Center (800-424-8802) if the product has entered a water course or sewer. Notify local health and pollution control agencies, if appropriate.

Environmental precautions

Avoid release to the environment. Avoid subsoil penetration.

Methods and materials for containment	Contain liquid with sand or soil. Prevent spilled material from entering storm drains, sewers, and open waterways.
Methods and materials for cleaning up	Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids. Recover and return free product to proper containers. When recovering free liquids ensure all equipment is grounded and bonded. Use only non-sparking tools.

7. HANDLING AND STORAGE

Safe handling precautions

NEVER SIPHON THIS PRODUCT BY MOUTH. Use appropriate grounding and bonding practices. Static accumulating flammable liquid. Bonding and grounding may be insufficient to eliminate the hazard from static electricity. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. Vapors may travel along the ground or be moved by ventilation. Flashback may occur along vapor trails. No smoking. Use only non-sparking tools. Avoid breathing fumes, gas, or vapors. Use only with adequate ventilation. Avoid repeated and prolonged skin contact. Use personal protection measures as recommended in Section 8. Exercise good personal hygiene including removal of soiled clothing and prompt washing with soap and water. Do not cut, drill, grind or weld on empty containers since explosive residues may remain. Refer to applicable EPA, OSHA, NFPA and consistent state and local requirements.

Hydrocarbons are basically non-conductors of electricity and can become electrostatically charged during mixing, filtering, pumping at high flow rates or loading and transfer operations. If this charge reaches a sufficiently high level, sparks can form that may ignite the vapors of flammable liquids. Sudden release of hot organic chemical vapors or mists from process equipment operating under elevated temperature and pressure, or sudden ingress of air into vacuum equipment may result in ignition of vapors or mists without the presence of obvious ignition sources. Nozzle spouts must be kept in contact with the containers or tank during the entire filling operation.

Portable containers should never be filled while in or on a motor vehicle or marine craft. Containers should be placed on the ground. Static electric discharge can ignite fuel vapors when filling non-grounded containers or vehicles on trailers. The nozzle spout must be kept in contact with the container before and during the entire filling operation. Use only approved containers.

A buildup of static electricity can occur upon re-entry into a vehicle during fueling especially in cold or dry climate conditions. The charge is generated by the action of dissimilar fabrics (i.e., clothing and upholstery) rubbing across each other as a person enters/exits the vehicle. A flash fire can result from this discharge if sufficient flammable vapors are present. Therefore, do not get back in your vehicle while refueling.

Cellular phones and other electronic devices may have the potential to emit electrical charges (sparks). Sparks in potentially explosive atmospheres (including fueling areas such as gas stations) could cause an explosion if sufficient flammable vapors are present. Therefore, turn off cellular phones and other electronic devices when working in potentially explosive atmospheres or keep devices inside your vehicle during refueling.

High-pressure injection of any material through the skin is a serious medical emergency even though the small entrance wound at the injection site may not initially appear serious. These injection injuries can occur from high-pressure equipment such as paint spray or grease or guns, fuel injectors, or pinhole leaks in hoses or hydraulic lines and should all be considered serious. High pressure injection injuries may be SERIOUS SURGICAL EMERGENCIES (See First Aid Section 4).

Storage conditions	Store in properly closed containers that are appropriately labeled and in a cool, well-ventilated area. Do not store near an open flame, heat or other sources of ignition.
Incompatible materials	Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Name	ACGIH TLV	OSHA PELS	NIOSH IDLH
No. 2 Diesel Fuel 68476-34-6	100 mg/m³ TWA Skin - potential significant contribution to overall exposure by the cutaneous route	-	-
Kerosine (petroleum) 8008-20-6	200 mg/m³ TWA Skin - potential significant contribution to overall exposure by the cutaneous route	-	-
Naphthalene 91-20-3	10 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 10 ppm TWA: 50 mg/m³	250 ppm

Notes: No further information available.

Engineering measures Local or general exhaust required in an enclosed area or with inadequate ventilation. Use mechanical ventilation equipment that is explosion-proof.

Personal protective equipment

Eye protection Use goggles or face-shield if the potential for splashing exists.

Skin and body protection Wear neoprene, nitrile or PVA gloves to prevent skin contact. Glove suitability is based on workplace conditions and usage. Contact the glove manufacturer for specific advice on glove selection and breakthrough times.

Respiratory protection Use a NIOSH approved organic vapor chemical cartridge or supplied air respirators when there is the potential for airborne exposures to exceed permissible exposure limits or if excessive vapors are generated. Observe respirator assigned protection factors (APFs) criteria cited in federal OSHA 29 CFR 1910.134. Self-contained breathing apparatus should be used for fire fighting.

Hygiene measures Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Yellow to Red Liquid
Physical State	Liquid
Color	Yellow to Red
Odor	Hydrocarbon
Odor Threshold	No data available.

Property	**Values (method)**
pH	Not applicable
Melting Point / Freezing Point	No data available.
Initial Boiling Point / Boiling Range	154-366 °C / 310-691 °F (ASTM D86)
Flash Point	58-76 °C / 136-168 °F (ASTM D93)
Evaporation Rate	No data available.
Flammability (solid, gas)	Not applicable.
Flammability Limit in Air (%):	
Upper Flammability Limit:	No data available.
Lower Flammability Limit:	No data available.
Explosion Limits	No data available.
Vapor Pressure	No data available.
Vapor Density	No data available.
Specific Gravity / Relative Density	0.82-0.86

Water Solubility	No data available.
Partition Coefficient	No data available.
Autoignition Temperature	No data available.
Decomposition Temperature	No data available.
Kinematic Viscosity	1.7-4.1 cSt @ 40°C (ASTM D445)
VOC Content (%)	No data available.

10. STABILITY AND REACTIVITY

Reactivity The product is non-reactive under normal conditions.

Chemical stability The material is stable at 70°F (21°C), 760 mmHg pressure.

Possibility of hazardous reactions None under normal processing.

Hazardous polymerization Will not occur.

Conditions to avoid Excessive heat, sources of ignition, open flame.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products None known under normal conditions of use. However, use in an area without adequate ventilation may result in hazardous levels of carbon monoxide and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

Potential short-term adverse effects from overexposures

Inhalation Harmful if inhaled. May cause irritation of respiratory tract. May cause drowsiness or dizziness. Breathing high concentrations of this material in a confined space or by intentional abuse can cause irregular heartbeats which can cause death.

Eye contact Exposure to vapor or contact with liquid may cause mild eye irritation, including tearing, stinging, and redness.

Skin contact Irritating to skin. Effects may become more serious with repeated or prolonged contact. May be absorbed through the skin in harmful amounts.

Ingestion May be fatal if swallowed or vomited and enters airways. May cause irritation of the mouth, throat and gastrointestinal tract.

Acute toxicological data

Name	Oral LD50	Dermal LD50	Inhalation LC50
No. 2 Diesel Fuel 68476-34-6	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	>1 - <5 mg/L (Rat) 4 h
Kerosine (petroleum) 8008-20-6	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.28 mg/L (Rat) 4 h
Fuels, Diesel, C9-18-Alkane Branched and Linear 1159170-26-9	-	-	>1 - <5 mg/l (Rat) 4 h
Alkanes, C10-C20 branched and linear 928771-01-1	-	-	>1 - <5 mg/l (Rat) 4 h
Naphthalene 91-20-3	533 mg/kg (Mouse)	> 2000 mg/kg (Rabbit)	> 340 mg/m³ (Rat) 1 h

Immediate and delayed effects as well as chronic effects from short and long-term exposure

PETROLEUM MIDDLE DISTILLATES: Petroleum derived middle distillates have produced skin tumors in mice after repeated and prolonged skin contact. Additional studies indicated prolonged skin irritation contributes to tumor development. Repeated dermal exposures to high concentrations in test animals resulted in reduced litter size and weight, and increased fetal resorptions at doses

toxic to the mother. Inhalation exposure to high concentrations resulted in respiratory tract irritation, lung changes/infiltration/accumulation, and reduction in lung function. Repeated dermal application of petroleum gas oils resulted in decreased liver, thymus, and spleen weights, and altered bone marrow function. Microscopic alterations included liver hypertrophy and necrosis, decreased hematopoiesis and lymphocyte depletion. Altered mental state, drowsiness, peripheral motor neuropathy, irreversible brain damage (so-called Petrol Sniffer's Encephalopathy), delirium, seizures, and sudden death have been reported from repeated overexposure to some hydrocarbon solvents, naphthas, and gasoline.

NAPHTHALENE: Excessive exposure to naphthalene may cause nausea, vomiting, diarrhea, blood in the urine, and a yellow color to the skin. Lifetime inhalation exposure of laboratory rodents to naphthalene resulted in cancers of the respiratory tract in male and female rats. A small increase in cancer of the lung was observed in female mice, but no evidence of lung cancer was observed in male mice. Long-term exposure to excessive airborne naphthalene concentrations may result in destruction of red blood cells, a condition referred to as hemolytic anemia.

DIESEL EXHAUST: The combustion of diesel fuels produces gases including carbon monoxide, carbon dioxide, oxides of nitrogen and/or sulfur, and hydrocarbons that can be irritating and hazardous with overexposure. Long-term occupational overexposure to diesel exhaust and diesel exhaust particulate matter has been associated with an increased risk of respiratory disease, including lung cancer, and is characterized as a “known human carcinogen” by the International Agency for Research on Cancer (IARC), as “a reasonably anticipated human carcinogen” by the National Toxicology Program, and as “likely to be carcinogenic to humans” by the EPA, based upon animal and occupational exposure studies. However, uncertainty exists with these classifications because of deficiencies in the supporting occupational exposure/epidemiology studies, including reliable exposure estimates. Lifetime animal inhalation studies with pulmonary overloading exposure concentrations of diesel exhaust emissions have produced tumors and other adverse health effects. However, in more recent long-term animal inhalation studies of diesel exhaust emissions, no increase in tumor incidence and in fact a substantial reduction in adverse health effects along with significant reductions in the levels of hazardous material emissions were observed and are associated with fuel composition alterations coupled with new technology diesel engines.

Adverse effects related to the physical, chemical and toxicological characteristics

Signs and symptoms Irritating to the skin and mucous membranes. Symptoms may include redness, itching, and inflammation. May cause nausea, vomiting, diarrhea, and signs of nervous system depression: headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Aspiration hazard. May cause coughing, chest pains, shortness of breath, pulmonary edema and/or chemical pneumonitis. Repeated or prolonged skin contact may cause drying, reddening, itching and cracking. Prolonged or repeated exposure may cause damage to organs.

Acute toxicity Harmful if inhaled.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation None known.

Sensitization None known.

Mutagenic effects None known.

Carcinogenicity Suspected of causing cancer.

Name	ACGIH (Class)	IARC (Class)	NTP	OSHA
No. 2 Diesel Fuel 68476-34-6	Confirmed animal carcinogen (A3)	Not Classifiable (3)	Not Listed	Not Listed
Kerosine (petroleum) 8008-20-6	Confirmed animal carcinogen (A3)	Not Classifiable (3)	Not Listed	Not Listed
Naphthalene 91-20-3	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Reasonably anticipated to be a human carcinogen	Not Listed

Reproductive toxicity None known.

Specific Target Organ Toxicity (STOT) - single exposure May cause respiratory irritation. May cause drowsiness or dizziness.

Specific Target Organ Toxicity May cause damage to organs (thymus, liver, bone marrow) through prolonged or repeated

(STOT) - repeated exposure exposure.

Aspiration hazard May be fatal if swallowed or vomited and enters airways.

12. ECOLOGICAL INFORMATION

Ecotoxicity This product should be considered toxic to aquatic organisms, with the potential to cause long lasting adverse effects in the aquatic environment.

Name	Fish	Crustacea	Algae/aquatic plants
No. 2 Diesel Fuel 68476-34-6	96-hr LC50 = 35 mg/l Fathead minnow (flow-through)	48-hr EL50 = 6.4 mg/l Daphnia magna	-
Kerosine (petroleum) 8008-20-6	96-hr LL50 = 18-25 mg/l Fish	48-hr EL50 = 1.4-21 mg/l Invertebrates	72-hr EL50 = 5.0-11 mg/l Algae
Naphthalene 91-20-3	96-hr LC50 = 0.91-2.82 mg/l Rainbow trout (static) 96-hr LC50 = 1.99 mg/l Fathead minnow (static)	48-hr LC50 = 1.6 mg/l Daphnia magna	-

Persistence and degradability Expected to be inherently biodegradable.

Bioaccumulation Has the potential to bioaccumulate.

Mobility in soil May partition into air, soil and water.

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Description of waste residues This material may be a flammable liquid waste.

Safe handling of wastes Handle in accordance with applicable local, state, and federal regulations. Use personal protection measures as required. Use appropriate grounding and bonding practices. Use only non-sparking tools. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. No smoking.

Disposal of wastes / methods of disposal The user is responsible for determining if any discarded material is a hazardous waste (40 CFR 262.11). Dispose of in accordance with federal, state and local regulations.

Contaminated packaging disposal Empty containers should be completely drained and then discarded or recycled, if possible. Do not cut, drill, grind or weld on empty containers since explosive residues may be present. Dispose of in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT

UN/Identification No: NA 1993
UN Proper Shipping Name: Diesel Fuel
Transport Hazard Class(es): 3
Packing Group: III

IATA

UN/Identification No: UN 1202
UN Proper Shipping Name: Diesel Fuel
Transport Hazard Class(es): 3
Packing Group: III
ERG code: 3L

IMDG

UN/Identification No: UN 1202

UN Proper Shipping Name:	Diesel Fuel
Transport Hazard Class(es):	3
Packing Group:	III
EmS No:	F-E, S-E
Marine Pollutant:	Yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

15. REGULATORY INFORMATION

Regulatory Information

US TSCA Chemical Inventory This product and/or its components are listed on the TSCA Chemical Inventory or are exempt.

Canada DSL/NDSL Inventory This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

EPA Superfund Amendment & Reauthorization Act (SARA)

SARA Section 302 This product does not contain any component(s) included on EPA's Extremely Hazardous Substance (EHS) List above the de minimis threshold.

SARA Section 304 This product may contain component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	Hazardous Substances RQs
Naphthalene 91-20-3	100 lb 45.4 kg

SARA Section 311/312 The following EPA hazard categories apply to this product:

Flammable
Hazard Not Otherwise Classified (HNOC)-Physical
Acute toxicity
Skin corrosion or irritation
Carcinogenicity
Specific target organ toxicity
Aspiration hazard

SARA Section 313 This product may contain component(s), which if in exceedance of the de minimus threshold, may be subject to the reporting requirements of SARA Title III Section 313 Toxic Release Reporting (Form R).

Name	CERCLA/SARA 313 Emission reporting
Naphthalene 91-20-3	0.1 % de minimis concentration

U.S. State Regulations

California Proposition 65 This product can expose you to chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm.

Name	California Proposition 65
No. 2 Diesel Fuel 68476-34-6	Engine exhaust, Carcinogen, initial date 10/01/90
Naphthalene 91-20-3	Carcinogen, initial date 04/19/02

For more information, go to www.P65Warnings.ca.gov.

State Right-To-Know Regulations The following component(s) of this material are identified on the regulatory lists below:

Name	New Jersey Right-To-Know	Pennsylvania Right-To-Know	Massachusetts Right-To Know
No. 2 Diesel Fuel 68476-34-6	Listed	Listed	Not Listed
Kerosine (petroleum) 8008-20-6	Listed	Listed	Listed
Naphthalene 91-20-3	Listed	Listed	Listed

16. OTHER INFORMATION

Prepared by Toxicology & Product Safety

NFPA

Revision Notes

Revision date 10/01/2020
Previous publish date 06/01/2016
Revised sections The following sections (§) have been updated:
3. COMPOSITION/INFORMATION ON INGREDIENTS
8. EXPOSURE CONTROLS/PERSONAL PROTECTION
14. TRANSPORT INFORMATION
15. REGULATORY INFORMATION

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is intended as guidance for safe handling, use, processing, storage, transportation, accidental release, clean-up and disposal and is not considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

SAFETY DATA SHEET

GROWMARK

1. Identification

Product identifier	**FS Diesel Exhaust Fluid**
Other means of identification	None.
Recommended use	Not available.
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name	GROWMARK, Inc.	
Address	1701 Towanda Avenue Bloomington, IL. 61701 United States	
Telephone	GENERAL ASSISTANCE	309-557-6000
Website	WWW.GROWMARK.COM	
E-mail	SDS@GROWMARK.COM	
Emergency phone number	CHEMTREC	800-424-9300

2. Hazard(s) identification

Physical hazards	Not classified.
Health hazards	Not classified.
OSHA defined hazards	Not classified.

Label elements

Hazard symbol	None.
Signal word	None.
Hazard statement	The mixture does not meet the criteria for classification.
Precautionary statement	
Prevention	Observe good industrial hygiene practices.
Response	Wash hands after handling.
Storage	Store away from incompatible materials.
Disposal	Dispose of waste and residues in accordance with local authority requirements.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	32.5% of the mixture consists of component(s) of unknown acute dermal toxicity.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
UREA		57-13-6	32.5
Other components below reportable levels			67.5

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Direct contact with eyes may cause temporary irritation.

Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Prevent entry into waterways, sewer, basements or confined areas. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Avoid prolonged exposure. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value	Form
UREA (CAS 57-13-6)	TWA	10 mg/m3	Total particulate.

Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves.
Other	Wear suitable protective clothing.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Liquid.
Color	Not available.
Odor	Not available.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	270.86 °F (132.7 °C) estimated
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	0.00001 hPa estimated
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	11.04 lbs/gal estimated
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Percent volatile	67.5 % estimated
Specific gravity	1.32 estimated

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics	Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity	Not known.
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	Prolonged inhalation may be harmful.
Further information	This product has no known adverse effect on human health.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
UREA (CAS 57-13-6)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	3910 mg/l, 48 hours
Fish	LC50	Giant gourami (Colisa fasciata)	5 mg/l, 96 hours

Persistence and degradability No data is available on the degradability of any ingredients in the mixture.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)	
UREA	-2.11

Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN3082
UN proper shipping name	Environmentally hazardous substances, liquid, n.o.s. (UREA)
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Label(s)	9
Packing group	III
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	8, 146, 335, IB3, T4, TP1, TP29
Packaging exceptions	155
Packaging non bulk	203
Packaging bulk	241

IATA

UN number	UN3082
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (UREA)
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Packing group	III
Environmental hazards	Yes
ERG Code	9L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

IMDG

UN number	UN3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (UREA), MARINE POLLUTANT
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-A, S-F
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not established.

DOT; IATA; IMDG

Marine pollutant

General information IMDG Regulated Marine Pollutant.

15. Regulatory information

US federal regulations This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

California Proposition 65

WARNING: California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Toxic Chemical Substances (TCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 01-19-2018

Version # 01

Disclaimer GROWMARK, Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBILGREASE XHP 322 MINE**
Product Description: Base Oil and Additives
Product Code: 2015A0202545, 531293-88
Recommended Use: Grease

COMPANY IDENTIFICATION

Supplier:
ExxonMobil Lubricants Private Limited
(CIN: U74899DL1994PTC057721)
5th Floor, Crescent #1
Prestige Shantiniketan Building, Whitefield Main Road
Bangalore 560048 India

24 Hour Emergency Telephone	000-800-100-7141 / +1-703-527-3887
Supplier General Contact	+91-80-7108-5300
FAX	91-124-2581618

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
BENZENAMINE, N-PHENYL-, REACTION PRODUCTS WITH 2,4,4-TRIMETHYLPENTENE	68411-46-1	1 - < 5%	H316, H402, H412
MOLYBDENUM (IV) SULPHIDE	1317-33-5	5 - < 10%	None
ZINC DIALKYL DITHIOPHOSPHATE	68457-79-4	1 - < 2.5%	H315, H318, H401, H411

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

SECTION 4 FIRST AID MEASURES

INHALATION
Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

SKIN CONTACT
Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT
Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION
First aid is normally not required. Seek medical attention if discomfort occurs.

NOTE TO PHYSICIAN
None

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING
Fire Fighting Instructions: Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulphur oxides

FLAMMABILITY PROPERTIES
Flash Point [Method]: >246°C (475°F) [EST. FOR OIL, ASTM D-92 (COC)]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D

Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Scrape up spilled material with shovels into a suitable container for recycle or disposal.

Water Spill: Stop leak if you can do so without risk. Confine the spill immediately with booms. Warn other shipping. Skim from surface

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard.

Static Accumulator: This material is not a static accumulator.

STORAGE

Do not store in open or unlabelled containers.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit/Standard			Note	Source
MOLYBDENUM (IV) SULPHIDE [as Mo]	Inhalable fraction.	TWA	10 mg/m3			ACGIH
MOLYBDENUM (IV) SULPHIDE [as Mo]	Respirable fraction.	TWA	3 mg/m3			ACGIH

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No protection is ordinarily required under normal conditions of use and with adequate ventilation.
Particulate

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use. Nitrile,Viton

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and

protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Solid
Form: Semi-fluid
Colour: Grey
Odour: Characteristic
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15.6 °C): 0.9
Flammability (Solid, Gas): N/A
Flash Point [Method]: >246°C (475°F) [EST. FOR OIL, ASTM D-92 (COC)]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F) [Estimated]
Decomposition Temperature: N/D
Vapour Density (Air = 1): N/D
Vapour Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C [Estimated]
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5 [Estimated]
Solubility in Water: Negligible
Viscosity: [N/D at 40 °C]
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/D
DMSO Extract (mineral oil only), IP-346: < 3 %wt

NOTE: Most physical properties above are for the oil component in the material.

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidisers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitisation	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

Contains:
Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitising in test animals.

IARC Classification:
The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--
1 = IARC 1 2 = IARC 2A 3 = IARC 2B

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

ECOTOXICITY
Material -- Not expected to be harmful to aquatic organisms.

MOBILITY
Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY
Biodegradation:
Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL
Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS
Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND : Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

This material is not considered hazardous according to the Classification of Chemicals based on Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS

Listed or exempt from listing/notification on the following chemical inventories : AIIC, DSL, ENCS, IECSC, ISHL, KECI, PICCS, TCSI, TSCA

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable
KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H316: Causes mild skin irritation; Skin Corr/Irritation, Cat 3
H318: Causes serious eye damage; Serious Eye Damage/Irr, Cat 1
H401: Toxic to aquatic life; Acute Env Tox, Cat 2
H402: Harmful to aquatic life; Acute Env Tox, Cat 3
H411: Toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 2
H412: Harmful to aquatic life with long lasting effects; Chronic Env Tox, Cat 3

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Composition: Component Table information was modified.
Section 02: GHS Sensitizer Statement information was deleted.
Section 08: Respiratory CEN Standards - AP information was added.
Section 09: Relative Density information was modified.
Section 11: Other Health Effects information was deleted.
Section 16: HCode Key information was modified.

DGN: 7049633XIN (1027739)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL DELVAC HDEO 15W-40**
Product Description: Base Oil and Additives
Product Code: 201520405 5J1
Intended Use: Diesel engine oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
22777 Springwoods Village Parkway
Spring, TX 77389 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300 or 703-527-3887 CHEMTREC
Product Technical Information	800-662-4525
MSDS Internet Address	www.exxon.com, www.mobil.com

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

ENVIRONMENTAL HAZARDS

No significant hazards.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
ALKYL PHENOL	125643-61-0	1 - < 5%	H413
SOLVENT DEWAXED HEAVY PARAFFINIC DISTILLATE	64742-65-0	1 - < 5%	H304
SOLVENT DEWAXED LIGHT PARAFFINIC DISTILLATE (PETROLEUM)	64742-56-9	1 - < 5%	H304
ZINC ALKYL DITHIOPHOSPHATE	113706-15-3	1 - < 5%	H303, H315, H318, H401, H411

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >204°C (399°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways,

sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Loading/Unloading Temperature: N/D

Static Accumulator: This material is a static accumulator.

STORAGE

The type of container used to store the material may affect static accumulation and dissipation. Do not store in open or unlabelled containers.
Storage Temperature: N/D

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit / Standard			NOTE	Source
SOLVENT DEWAXED HEAVY PARAFFINIC DISTILLATE	Mist.	TWA	5 mg/m3		N/A	OSHA Z1
SOLVENT DEWAXED HEAVY PARAFFINIC DISTILLATE	Inhalable fraction.	TWA	5 mg/m3		N/A	ACGIH
SOLVENT DEWAXED LIGHT PARAFFINIC DISTILLATE (PETROLEUM)	Mist.	TWA	5 mg/m3		N/A	OSHA Z1
SOLVENT DEWAXED LIGHT PARAFFINIC DISTILLATE (PETROLEUM)	Inhalable fraction.	TWA	5 mg/m3		N/A	ACGIH

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following are recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction), 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Amber
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density: 0.875
Flammability (Solid, Gas): N/A
Flash Point [Method]: >204°C (399°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: N/D
Decomposition Temperature: N/D
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 122.9 cSt (122.9 mm2/sec) at 40 °C | 14.9 cSt (14.9 mm2/sec) at 100°C [ASTM D 445]
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: See sub-sections below.

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	

Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

For the product itself:

Diesel engine oils: Not carcinogenic in animals tests. Used and unused diesel engine oils did not produce any carcinogenic effects in chronic mouse skin painting studies.

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data for the material, components of the material, or for similar materials, through the

application of bridging principals.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: DSL, TSCA

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA (311/312) REPORTABLE GHS HAZARD CLASSES: None.

SARA (313) TOXIC RELEASE INVENTORY:

Chemical Name	CAS Number	Typical Value
ZINC ALKYL DITHIOPHOSPHATE	113706-15-3	1 - < 5%

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
2-BUTENEDIOIC ACID (E)-, DI-C8-18-ALKYL ESTERS	68610-90-2	5
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	64742-54-7	17, 18, 19
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	64742-54-7	19
SOLVENT DEWAXED HEAVY PARAFFINIC DISTILLATE	64742-65-0	1, 4
SOLVENT DEWAXED LIGHT PARAFFINIC DISTILLATE (PETROLEUM)	64742-56-9	1, 4
ZINC ALKYL DITHIOPHOSPHATE	113706-15-3	13, 15, 17, 18, 19

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK

3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H303: May be harmful if swallowed; Acute Tox Oral, Cat 5
H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H318: Causes serious eye damage; Serious Eye Damage/Irr, Cat 1
H401: Toxic to aquatic life; Acute Env Tox, Cat 2
H411: Toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 2
H413: May cause long lasting harmful effects to aquatic life; Chronic Env Tox, Cat 4

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Composition: Component Table information was modified.
Section 07: Handling and Storage - Handling information was modified.
Section 07: Loading/Unloading Temperature C(F) information was added.
Section 07: Storage Temperature C(F) information was added.
Section 08: Exposure Limits Table information was modified.
Section 09: Boiling Point C(F) information was modified.
Section 09: Color information was modified.
Section 09: Flash Point C(F) information was modified.
Section 09: Phys/Chem Properties Note information was modified.
Section 09: Pour Point C(F) information was deleted.
Section 09: Viscosity information was modified.
Section 10: Conditions to Avoid information was deleted.
Section 11: Chronic Tox - Product information was modified.
Section 11: Other Health Effects information was deleted.
Section 13: Disposal Considerations - Disposal Recommendations information was modified.
Section 15: List Citations Table information was modified.
Section 15: National Chemical Inventory Listing information was modified.
Section 15: SARA (313) TOXIC RELEASE INVENTORY - Table information was modified.
Section 15: Special Cases Table information was added.
Section 15: Special Cases Table information was deleted.
Section 16: HCode Key information was modified.
Section 16: MSN, MAT ID information was modified.

Internal Use Only

MHC: 0B, 0B, 0, 0, 0, 0 PPEC: A

DGN: 7197652XUS (1032068)

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL HYDRAULIC 10W**
Product Description: Base Oil and Additives
Product Code: 20152060D010, 581637-80
Intended Use: Hydraulic fluid

COMPANY IDENTIFICATION

Supplier: **AMPOL AUSTRALIA PETROLEUM PTY LTD**
ABN 17 000 032 128
29-33 Bourke Rd
Alexandria
New South Wales 2015 Australia

24 Hour Emergency Telephone	1800 033 111
Product Technical Information	1300364169
Supplier General Contact	+612 9250-5000
FAX	+612 9250-5742

SECTION 2 HAZARDS IDENTIFICATION

This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).

Other hazard information:

Physical / Chemical Hazards:
No significant hazards.

Health Hazards:
High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

Environmental Hazards:
No significant hazards.

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
ZINC ALKYL DITHIOPHOSPHATE	113706-15-3	1 - < 2.5%	H303, H315, H318, H401, H411

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. Other ingredients determined not to be hazardous up to 100%.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

NOTE TO PHYSICIAN

None

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Pressurised mists may form a flammable mixture.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulphur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do so without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do so without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or earthing procedures. However, bonding and earthing may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The type of container used to store the material may affect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

Material is defined under the National Standard [NOHSC:1015] Storage and Handling of Workplace Dangerous Goods.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product:

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

Biological limits

No biological limits allocated.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

Particulate

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

Nitrile,Viton

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practise good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Colour: Amber
Odour: Characteristic
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.88 [ASTM D4052]
Flammability (Solid, Gas): N/A
Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F) [Estimated]
Decomposition Temperature: N/D
Vapour Density (Air = 1): > 2 at 101 kPa [Estimated]
Vapour Pressure: < 0.013 kPa (0.1 mm Hg) at 20 ºC [Estimated]
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5 [Estimated]
Solubility in Water: Negligible

Viscosity: 37 cSt (37 mm2/sec) at 40 ºC | 6.5 cSt (6.5 mm2/sec) at 100°C [ASTM D 445]
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -18°C (0°F) [ASTM D97]
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

INCOMPATIBLE MATERIALS: Strong oxidisers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitisation	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.

Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

Contains:
Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitising in test animals.

IARC Classification:
The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--
1 = IARC 1 2 = IARC 2A 3 = IARC 2B

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

ECOTOXICITY
Material -- Not expected to be harmful to aquatic organisms.

MOBILITY
Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY
Biodegradation:
Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL
Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (ADG) : Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

This material is not considered hazardous according to Australia Model Work Health and Safety Regulations.

Product is not regulated according to Australian Dangerous Goods Code.

No Poison Schedule number allocated by the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) established under the Therapeutic Goods Act.

AS1940 COMBUSTIBLE CLASS: C2

REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS

Listed or exempt from listing/notification on the following chemical inventories : AIIC, DSL, ENCS, IECSC, ISHL, KECI, PICCS, TCSI, TSCA

SECTION 16 OTHER INFORMATION

KEY TO ABBREVIATIONS AND ACRONYMS:

N/D = Not determined, N/A = Not applicable, STEL = Short-Term Exposure Limit, TWA = Time-Weighted Average

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):

H303: May be harmful if swallowed; Acute Tox Oral, Cat 5
H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
H318: Causes serious eye damage; Serious Eye Damage/Irr, Cat 1
H401: Toxic to aquatic life; Acute Env Tox, Cat 2
H411: Toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 2

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
Composition: Component Table information was modified.
Section 01: Company Mailing Address information was modified.
Section 01: Product Intended Use information was modified.
Section 08: Exposure Limits Table information was deleted.
Section 16: HCode Key information was modified.

DGN: 7082576DAU (1012272)

Prepared by: Exxon Mobil Corporation
EMBSI, Clinton NJ USA
Contact Point: See Section 1 for Local Contact number

End of (M)SDS

SAFETY DATA SHEET

Oxygen, Refrigerated Liquid

Section 1. Identification

GHS product identifier : Oxygen, Refrigerated Liquid

Chemical name : oxygen

Other means of identification : OXYGEN (LIQUID); Liquid oxygen; Oxygen, refrigerated liquid; LOX; Oxygen molecule; Molecular Oxygen; Dioxygen; OXYGEN, COMPRESSED

Product type : Liquefied gas.

Product use : Synthetic/Analytical chemistry.

Synonym : OXYGEN (LIQUID); Liquid oxygen; Oxygen, refrigerated liquid; LOX; Oxygen molecule; Molecular Oxygen; Dioxygen; OXYGEN, COMPRESSED

SDS # : 001190

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

24-hour telephone : Inside the US: 1-833-723-3267 (Chemtrec, 24 hours) Outside the US: 1-703-527-3887 (Chemtrec, 24 hours)
1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : OXIDIZING GASES - Category 1
GASES UNDER PRESSURE - Refrigerated liquefied gas

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : May cause or intensify fire; oxidizer.
Contains refrigerated gas; may cause cryogenic burns or injury. May cause frostbite.
Combustibles in contact with Liquid Oxygen may explode on ignition or impact.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Open valve slowly. Use only with equipment cleaned for Oxygen service. Always keep container in upright position. Do not change or force fit connections. Avoid spills. Do not walk or roll equipment over spills.

Prevention : Wear cold insulating gloves and either face shield or eye protection. Keep away from clothing and other combustible materials. Keep reduction valves, valves and fittings free from oil and grease.

Response : Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice or attention. In case of fire: Stop leak if safe to do so.

Storage : Store in a well-ventilated place.

Disposal : Not applicable.

Section 2. Hazards identification

Hazards not otherwise classified : Liquid can cause burns similar to frostbite.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : oxygen

Other means of identification : OXYGEN (LIQUID); Liquid oxygen; Oxygen, refrigerated liquid; LOX; Oxygen molecule; Molecular Oxygen; Dioxygen; OXYGEN, COMPRESSED

Product code : 001190

CAS number/other identifiers

CAS number : 7782-44-7

Ingredient name	%	CAS number
Oxygen, Refrigerated Liquid	100	7782-44-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area.

Ingestion : Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. As this product rapidly becomes a gas when released, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Extremely cold material. Liquid can cause burns similar to frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Extremely cold material. Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : Ingestion of liquid can cause burns similar to frostbite.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:, frostbite

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:, frostbite

Ingestion : Adverse symptoms may include the following:, frostbite

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Section 4. First aid measures

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Contains refrigerated gas. Oxidizing material. This material increases the risk of fire and may aid combustion. Contact with combustible material may cause fire. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Contains refrigerated gas. Do not get in eyes or on skin or clothing. Avoid breathing gas. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Never allow any unprotected part of the body to touch uninsulated pipes or vessels that contain cryogenic liquids. Prevent entrapment of liquid in closed systems or piping without pressure relief devices. Some materials may become brittle at low temperatures and will easily fracture. Empty containers retain product residue and can be hazardous. Keep away from clothing, incompatible materials and combustible materials. Keep reduction valves free from grease and oil.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Separate from reducing agents and combustible materials. Store away from grease and oil. Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Oxygen Refrigerated Liquid	None.

Biological exposure indices

No exposure indices known.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Section 8. Exposure controls/personal protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Thermal hazards : If there is a risk of contact with the liquid, all protective equipment worn should be suitable for use with extremely low temperature materials.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless. Blue.

Odor : Odorless.

Odor threshold : Not available.

pH : Not applicable.

Melting point : -218.4°C (-361.1°F)

Boiling point : -183°C (-297.4°F)

Critical temperature : -118.15°C (-180.7°F)

Flash point : [Product does not sustain combustion.]

Evaporation rate : Not available.

Flammability (solid, gas) : Extremely flammable in the presence of the following materials or conditions: reducing materials, combustible materials and organic materials.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : 1.1 (Air = 1)

Specific Volume (ft^3/lb) : 12.0482

Gas Density (lb/ft^3) : 0.083

Relative density : Not applicable.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : 0.65

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Flow time (ISO 2431) : Not available.

Molecular weight : 32 g/mole

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : Highly reactive or incompatible with the following materials: combustible materials
reducing materials grease
oil

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects **Acute toxicity**

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Section 11. Toxicological information

Eye contact : Extremely cold material. Liquid can cause burns similar to frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Extremely cold material. Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Ingestion : Ingestion of liquid can cause burns similar to frostbite.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:, frostbite

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:, frostbite

Ingestion : Adverse symptoms may include the following:, frostbite

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards. No

Carcinogenicity : known significant effects or critical hazards. No

Mutagenicity : known significant effects or critical hazards. No

Teratogenicity : known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
Oxygen Refrigerated Liquid	0.65	-	low

Mobility in soil

Section 12. Ecological information

Soil/water partition coefficient (KOC) : Not available

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty pressure vessels should be returned to the supplier. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1073	UN1073	UN1073	UN1073	UN1073
UN proper shipping name	Oxygen, Refrigerated Liquid		Oxygen, Refrigerated Liquid	Oxygen, Refrigerated Liquid	Oxygen, Refrigerated Liquid
Transport hazard class(es)	2.2 (5.1) 	2.2 (5.1) 	2.2 (5.1) 	2.2 (5.1) 	2.2 (5.1) 
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Additional information

DOT Classification : **Limited quantity** Yes.
Quantity limitation Passenger aircraft/rail: 75 kg. Cargo aircraft: 150 kg.
Special provisions A52

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2), 2.23-2.25 (Class 5).
Explosive Limit and Limited Quantity Index 0.125
ERAP Index 3000
Passenger Carrying Vessel Index 50 **Passenger Carrying Road or Rail Index** 75 **Special provisions** 42

IATA : **Quantity limitation** Passenger and Cargo Aircraft: 75 kg. Cargo Aircraft Only: 150 kg.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : This material is listed or exempted.

Canada : This material is listed or exempted.

China : This material is listed or exempted.

Eurasian Economic Union : **Russian Federation inventory**: Not determined.

Japan : **Japan inventory (CSCL)**: Not determined.
Japan inventory (ISHL): Not determined.

New Zealand : This material is listed or exempted.

Philippines : This material is listed or exempted.

Section 15. Regulatory information

Republic of Korea : This material is listed or exempted.

Taiwan : This material is listed or exempted.

Thailand : Not determined.

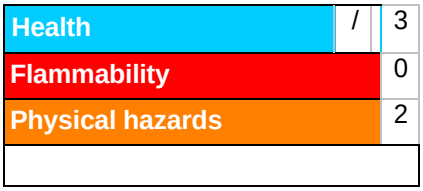
Turkey : Not determined.

United States : This material is active or exempted.

Viet Nam : This material is listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
OXIDIZING GASES - Category 1 GASES UNDER PRESSURE - Refrigerated liquefied gas	Expert judgment Expert judgment

History

Date of printing : 3/17/2023

Date of issue/Date of revision : 3/17/2023

Date of previous issue : 2/9/2022

Version : 0.02

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient

MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Attachment 1

Attachment 2
Work Plans

Work Plan for Old Scrubber Building:

- To begin demolition of the building, first the siding will be removed off the outside with 385 Caterpillar hydraulic excavator. Once the siding is removed, we will then remove x bracing to allow for tank, and hopper removal.
- After accessing the buildings' structural integrity, remove the 2 tanks, and 2 hoppers, along with other interior components.
- Once the x bracing, hoppers, tanks and any non-structural members are removed from the building we will proceed to begin to prep the building for pulling the building over by hydraulic excavator to the East, with cables attached to main columns of building to 385 Caterpillar hydraulic excavator, and 349 Caterpillar excavator.
- Begin weakening the structural columns of the building by torch cutting on certain legs at certain levels on columns to help the building roll over to the East.
- Cables will be placed at levels of 25 ft on main columns of building, with 150 ft of cable to 385 excavator, and also 150 ft to 349 excavator pulling building to East.

See photo:

Work Plan for Old Precipitator:

- Remove siding with CAT 385 to the North, West, and East sides.
- Load out scrap with the CAT 349.
- Gut the first two floors of duct work and hoppers leaving vertical columns and any bracing.
- Clean column line (N), (P), (Q) from 16-19, and 16-1 through 16-5.
- Make the separations between the Old Precipitator and the Fan Room.
- Make separations between column line (M) and (N), also across the roof.
- Attach 1" ¾ inch pull cables with 35t shackles at approximate Elev. 635'.
- Another 100' of 1&3/4-inch pull cable will be added with 35t shackles attaching them to the CAT 385 and the CAT 349 for felling the structure.
- The appropriate torch cuts will be made on vertical column lines (Q), (P), and (R).
- The structure will then be pulled, processed, and loaded out.

-Second pull

- Vertical column lines (M), (L), (K), and(J) working South from row 18 through 14 will be gutted with CAT 385 and loaded out with the CAT 349.
- The vertical columns will be cleaned.
- Separation will take place between Column line (J) and the Boiler House.
- 1" ¾ Pull cables will be hung at approximate Elev. 675' with 35t shackles. Cables will be attached to the CAT 385 and the CAT 349.
- The appropriate torch cuts will be made on vertical column lines (M), (L), (K) and (J).
- The structure will then be pulled, processed, and loaded out.

See attached photo:

New Scrubber Building Demolition Plan:

- Removing 100k tank and FGD Absorber Building first, after removal of both structures we will demo staircase with 385 excavator.
- Making a separation on the scrubber duct that feeds into the new stack, cutting the gasket from the duct to the stack with razor blade.
- Once the separations are made we will hang 200’ cable to duct which will be attached to 385 excavator facing south.
- We then we will make our cuts on the structural support legs to weaking the structure holding the duct work going into the stack with a torch.
- When structure legs are cut, we will pull the duct in the north direction with 385 excavator.

Work Plans

New Precipitator Building Demolition Plan:

- Remove all siding and staircases from around the building.
- We will then examine the structural integrity of the building once all siding and staircases are removed. Once evaluation of the building is complete, we will first separate the ID Fans off the building.
- Once the ID Fans are removed and separated, we will then begin to remove all siding and then our prep work for the fall of the building.
- Hanging cables from approx. 60’ up to three main columns, stringing 200’ of cable from column to the 385 excavator, the 349 excavator and the 336 excavators.
- When all the cables are in place, we will make cuts to the structural members with a torch of the building to weaken it to help with the pulling over of the building.
- After all the cuts are made, we will be pulling the building to the east with all three excavators, to create the fall of the building to the East.

See photo:

Work Plan Dismantling Turbine Building

- (Phase 1) Burners will remove all siding from the EAST side of building exposing the structures framework.
- Columns will be removed from the EAST side giving clearance for the overhead crane to be pulled out with cable and Excavator (CAT 352). The two main columns supporting the roof will not be removed.
- Crane will be downsized and processed with torches and loaded out.

- (Phase 2) The floor of the building will be wrecked mechanically in sections. Structural columns supporting the floor will be cut with shear and pulled out, allowing the concrete floor to collapse.

- Once a section of the floor is dropped the grapple will sort through the scrap metal and concrete clearing the area to prepare for the next section to be wrecked.

- When all wrecking of the floors is finished the main structure of the building and the concrete bases supporting the turbine will be left standing.

- (Phase 3) Sections of the building will be set up by burners in a bay-by-bay process.

- Burners will make separation cuts on the interior structure of the roof. The beams and bracing supporting the roof will be set cut on a 45-degree angle leaving a one-inch sticker in the middle of the web. The roof trussell will be cut as well leaving stickers to insure it is still supported.

- On the south end of building burners will separate the crane beam and any other header beams that are connected to the next bay over. All beams will be cut on a 45-degree angle leaving a sticker in the middle of the web.

- Once all separation cuts have been made burners will hook 150ft of 1 ¾ inch cable to the main column approximately 40ft from ground level. (Attached to CAT 352 Excavator)

- Two flat cuts will be made on the main column, leaving a sticker in the middle of the flange (one below the shackle connection point and one 3ft from ground level)

- When all cuts are finished the excavator will back up pulling the section and falling to the ground.

- All material will be processed. The area will be cleared of all scrap and debris and the process will repeat until the buildings structure is gone.

Turbine

Work Plan for Water Tower:

- 2, 25ft 1 3/4inch cables will be wrapped around the front interm column that connects to the strut point approximately 150ft up water tower (One cable for each column on the falling side of structure)
- Attaching one 50ft 1 3/4inch cable to each of the 25ft cables connecting with a 35ton shackle. Following that the 50ft cables will be connected at the ends with a 35ton shackle forming a Y. (This is to ensure that there will be an even pull on both columns when it is attached to the CAT 349 Excavator)
- At the end of the Y will be an additional 400ft of cable in 50ft sections connected with 35ton shackles
- Once cables are in place and attached to CAT 349 Excavator Burners will make a separation on the center riser approximately 20 to 30 ft up from grade creating a air gap.
- Burners will make a precise hinge cut on 2 front columns approximately 1 to 2ft from grade level
- Burners will flat cut the 2 back columns 100% making those their last cuts
- Once all personnel is clear the Operator will track backwards putting tension on the cable pulling the water tower and falling the structure

Work Plan for Administration Building

-Remove all pre-cast paneling around the entire structure.

-Begin to remove floor beams, and floor, as well as any other equipment, and material on the first Two floors.

- Collapsing of the floors and removing all material.

-Once all floors and material are removed from the area we will then proceed to the south end of the building.

- Working east to west, with shear on 385 excavator the operator will cut both center columns at ground level.

-Once both center columns are cut loose at ground level we will move to outside column on west, cutting the outside column with shear on 385 excavators.

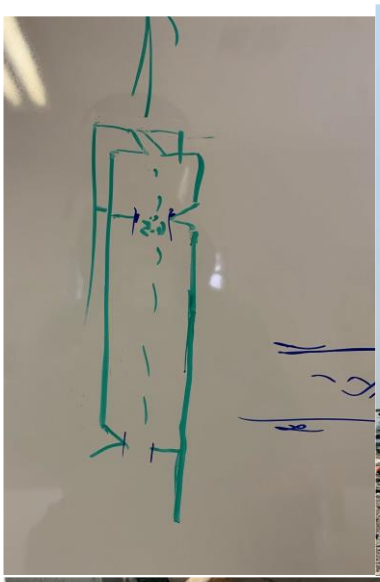
-When column is cut free the operator will secure the outside column in the shear and begin tracking the machine to the west pulling the column out from the building to create a fall of the structure.

Work Plan for precipitator duct work going to SCR

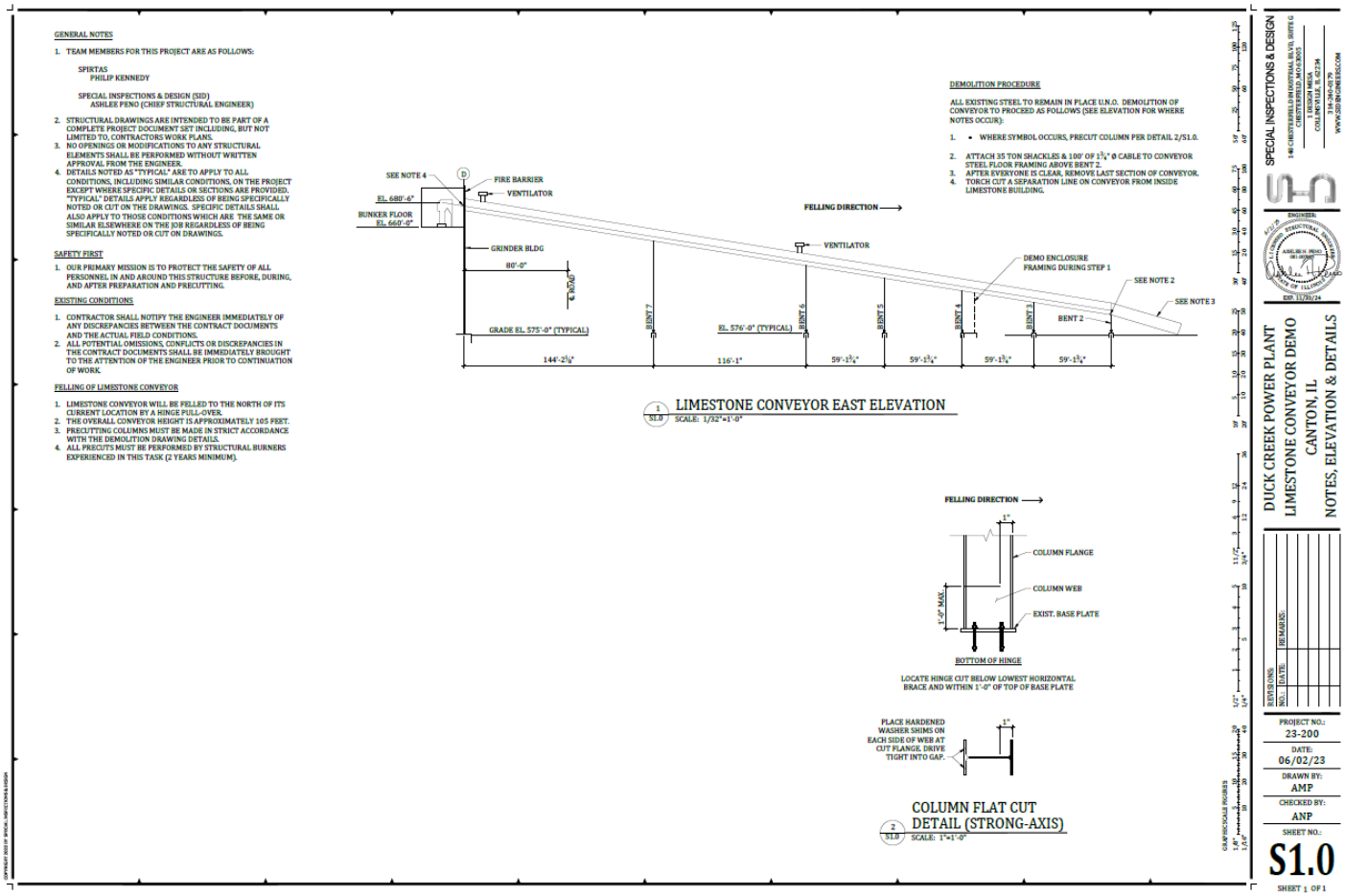
- 3, 50ft 1 3/4inch cables will be attached to main structural, in two different points with a 35-ton shackle on each connection point.
- Attaching one 50ft 1 3/4inch cable to each of the 50ft cables connecting with a 35ton shackle. Following that the 50ft cables will be connected at the ends with a 35ton shackle forming a Y. (This is to ensure that there will be an even pull on both columns when it is attached to the CAT 349 Excavator, and 385 Excavator)
- At the end of the Y will be an additional 150ft of cable in 50ft sections connected with 35ton shackles
- Once cables are in place and attached to CAT 349 Excavator, and 385 Excavator, Burners will make cuts on x bracing.
- Burners will make a precise flat cut on First 3 bays of columns working south to north, approximately 15 ft and at the ground base to create a “kickout” of the columns.
- Burners will flat cut the remaining columns south to north.
- Once all personnel are clear the Operators will track in the north direction putting tension on the cables pulling the duct work, and structure to fall in the north direction.

Work Plan Limestone Prep Building

- First floor of Limestone Prep Building will be removed mechanically with 352 Cat Excavator
- Burners will hang cables approximently 40ft from ground level to the two main columns of structure
- 2- 1 ¾ " cables will be attached to each column with 35ton shackles, total length of cable will be 250ft per connection point
- Before any cuts are made cables will be attached to 4 machines (two machines per column) CAT 352, CAT 349, CAT 385, CAT 349
- Burners will make double hinge cuts on the first two rows of columns in strategic order
- A single hinge cut will be made on the last row of columns approximately 3ft from ground level
- Once all personel is clear machines will put tension on cables and wait for a 3,2,1 pull count down over radio
- Structure will fall to the EAST



Duck Creek PP Demo Limestone Conveyor Final Drawing



GENERAL NOTES

1. TEAM MEMBERS FOR THIS PROJECT ARE AS FOLLOWS:

   SPIRTAS
   PHILIP KENNEDY

   SPECIAL INSPECTIONS & DESIGN (SID)
   ASHLEE PENO (CHIEF STRUCTURAL ENGINEER)

2. STRUCTURAL DRAWINGS ARE INTENDED TO BE PART OF A COMPLETE PROJECT DOCUMENT SET INCLUDING, BUT NOT LIMITED TO, CONTRACTORS WORK PLANS.
3. NO OPENINGS OR MODIFICATIONS TO ANY STRUCTURAL ELEMENTS SHALL BE PERFORMED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
4. DETAILS NOTED AS "TYPICAL" ARE TO APPLY TO ALL CONDITIONS, INCLUDING SIMILAR CONDITIONS, ON THE PROJECT EXCEPT WHERE SPECIFIC DETAILS OR SECTIONS ARE PROVIDED. "TYPICAL" DETAILS APPLY REGARDLESS OF BEING SPECIFICALLY NOTED OR CUT ON THE DRAWINGS. SPECIFIC DETAILS SHALL ALSO APPLY TO THOSE CONDITIONS WHICH ARE THE SAME OR SIMILAR ELSEWHERE ON THE JOB REGARDLESS OF BEING SPECIFICALLY NOTED OR CUT ON DRAWINGS.

SAFETY FIRST

1. OUR PRIMARY MISSION IS TO PROTECT THE SAFETY OF ALL PERSONNEL IN AND AROUND THIS STRUCTURE BEFORE, DURING, AND AFTER PREPARATION AND PRECUTTING.

EXISTING CONDITIONS

1. CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THE CONTRACT DOCUMENTS AND THE ACTUAL FIELD CONDITIONS.
2. ALL POTENTIAL OMISSIONS, CONFLICTS OR DISCREPANCIES IN THE CONTRACT DOCUMENTS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONTINUATION OF WORK.

FELLING OF LIMESTONE CONVEYOR

1. LIMESTONE CONVEYOR WILL BE FELLED TO THE NORTH OF ITS CURRENT LOCATION BY A HINGE PULL-OVER.
2. THE OVERALL CONVEYOR HEIGHT IS APPROXIMATELY 105 FEET.
3. PRECUTTING COLUMNS MUST BE MADE IN STRICT ACCORDANCE WITH THE DEMOLITION DRAWING DETAILS.
4. ALL PRECUTS MUST BE PERFORMED BY STRUCTURAL BURNERS EXPERIENCED IN THIS TASK (2 YEARS MINIMUM).

1 / S1.0 LIMESTONE CONVEYOR EAST ELEVATION
SCALE: 1/32"=1'-0"

DEMOLITION PROCEDURE

ALL EXISTING STEEL TO REMAIN IN PLACE U.N.O. DEMOLITION OF CONVEYOR TO PROCEED AS FOLLOWS (SEE ELEVATION FOR WHERE NOTES OCCUR):

1. • WHERE SYMBOL OCCURS, PRECUT COLUMN PER DETAIL 2/S1.0.
2. ATTACH 35 TON SHACKLES & 100' OF 1¾" Ø CABLE TO CONVEYOR STEEL FLOOR FRAMING ABOVE BENT 2.
3. AFTER EVERYONE IS CLEAR, REMOVE LAST SECTION OF CONVEYOR.
4. TORCH CUT A SEPARATION LINE ON CONVEYOR FROM INSIDE LIMESTONE BUILDING.

LOCATE HINGE CUT BELOW LOWEST HORIZONTAL BRACE AND WITHIN 1'-0" OF TOP OF BASE PLATE

2 / S1.0 COLUMN FLAT CUT DETAIL (STRONG-AXIS)
SCALE: 1"=1'-0"

SPECIAL INSPECTIONS & DESIGN
146 CHESTERFIELD INDUSTRIAL BLVD, SUITE G
CHESTERFIELD, MO 63005
1 DESIGN MEDIA
COLLINSVILLE, IL 62234
314.260.4179
WWW.SIDENGINEERS.COM

ENGINEER
ASHLEE M. PENO
061-053907
STATE OF ILLINOIS
EXP. 11/30/24

DUCK CREEK POWER PLANT
LIMESTONE CONVEYOR DEMO
CANTON, IL
NOTES, ELEVATION & DETAILS

REVISIONS		
NO.:	DATE:	REMARKS:

PROJECT NO.: 23-200
DATE: 06/02/23
DRAWN BY: AMP
CHECKED BY: ANP
SHEET NO.: S1.0
SHEET 1 OF 1

Duck Creek Demo Stacks Preliminary Drawing #1

GENERAL NOTES

1. TEAM MEMBERS FOR THIS PROJECT ARE AS FOLLOWS:

   SPIRTAS WRECKING CO. - DEMO CONTRACTOR

   DEMTECH - BLASTER

   SPECIAL INSPECTIONS & DESIGN (SID) - STRUCTURAL ENGINEER
2. STRUCTURAL DRAWINGS ARE INTENDED TO BE PART OF A COMPLETE PROJECT DOCUMENT SET INCLUDING, BUT NOT LIMITED TO, CONTRACTORS WORK AND BLAST PLANS.
3. NO OPENINGS OR MODIFICATIONS TO ANY STRUCTURAL ELEMENTS SHALL BE PERFORMED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
4. DETAILS NOTED AS "TYPICAL" ARE TO APPLY TO ALL CONDITIONS, INCLUDING SIMILAR CONDITIONS, ON THE PROJECT EXCEPT WHERE SPECIFIC DETAILS OR SECTIONS ARE PROVIDED. "TYPICAL" DETAILS APPLY REGARDLESS OF BEING SPECIFICALLY NOTED OR CUT ON THE DRAWINGS. SPECIFIC DETAILS SHALL ALSO APPLY TO THOSE CONDITIONS WHICH ARE THE SAME OR SIMILAR ELSEWHERE ON THE JOB REGARDLESS OF BEING SPECIFICALLY NOTED OR CUT ON DRAWINGS.

SAFETY FIRST

1. OUR PRIMARY MISSION IS TO PROTECT THE SAFETY OF ALL PERSONNEL IN AND AROUND THIS STRUCTURE BEFORE, DURING, AND AFTER PREPARATION AND PRECUTTING.

EXISTING CONDITIONS

1. CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN THE CONTRACT DOCUMENTS AND THE ACTUAL FIELD CONDITIONS.
2. ALL POTENTIAL OMISSIONS, CONFLICTS OR DISCREPANCIES IN THE CONTRACT DOCUMENTS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONTINUATION OF WORK.
3. CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF LARGE CRACKS OR OTHER SIGNS OF DISTRESS ARE ENCOUNTERED PRIOR TO OR DURING PRE-CUTTING.

FELLING OF STANDARD & ENVIRO STACK

1. CONCRETE REMOVAL MUST BE MADE IN STRICT ACCORANCE WITH THE DEMOLITION DRAWING DETAILS.
2. THE PERIMETER OF ALL NEW OPENINGS MUST BE SAWCUT PRIOR TO BEING BROKEN OUT WITH A HAMMER.
3. SID IS RESPONSIBLE FOR THE STRUCTURAL STABILITY OF THE STACK IN THE PRE-CUT CONDITION PRIOR TO THE BLAST. BLAST PROCEDURE, FALL DIRECTION, EXCLUSION ZONE, AND PERIMETER PROTECTION ARE THE RESPONSIBILITY OF OTHERS.

1/S1 FELLING PLAN
SCALE: N.T.S.

SPECIAL INSPECTIONS & DESIGN

1 DESIGN MESA
COLLINSVILLE, IL 62234

314-240-0179
WWW.SIDENGINEERS.COM

ENGINEER:

PRELIMINARY NOT FOR CONSTRUCTION

DUCK CREEK POWER PLANT
STACK DEMO
CANTON, IL
GENERAL NOTES & KEY PLAN

REVISIONS		
NO.:	DATE:	REMARKS

PROJECT NO.: 23-200

DATE: 08/01/23

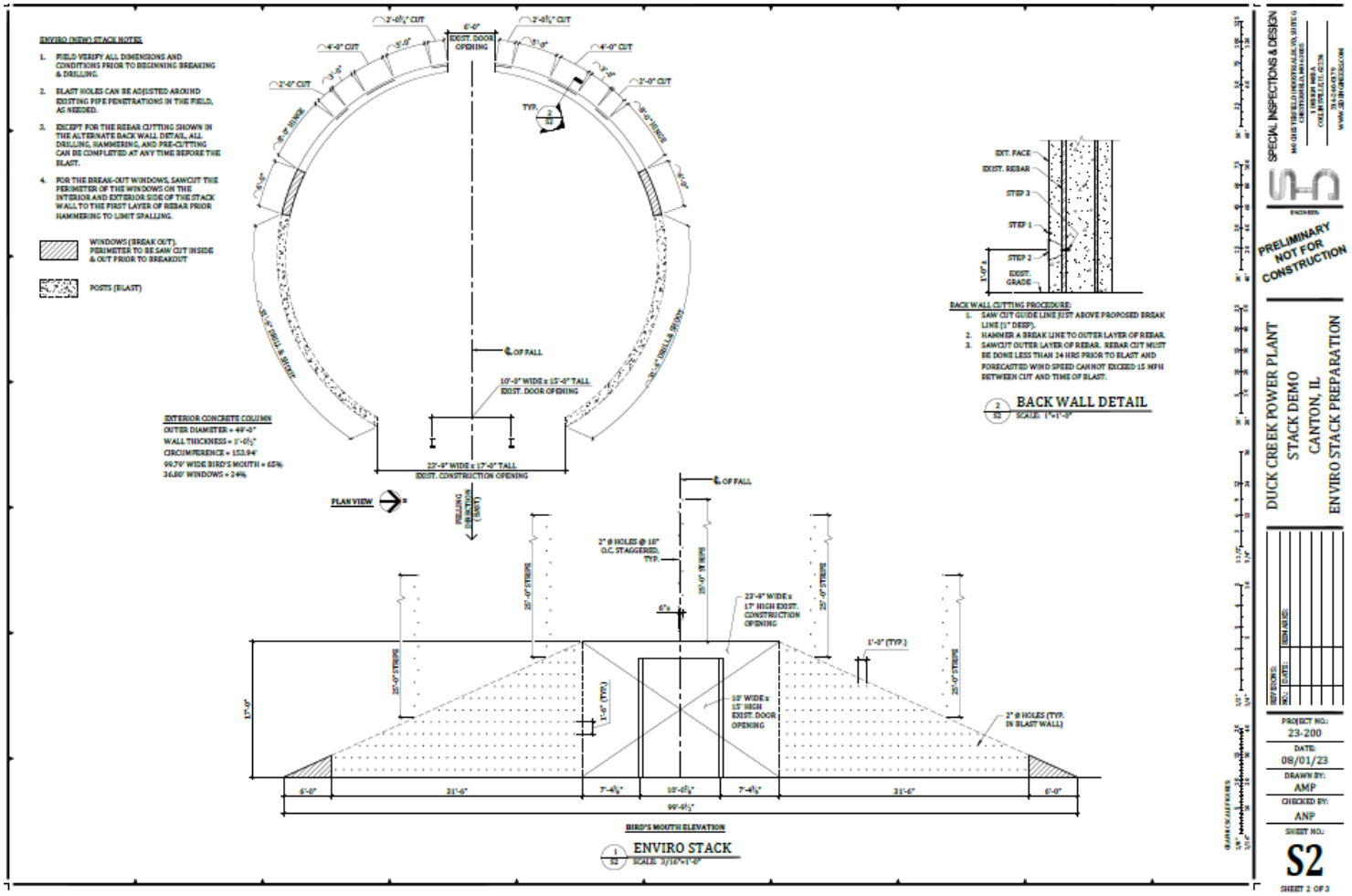
DRAWN BY: AMP

CHECKED BY: ANP

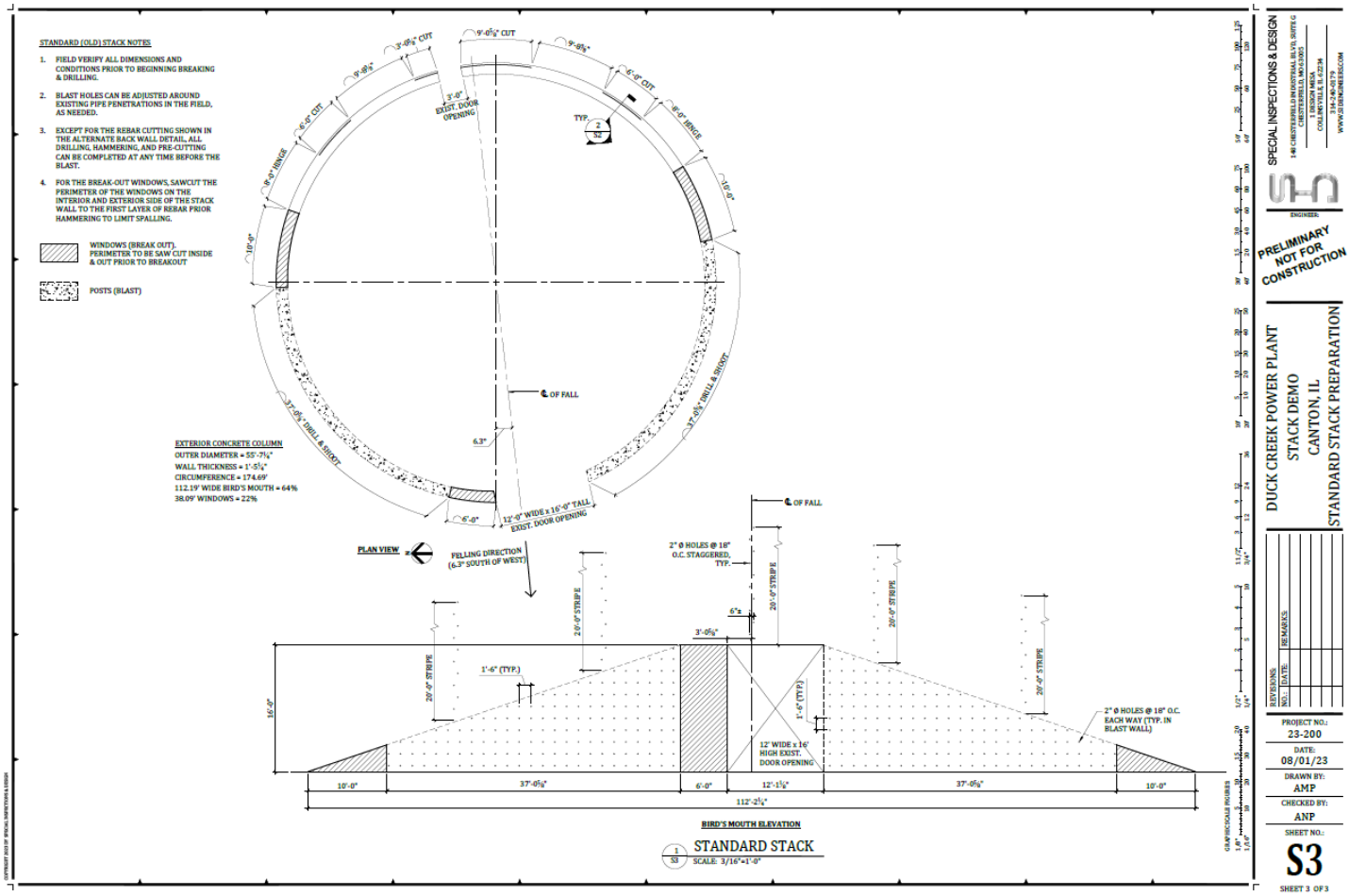
SHEET NO.: S1

SHEET 1 OF 3

Duck Creek Demo Stacks Preliminary Drawing #2



Duck Creek Demo Stacks Preliminary Drawing #3



Duck Creek Demo Coal Conveyor Final Drawing