ARCADIS
Infrastructure · Water · Environment · Buildings

Imagine the result

NYSEG

Pre-Remediation In-Situ Sampling and Analysis Work Plan

Goshen Former Manufactured Gas Plant Site
Goshen, New York
Site No. 3-36-046

April 2015

Pre-Remediation In-Situ Sampling and Analysis Work Plan

Goshen Former Manufactured Gas Plant Site
Site No. 3-36-046

Prepared for:
NYSEG

Prepared by:
ARCADIS of New York, Inc.
6723 Towpath Road
P O Box 66
Syracuse
New York 13214-0066
Tel 315 446 9120
Fax 315 449 0017

Our Ref.:
B0013080.0006

Date:
April 2015

ARCADIS

Table of Contents

1. Introduction **1**

1.1 Purpose 1

1.2 Background 1

2. Pre-Remediation Sampling and Analysis **3**

2.1 Sampling and Analysis 3

2.1.1 Boring Locations and Sampling Intervals 3

2.1.2 Sample Analysis Rationale 3

2.2 Community Air Monitoring 4

2.3 Decontamination 5

2.4 Waste Handling 5

3. Pre-Remediation Sampling Reporting **6**

4. References **7**

Tables

1 ESMI Analytical Requirements

2 Seneca Meadows Landfill Analytical Requirements

Figure

1 Proposed Soil Boring Locations

Attachment

1 Health and Safety Plan

1. Introduction

This *Pre-Remediation In-Situ Sampling and Analysis Work Plan* (Sampling Work Plan) has been prepared by ARCADIS of New York, Inc. (ARCADIS) on behalf of NYSEG and describes the sampling and analysis protocols that will be used during the pre-remediation in-situ waste characterization sampling activities to be conducted in support of the forthcoming remedial construction activities at the NYSEG Goshen Former Manufactured Gas Plant (MGP) Site located in Goshen, New York (the site, Site No. 3-36-046).

The purpose of the pre-remediation sampling and a brief description of the site background are presented below. Pre-remediation sampling activities and analytical requirements are presented in Section 2 and pre-remediation sampling reporting details are presented in Section 3.

1.1 Purpose

The purpose of this Sampling Work Plan is to present the sampling and analysis protocols that will be utilized to conduct pre-remediation in-situ waste characterization soil sampling. The analytical results obtained for samples collected during this pre-remediation sampling event will be used to facilitate waste characterization and identification of appropriate treatment/disposal facilities prior to the implementation of the remedial construction activities (i.e., to allow for the direct loading of excavated material).

1.2 Background

The site is located on West Main Street in the Village of Goshen, in Orange County, New York and consists of an approximate ¾-acre area. The site is owned by NYSEG and presently serves as a natural gas service center. Two gas regulators are also present at the site. The first is located on the northern portion of the site and the second is located within the eastern portion of the service center building. The site is bounded by Rio Grande Creek at the northwest corner, Village of Goshen property to the north and northeast, private commercial properties to the east and west, and West Main Street to the south.

Based on the results of investigation activities completed to date, MGP-related impacts at the site primarily consist of dense non-aqueous phase liquid (DNAPL) and related constituents of concern (COCs); namely benzene, toluene, ethylene, and xylene

compounds (BTEX) and polycyclic aromatic hydrocarbons (PAHs). DNAPL has been observed generally within the boundary of the eastern half of the site within the alluvial unit in the vicinity of former MGP structures (former Gas Holders #1 and #2). NAPL was observed in relatively thin, sporadic seams at depths below the water table generally between 12 to 25 feet below grade. NAPL appears to have migrated only short distance from the assumed NAPL sources (i.e., holders). A more detailed site history is presented in the *Remedial Investigation Report* (RI Report) (ARCADIS, 2010). Results of previous investigations are presented in the RI Report, as well as the *PDI Summary Report* (ARCADIS, 2013) and the *Supplemental PDI Summary Report* (ARCADIS, 2014a).

Remedial construction activities will consist of in-situ soil solidification (ISS) of MGP-impacted soil, sediment removal, and the installation of NAPL monitoring wells. The ISS treatment area and sediment removal area are shown on Figure 1.

Additional details regarding the remedial construction activities are presented in the New York State Department of Environmental Conservation- (NYSDEC-) approved *Draft Final (95%) Remedial Design Report* (RD Report) (ARCADIS, 2014b).

2. Pre-Remediation Sampling and Analysis

This section presents a summary of the pre-remediation in-situ waste characterization sampling activities and laboratory analyses to be completed to generate waste characterization data for the material to be excavated during the remedial construction activities. Waste characterization data will be used to identify treatment/disposal requirements prior to commencing remedial activities and to facilitate direct-loading of excavated material destined for off-site treatment and/or disposal.

2.1 Sampling and Analysis

Pre-remediation in-situ waste characterization sampling activities will be conducted in accordance with the *Health and Safety Plan* (HASP), included as Attachment 1, as well as the community air monitoring procedures described in Section 2.3.

2.1.1 Boring Locations and Sampling Intervals

Prior to collecting the soil samples, the asphalt pavement will be saw-cut. ARCADIS will complete the soil borings using an air spade/vacuum and hand augers to facilitate collection of shallow subsurface soil samples. Sediment sampling will be completed via manual methods. Proposed sampling locations are shown on Figure 1. Soil borings will be completed to a depth of 6 feet below grade (based on anticipated pre-ISS excavation limits). The sediment boring will be completed to a depth of 2 feet below grade (based on required sediment removal limits). An ARCADIS geologist will visually characterize each soil/sediment sample for soil type and the presence of visible staining, sheen, NAPL, and obvious odors. Field personnel will collect one composite sample from each soil boring and one composite sample from the sediment boring. The number of borings/samples has been determined based on the anticipated volume of material to be excavated during remedial construction activities and treatment and disposal facility sampling requirements.

2.1.2 Sample Analysis Rationale

Material excavated during remedial construction activities will be transported off-site for treatment and/or disposal based on the following:

- Soil containing visual MGP-related impacts; that is characteristically hazardous for benzene; or that contains total PAHs at concentrations greater than 1,000

milligram per kilogram (mg/kg) will be sent for off-site treatment via low-temperature thermal desorption (LTTD) (i.e., at ESMI's Fort Edward facility).

- Soil that does not contain visual impacts, but contains total PAHs at concentrations greater than 500 mg/kg and less than 1,000 mg/kg will be sent for off-site disposal as non-hazardous solid waste (i.e., at Seneca Meadows Landfill).

If visual impacts are not observed, each soil and sediment sample will be submitted sampled for both ESMI-required analytical requirements and Seneca Meadows Landfill-required analytical requirements, presented in Tables 1 and 2, respectively. If visual impacts are observed, the samples will be submitted for ESMI-required analyses only.

2.2 Community Air Monitoring

Real-time air quality monitoring will be conducted for the duration of intrusive activities. During the completion of the soil borings, monitoring will be conducted at one upwind and one downwind location for VOCs and particulate matter less than 10 micrometers in diameter (PM_{10}). Meteorological monitoring will not be required during the sampling. Additionally, particulate monitoring will not be performed during precipitation events. Monitoring station locations will be determined based on weather conditions (e.g., wind direction). Air monitoring locations will be documented in a field logbook.

A real-time VOC monitor (e.g., RAE MiniRAE 2000 [or equivalent]), equipped with either a photoionization detector (PID), or flame ionization detector (FID), calibrated to 100 parts per million (ppm) Isobutylene will be used to monitor for volatile organic compounds (VOCs). The instrument will be capable of calculating 15 minute running average concentrations. As outlined in the New York State Department of Health (NYSDOH) *Generic Community Air Monitoring Plan* (GCAMP) (NYSDOH, 2002), if the ambient air concentration for total VOCs exceeds 5 ppm above background (upwind location) for the 15-minute average, work activities will be temporarily halted while monitoring continues. If the total VOC concentration readily decreases (through observation of instantaneous readings) below 5 ppm above background, then work activities can resume with continuous monitoring. Additionally, if odors deriving from the site operations are detected in the nearby community, despite VOCs being below the action level, odor suppression activities will be taken.

A real-time particulate monitor (e.g., TSI 8530 DustTrack II [or equivalent]) will be used for particulate monitoring. As also required by NYSDOH GCAMP, if the average

ambient air PM_{10} concentration (calculated for continuous 15-minute increments as specified above) at the downwind perimeter location exceeds 100 micrograms per cubic meter ($\mu g/m^3$) above the average background concentration (calculated for continuous 15-minute increments as specified above), or if airborne dust is visually observed leaving the work area, then dust suppression measures will be implemented, and air monitoring will continue.

2.3 Decontamination

All non-disposable equipment (e.g., drilling tools, shovels, etc.) will be decontaminated prior to first use on site, between each investigation location, and prior to demobilization. Decontamination may take place at the sampling location as long as all liquids are contained in pails, buckets, etc. Decontamination procedures will consist of washing equipment with potable water and a detergent (such as Alconox). The sampling equipment will then be rinsed with potable water, a rinse with a 10 percent "ultra pure-grade" nitric acid followed by a distilled water rinse, a 10 percent "pesticide-grade" methanol rinse, and finally a distilled water rinse. Between rinses, equipment will be placed on polyethylene sheets or aluminum foil if necessary. At no time will washed equipment be placed directly on the ground. Equipment will be used immediately or wrapped in plastic or aluminum foil for storage or transportation from the designated decontamination area to the sampling location.

2.4 Waste Handling

All investigation-derived waste (IDW) will be containerized on-site. Field personnel will segregate soil cuttings, personal protective equipment, spent disposable sampling materials and water generated during the sampling and decontamination activities by waste type and place the materials in New York State Department of Transportation-(DOT-) approved 55-gallon steel drums. Each drum will be appropriately labeled with the contents, generator, location, and date. IDW will be disposed with excavated material generated during remedial construction activities.

3. Pre-Remediation Sampling Reporting

Activities conducted and results obtained from the pre-remediation sampling will be documented in a *Pre-Remediation In-Situ Sampling and Analysis Summary Report* (Sampling Summary Report). The visual characterization and analytical results will provide the basis for selecting the appropriate treatment/disposal facility for excavated material (or provide a basis for reuse). The Sampling Summary Report will include the following:

- A brief summary of the sampling activities including health and safety monitoring, field observations, problems encountered, and other pertinent information necessary to document the work.
- Tabulated summaries of visual impacts and analytical results.
- A plan view figure depicting sampling locations and cross-sections of the removal areas depicting the recommended treatment/disposal destination for each section based on the in-situ characterization results.
- Field notes (included as attachment).
- Community air monitoring data.

Boring logs will not be prepared, as the material sampled will be excavated (approximately one year) after the borings are completed.

4. References

ARCADIS, 2010. *Remedial Investigation Report*. Goshen Former MGP Site, Goshen, New, York. Prepared on behalf of NYSEG. July 2010.

ARCADIS, 2013. *PDI Summary Report*, Goshen Former MGP Site, Goshen, New York. Prepared on behalf of NYSEG, December 2013.

ARCADIS, 2014a. *Supplemental PDI Summary Report, NYSEG Goshen Former MGP Site,* November 17, 2014.

ARCADIS, 2014b. *Draft Final (95%) Remedial Design Report, NYSEG Goshen Former MGP Site*, November 2014.

NYSDOH, 2002. *Generic Community Air Monitoring Plan* (GCAMP), December 2002.

ARCADIS

Tables

Table 1
ESMI Analytical Requirements

NYSEG - Goshen Former MGP Site - Goshen, New York

Analyte	Laboratory Method
Total TPHs (GRO and DRO)	USEPA Method 8015
Total VOCs	USEPA Method 8260B
Total SVOCs	USEPA Method 8270C
Total PCBs	USEPA Method 8080
Total Metals*	USEPA Method 6010B
Total Cyanide	USEPA Method 9010
Percent Sulfer	USEPA Method D129-64
BTU	ASTM D240-87

Note:

1. Plus antimony, beryllium, nickel, thallium, vanadium, and zinc.

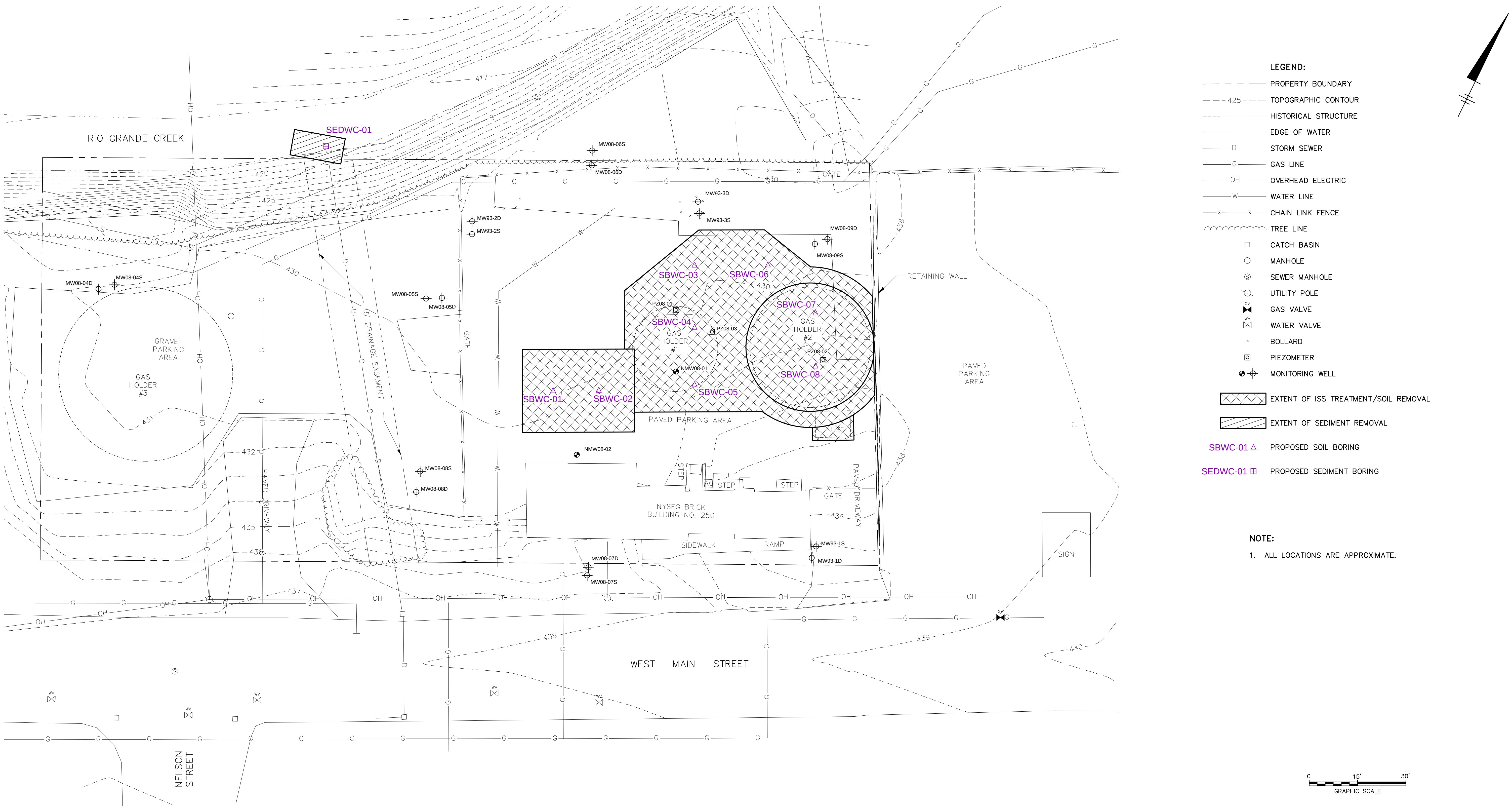
Table 2
Seneca Meadows Landfill Analytical Requirements

NYSEG - Goshen Former MGP Site - Goshen, New York

Analyte	Laboratory Method
TCLP VOCs	USEPA Method 8260
TCLP SVOCs	USEPA Method 8270
TCLP Metals	USEPA Method 6010B
Total PCBs	USEPA Method 8082
Pesticides	SW-846 Method 1311/8081B
Herbicides	SW-846 Method 1311/8150A
Reactivity (Cyanide)	USEPA Method 9012
Reactivity (Sulfide)	USEPA Method 9030A
Flashpoint	SW-846 Method 1010A
Paint Filter	SW-846 Method 9095
pH	SW-846 Method 9045D

ARCADIS

Figure



NYSEG
GOSHEN FORMER MGP SITE
GOSHEN, NEW YORK
PRE-REMEDIATION SAMPLING WORK PLAN

PROPOSED WASTE CHARACTERIZATION SAMPLING LOCATIONS

ARCADIS

FIGURE
1

CITY: SYRACUSE, NY DIV/GROUP: ENVCAD DB:G.STEINBERGER PIC: K.WHITE PM: J.BRIEN TM: J.GOLUBSKI LYR:ON=*;OFF=*REF* G:\ENVCAD\SYRACUSE\ACT\B0013080\0006\00010\DWG\REPORT\PRSWP\13080G01.dwg LAYOUT: 1 SAVED: 3/11/2015 4:13 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 3/11/2015 4:14 PM BY: GETTS, BRIAN
XREFS: 13080X01 13080X00 IMAGES:

ARCADIS

Attachment 1

Health and Safety Plan

Site Specific Health and Safety Plan

Revision 12b, 11/5/2014

Project Name:	Goshen Former MGP Site West Main Street, Goshen, New York Site No. 3-36-046
Project Number:	B0013080.0006
Client Name:	NYSEG
Date:	3/23/2015
HASP Expires	3/22/2016
Revision:	

Approvals:

HASP Developer:	Meghan Kiser
Project Manager:	Jason Golubski, P.E.
HASP Reviewer:	

Emergency Information

Site Address: 250 West Main Street
Goshen, New York 10924

Emergency Phone Numbers:

Emergency (fire, police, ambulance)		911
Emergency (facility specific, if applicable):		
Orange County Medical Center		845-333-1000
Emergency Other (specify)		
Client Contact	Tracy Blazicek	607-762-8839
WorkCare (non-lifethreatening injury/illness)		1-800-455-6155
Project H&S	Charles Webster	315-558-7323
Task Manager	Jason Golubski	315-671-9437
Project Manager	Jason Golubski	315-671-9437
Corporate H&S Specialist	Julie Santaniello	978-551-0033
Corporate H&S Director	Denis Balcer	614-778-9171

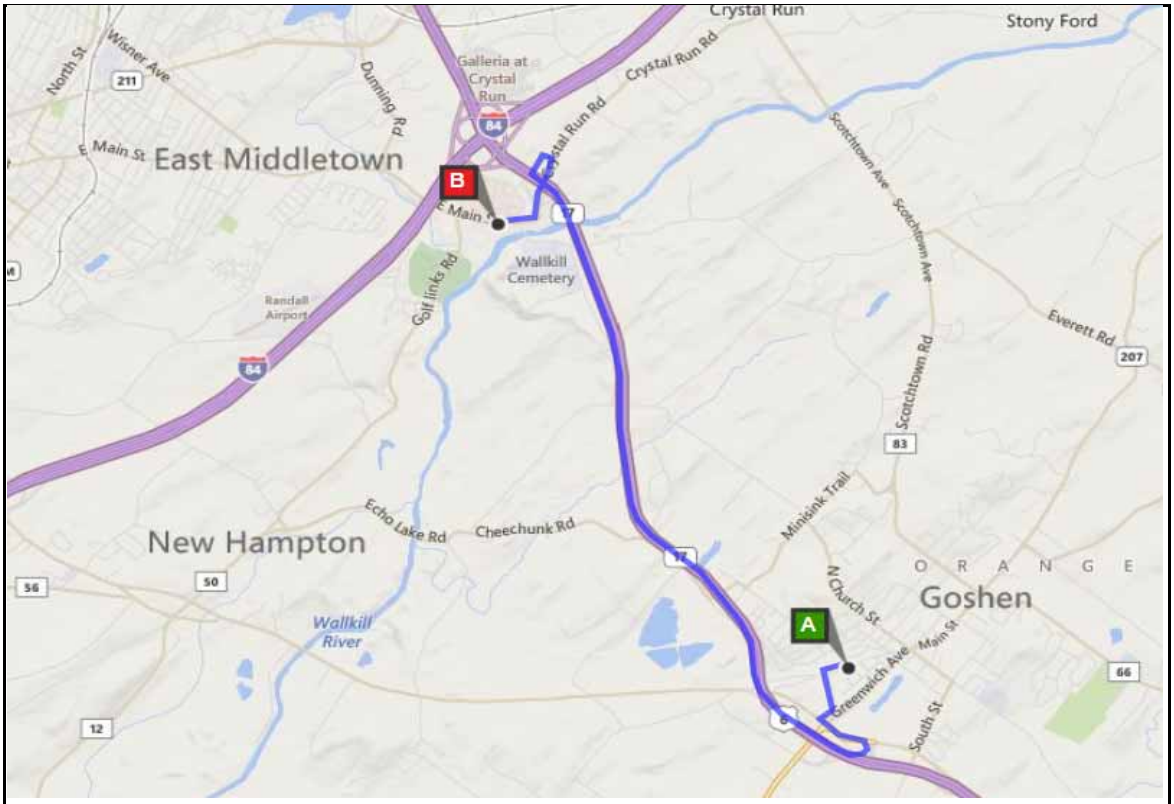
Hospital Name and Address: Orange County Medical Center
707 East Main Street
Middletown, NY 10940

Hospital Phone Number: 845-333-1000

Incident Notification Process

1	Dial 911/Facility Emergency Number/WorkCare as applicable	
2	Contact PM/Supervisor	Jason Golubski
3	Contact Corporate H&S	Denis Balcer
4	Contact Client	Tracy Blazicek

Route to the Hospital



Route: **6.0 mi, 10 min**

A		**250 W Main St, Goshen, NY 10924**	**A–B: 6.0 mi** 10 min
	1.	Depart **W Main St** toward Nelson St	0.1 mi
↰	2.	Turn **left** onto **Clowes Ave**	0.3 mi
↱	3.	Turn **right** onto **RT-207 / Greenwich Ave**	476 ft
↰	4.	Turn **left** onto **RT-17M / Matthews St** *Pizza Hut on the corner*	0.2 mi
6	5.	Take ramp **right** for **US-6 W / RT-17 W**	0.7 mi
↑	6.	Keep **straight** onto **RT-17 W**	3.7 mi
↱	7.	At exit **122**, take ramp **right** and follow signs for **Crystal Run Crossing**	0.2 mi
↱	8.	Turn **right** onto **Crystal Run Crossing**, and then immediately turn **right** onto **Crystal Run Rd**	0.4 mi
↑	9.	Keep **straight** onto **E Main St / CR-67**	0.3 mi
B	10.	Arrive at **707 E Main St, Middletown, NY** *The last intersection is Midway Rd* *If you reach Golf Links Rd / CR-50, you've gone too far*	

General Information

Site Type (select all applicable where work will be conducted):

- ☑ Active
- ☐ Bridge
- ☐ Buildings
- ☑ Commercial
- ☐ Construction
- ☐ Military Installation
- ☐ Inactive Industrial
- ☐ Active Industrial
- ☐ Landfill
- ☐ Marine
- ☐ Mining
- ☑ Parking Lot/Private Roadway
- ☐ Railroad
- ☐ Remote Area
- ☐ Residential
- ☐ Retail
- ☐ Roadway (public, inlcuding right-of-way)
- ☐ Water Treatment Plant
- ☐ Unknown
- ☐ Unsecured
- ☑ Utility
- ☐ Other (specify): _____

Work with exposure to vehicular traffic on private property requires preparation of a Site Traffic Awareness and Response (STAR) Plan.

Surrounding Area and Topography (select one):

- ☑ Surrounding area and topography are presented in the project work plan
- ☐ Surrounding area and topography (*briefly describe*):

Simultaneous Operations (SimOps)

- ☑ Not applicable
- ☐ SimOps will exist on this project

Site Background (select one):

- ☑ Site background is presented in the project work plan
- ☐ Site background (*briefly describe)*:

Project Tasks

The following tasks are identified for this project:

Examples: "Drilling/soil sampling", "Surveying", "General Inspections", "Construction Management/Inspections"

1. General site work
2. Pre-remediation sampling
3. Monitoring well decommissioning
4.
5.

☐ Subcontractor H&S information is attached

☐ Utility clearance required.

☐ FHSHB sections apply *(list below in "Comments")*

☐ State specific H&S required:

☐ ARCADIS Standards apply to augment JSA *[list standard(s) below in "Comments"]*

☐ Journey Management Plan attached

Comments:

II.H - Stop Work Authority; III.A - Daily Safety Meetings, III.L - Noise, III.R - Personal Protective Equipment; III.MM - Utility Location; IV.D - Excavation/Trenching

Roles and Responsibilities

	Name	*Role*	*Additional Responsibilities (Describe)*
1	Jason Brien	PM	Overall management of project
2	Jason Golubski	TM	Coordinate all field work
3	TBD	Field Lead	
4	TBD	SSO	
5			
6			

Training

All ARCADIS employees are required to have the following training to be on site:	*Selected ARCADIS employees are required to have the following additional training:*	Names or Numbers from above
Hazwoper 40 Hour	First Aid/CPR	TBD
Hazwoper 8-Hour Annual Refresher	DOT HazMat #1	TBD
H&S Program Orientation		
PPE		
Defensive Driving - Smith On-Line		
Client specific:		
Other:	Other:	

Hazard Analysis

Risk Assessment Matrix		Likelihood Ratings** (likelihood that incident would occur)			
Consequences Ratings*		A	B	C	D
People	Property	0 Almost impossible	1 Possible but unlikely	2 Likely to happen	3 Almost certain to happen
1 - Slight or no health	Slight or no damage	0 - Low	1 - Low	2 - Low	3 - Low
2 - Minor health effect	Minor damage	0 - Low	2 - Low	4 - Medium	6 - Medium
3 - Major health effect	Local damage	0 - Low	3 - Low	6 - Medium	9 - High
4 - Fatalities	Major damage	0 - Low.	4 - Medium.	8 - High	12 - High

Division
All Categories

Business Unit
All Categories

Task 1: General site work

Hazardous Activity #1

Field-Ambient environment - exposure heat, cold, sun, weather, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	-	Driving	M	Electrical	L
Environmental	L	Gravity	H	Mechanical	-	Motion	L
Personal Safety	M	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Medium if utilizing:

Controls that should be Considered: Primary: TRACK Field H&S Handbook Secondary: H&S Standards Engineering Controls (specify below) Admin. Controls (specify below) Specialized Equipment (specify below) PPE (see HASP "PPE" section)

Enter Required Controls:
Engineering Control - Use a tent or vehicle to protect workers from the elements during breaks
Admin Control - Rotation of workers if necessary based on hot or cold conditions

Hazardous Activity #2

Field-Walking - uneven or slippery terrain

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	-	Driving	-	Electrical	-
Environmental	-	Gravity	M	Mechanical	-	Motion	-
Personal Safety	-	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Medium if utilizing:

Controls that should be Considered: Primary: TRACK Secondary: Housekeeping PPE (see HASP "PPE" section)

Enter Required Controls:
Engineering Control - Use cones and reflective tape to mark out trip hazards
Admin Control - Familiarize workers with the site layout and tripping hazards or locations of slippery terrain during daily safety meeting

Hazardous Activity #3

General-Lifting and movement of equipment of varying weights at varying frequencies by manual methods

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	-	Driving	-	Electrical	-
Environmental	-	Gravity	-	Mechanical	-	Motion	-
Personal Safety	M	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: High Mitigated Risk: Medium if utilizing:

Controls that should be Considered: Primary: TRACK Engineering Controls (specify below) Job Rotation Secondary: JSAs Job Briefing/Site Awareness Specialized Equipment (specify below) Admin. Controls (specify below) Engineering Controls (specify below)

Enter Required Controls:
Engineering Control - Use field vehicle to facilitate moving equipment when possible. Set up site to reduce the risk of bending and reaching for equipment
Admin Control - Ensure workers are trained in proper lifting techniques (lifting with the legs and not the back, use 2 people to carry heavy equipment)

Hazardous Activity #4

Field-Security - high profile projects with irritated or upset public

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	-	Driving	-	Electrical	-
Environmental	-	Gravity	-	Mechanical	-	Motion	-
Personal Safety	M	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Low if utilizing:

Controls that should be Considered: Primary: TRACK JSAs Site AwarenessCont/Emerg. Planning Secondary: Job Briefing/Site Awareness

Enter Required Controls: Admin Control - Ensure all workers onsite are properly trained with how to interact with and answer questions from the public.

Risk Assessment Matrix		Likelihood Ratings** (likelihood that incident would occur)			
Consequences Ratings*		A	B	C	D
People	Property	0 Almost impossible	1 Possible but unlikely	2 Likely to happen	3 Almost certain to happen
1 - Slight or no health	Slight or no damage	0 - Low	1 - Low	2 - Low	3 - Low
2 - Minor health effect	Minor damage	0 - Low	2 - Low	4 - Medium	6 - Medium
3 - Major health effect	Local damage	0 - Low	3 - Low	6 - Medium	9 - High
4 - Fatalities	Major damage	0 - Low.	4 - Medium.	8 - High	12 - High

Task 2: Pre-remediation sampling

Hazardous Activity #1

Field-Ambient environment - exposure heat, cold, sun, weather, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	-	Driving	M	Electrical	L
Environmental	L	Gravity	H	Mechanical	-	Motion	L
Personal Safety	M	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Medium if utilizing:

Controls that should be Considered: Primary: TRACK Field H&S Handbook Secondary: H&S Standards Engineering Controls (specify below) Admin. Controls (specify below) Specialized Equipment (specify below) PPE (see HASP "PPE" section)

Enter Required Controls:

Engineering Control - Use a tent or vehicle to protect workers from the elements during breaks
Admin Control - Rotation of workers if necessary based on hot or cold conditions

Hazardous Activity #2

General-Lifting and movement of equipment of varying weights at varying frequencies by manual methods

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	-	Driving	-	Electrical	-
Environmental	-	Gravity	-	Mechanical	-	Motion	-
Personal Safety	M	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: High Mitigated Risk: Medium if utilizing:

Controls that should be Considered: Primary: TRACK Engineering Controls (specify below) Job Rotation Secondary: JSAs Job Briefing/Site Awareness Specialized Equipment (specify below) Admin. Controls (specify below) Engineering Controls (specify below)

Enter Required Controls:

Engineering Control - Use field vehicle to facilitate moving equipment when possible. Set up site to reduce the risk of bending and reaching for equipment
Admin Control - Ensure workers are trained in proper lifting techniques (lifting with the legs and not the back, use 2 people to carry heavy equipment)

Hazardous Activity #3

Field-Sampling - sediment sampling using dredge or similar device

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	M	Driving	-	Electrical	-
Environmental	L	Gravity	L	Mechanical	-	Motion	M
Personal Safety	-	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Low if utilizing:

Controls that should be Considered: Primary: TRACK JSAs Job Rotation Job Briefing/Site Awareness Secondary: Inspections Specialized Equipment (specify below) PPE (see HASP "PPE" section)

Enter Required Controls:

Specialized Equipment - Ensure all workers who properly trained on how to use manual sampling tools

Hazardous Activity #4

Field-Sampling - manual soil sampling (hand auger, trowel, etc)

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	M	Driving	-	Electrical	-
Environmental	L	Gravity	L	Mechanical	-	Motion	M
Personal Safety	-	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Low if utilizing:

Controls that should be Considered: Primary: TRACK JSAs Job Rotation Job Briefing/Site Awareness Secondary: Inspections Specialized Equipment (specify below) PPE (see HASP "PPE" section)

Enter Required Controls: Specialized Equipment - Ensure all workers who properly trained on how to use manual sampling tools

Risk Assessment Matrix		Likelihood Ratings** (likelihood that incident would occur)			
Consequences Ratings*		A	B	C	D
People	Property	0 Almost impossible	1 Possible but unlikely	2 Likely to happen	3 Almost certain to happen
1 - Slight or no health	Slight or no damage	0 - Low	1 - Low	2 - Low	3 - Low
2 - Minor health effect	Minor damage	0 - Low	2 - Low	4 - Medium	6 - Medium
3 - Major health effect	Local damage	0 - Low	3 - Low	6 - Medium	9 - High
4 - Fatalities	Major damage	0 - Low.	4 - Medium.	8 - High	12 - High

Task 3: Monitoring well decommissioning

Hazardous Activity #1

Field-Ambient environment - exposure heat, cold, sun, weather, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	-	Driving	M	Electrical	L
Environmental	L	Gravity	H	Mechanical	-	Motion	L
Personal Safety	M	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Medium if utilizing:

Controls that should be Considered: Primary: TRACK Field H&S Handbook Secondary: H&S Standards Engineering Controls (specify below) Admin. Controls (specify below) Specialized Equipment (specify below) PPE (see HASP "PPE" section)

Enter Required Controls:

Engineering Control - Use a tent or vehicle to protect workers from the elements during breaks
Admin Control - Rotation of workers if necessary based on hot or cold conditions

Hazardous Activity #2

General-Lifting and movement of equipment of varying weights at varying frequencies by manual methods

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	-	Driving	-	Electrical	-
Environmental	-	Gravity	-	Mechanical	-	Motion	-
Personal Safety	M	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: High Mitigated Risk: Medium if utilizing:

Controls that should be Considered: Primary: TRACK Engineering Controls (specify below) Job Rotation Secondary: JSAs Job Briefing/Site Awareness Specialized Equipment (specify below) Admin. Controls (specify below) Engineering Controls (specify below)

Enter Required Controls:

Engineering Control - Use field vehicle to facilitate moving equipment when possible. Set up site to reduce the risk of bending and reaching for equipment
Admin Control - Ensure workers are trained in proper lifting techniques (lifting with the legs and not the back, use 2 people to carry heavy equipment)

Hazardous Activity #3

Field-Construction- well repairs or decommissioning

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	-	Chemical	M	Driving	-	Electrical	-
Environmental	L	Gravity	M	Mechanical	M	Motion	M
Personal Safety	-	Pressure	L	Radiation	-	Sound	L

Overall Unmitigated Risk: Medium Mitigated Risk: Low if utilizing:

Controls that should be Considered: Primary: TRACK JSAs Work Plan Engineering Controls (specify below) Secondary: Job Briefing/Site Awareness Specialized Equipment (specify below) PPE (see HASP "PPE" section)

Enter Required Controls:

Specialized Equipment - Ensure all workers who properly trained on how to use manual sampling tools

Hazardous Activity #4

None

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological		Chemical		Driving		Electrical	
Environmental		Gravity		Mechanical		Motion	
Personal Safety		Pressure		Radiation		Sound	

Overall Unmitigated Risk: Not Ranked Mitigated Risk: Not Ranked if utilizing:

Controls that should be Considered: Primary: Secondary:

Enter Required Controls:

Hazard Communication (HazCom)/Global Harmonization System (GHS)

☐ HAZCOM/GHS for this project is managed by the client or general contractor

List the chemicals anticipated to be used by ***ARCADIS*** *on this project per HazCom/GHS requirements.*
(Modify quantities as needed)

	Acids/Bases	Qty
☑	Not applicable	
☐	Hydrochloric acid	<500 ml
☐	Nitric acid	<500 ml
☐	Sulfuric acid	<500 ml
☐	Sodium hydroxide	<500 ml
☐	Zinc acetate	<500 ml
☐	Ascorbic acid	<500 ml
☐	Acetic acid	<500 ml
☐	Other:	

	Decontamination	Qty
☐	Not applicable	
☑	Alconox	≤ 5 lbs
☐	Liquinox	≤ 1 gal
☐	Acetone	≤ 1 gal
☑	Methanol	≤ 1 gal
☐	Hexane	≤ 1 gal
☐	Isopropyl alcohol	≤ 4 gal
☑	Nitric acid	≤ 1 L
☐	Other:	

	Calibration	Qty.
☐	Not applicable	
☑	Isobutylene/air	1 cyl
☐	Methane/air	1 cyl
☐	Pentane/air	1 cyl
☐	Hydrogen/air	1 cyl
☐	Propane/air	1 cyl
☐	Hydrogen sulfide/air	1 cyl
☐	Carbon monoxide/air	1 cyl
☐	pH standards (4,7,10)	≤ 1 gal
☐	Conductivity standards	≤ 1 gal
☐	Other:	

	Fuels	Qty.
☑	Not applicable	
☐	Gasoline	≤ 5 gal
☐	Diesel	≤ 5 gal
☐	Kerosene	≤ 5 gal
☐	Propane	1 cyl
☐	Other:	

	Kits	Qty.
☑	Not applicable	
☐	Hach (specify):	1 kit
☐	DTECH (specify):	1 kit
☐	EPA 5035 Soil (specify kit):	1 kit
☐	Other:	

	Remediation	Qty.
☑	Not applicable	
☐		
☐		
☐		
☐		
☐		

	Other:	Qty.
☐	Not applicable	
☑	Spray paint	≤ 6 cans
☐	WD-40	≤ 1 can
☐	Pipe cement	≤ 1 can
☐	Pipe primer	≤ 1 can
☐	Mineral spirits	≤ 1 gal

		Qty.
☐		
☐		
☐		
☐		
☐		
☐		

Material safety data sheets (MSDSs)/Safety Data Sheets (SDSs) must be available to field staff.
Indicate below how MSDS information will be provided:

☐ Not applicable
☐ Printed copy in company vehicle
☐ Printed copy in the project trailer/office
☑ Printed copy attached
☐ Electronic copy on field computer

☐ Contractor MSDSs/SDSs are not applicable
☐ Contractor MSDSs/SDSs are attached
☐ Contractor MSDSs/SDSs will be on site and located: _____

☐ Bulk quantities of the following materials will be stored: _____

Contact the project H&S contact for information in determining code and regulatory requirements associated with bulk storage of materials.

Monitoring

☐ Chemical air monitoring is not required for this project or is the responsibility of contractor.

For projects requiring air monitoring, list the relevant constituents representing a hazard to site workers.

Constituent	Max. Conc.	Units	TWA	Units	STEL	Units	IDLH	Units	LEL/UEL (%)		VD Air=1	VP (mm Hg)	IP (eV)
Naphthalene	30	ppm	10	p,s	NA	-	250	p,N	0.9/5.9	0	NA	0.08	8.12
Benzene	10	ppm	0.5	p	2.5	p	500	p,N	1.2/7.8	0	NA	75	9.24
Toluene			20	p	150	p,N	500	p,N	1.1/7.1	0	NA	21	8.82
Ethylbenzene			20	p	125	p	800	p,N	0.8/6.7	0	NA	7	8.76
Xylenes			100	p	150	p	900	p,N	1.1/7.0	0	NA	9	8.44
Coal tar pitch volatiles	10	ppm	0.2	m	NA	-	80	m,N	NA/NA	0	NA	NA	NA

Notes: TWAs are ACGIH 8 hr-TLVs unless noted.

p-ppm m-mg/m3
s- skin c-ceiling
r- resipirable i-inhalable

c2- ceiling (2 hr) se-sensitizer
"9999" - NA O-OSHA PEL
N-NIOSH 10 hr REL

"#N/A" -Constituent is not in database, manually enter information

Monitoring Equipment and General Protocols

Air monitoring is required for any task or activity where employees have potential exposure to vapors or particulates above the TWA. Action levels below are appropriate for most situations. Contact the project H&S contact for all stop work situations. Select monitoring frequency and instruments to be used.

Monitoring Frequency:	15 Minute intervals
Indicator Tube/Chip Frequency:	Indicator tube/chip monitoring not required

	Instrument	Action Levels			Actions
☑	Photoionization Detector		<	0.687	Continue work
		0.687	-	1.374	Sustained >5 min. continuous monitor, review eng. controls and PPE, proceed with caution
	Lamp (eV): 10.6		>	1.374	Sustained >5 min. stop work, contact SSO
☐	Flame Ionization Detector (FID)		<	0.0	Continue work
		0.0	-	0.0	Sustained >5 min. continuous monitor, review eng. controls and PPE, use caution
			>	0.0	Sustained >5 min. stop work, contact SSO
☐	LEL/O2 Meter	0-5% LEL			Continue work
		>5-10% LEL			Continuous monitor, review eng. controls, proceed with caution
		>10% LEL			Stop work, evacuate, contact SSO
		19.5%-23.5% O2			Normal, continue work
		<19.5% O2			O2 deficient, stop work, evacuate, cont. SSO
		>23.5% O2			O2 enriched, stop work, evacuate, contact SSO
☐	Indicator: ☐ tube ☐ chip	≤PEL/TLV			Continue work
		>PEL/TLV			Stop work, review eng. controls and PPE, contact SSO
	Compound(s):				
☑	Particulate Monitor (mists, aerosols, dusts in mg/m^3)		<	2.5	Continue work
		2.5	-	5.000	Use engineering controls, monitor continuously
			>	5.000	Stop work, review controls, contact SSO
☐	Other:	Specify:			Specify:

One or more consituents above is listed with a skin notation. Avoid conditions where dusts, mists, or aerosols are created. Avoid skin contact with impacted media. One or more constituents listed above is a particulate hazard. Use wetting as the primary control to eliminate dust hazards.

Personal Protective Equipment (PPE)

See JSA or Permit for the task being performed for required PPE. *If work is not conducted under a JSA or Permit, refer to the governing document for PPE requirements. At a minimum, the following checked PPE is required for all tasks during field work (outside of field office trailers and vehicles) not covered by a JSA or Permit on this project:*

Minimum PPE required to be worn by all staff on project:

							Specify Type:
☑	Hard hat	☐	Snake chaps/guards	☐	Coveralls:		
☑	Safety glasses	☐	Briar chaps	☐	Apron:		
☐	Safety goggles	☐	Chainsaw chaps	☑	Chem. resistant gloves:		Nitrile
☐	Face shield	☐	Sturdy boot	☑	Gloves other:		Leather
☐	Hearing protection	☑	Steel or comp. toe boot	☐	Chemical boot:		
☐	Rain suit	☐	Metatarsal boot	☐	Boot other:		
☐	Other:			☑	Traffic vest,shirt or coat:		Class II or III
				☐	Life vest:		

Task specific PPE:

Comments:

Medical Surveillance (*check all that apply*)

☑ Medical Surveillance is not required for this project.
☐ HAZWOPER medical surveillance applies to all ARCADIS site workers on the project.
☐ HAZWOPER medical surveillance applies to all subcontractors on the project.
☐ HAZWOPER medical surveillance applies to all site workers on the project except:

☐ Other medical surveillance required (describe type and who is required to participate):

☐ Client drug and/or alcohol testing required.

Hazardous Materials Shipping and Transportation (*check all that apply*)

☐ Not applicable, no materials requiring a Shipping Determination (SD) will be transported or shipped
☐ A SD has been reviewed and provided to field staff
☑ A SD is attached
☐ All HazMat will be transported under Materials of Trade by ARCADIS (see generic MOT SD Form)
☐ Other (specify):

Roadway Work Zone Safety (*check all that apply*)

☐ Not applicable for this project
☐ All or portions of the work conducted under a TCP
☐ All or portions of the work conducted under a STAR Plan
☐ TCP or STAR Plan provided to field staff
☑ TCP or STAR Plan attached
☐ Other (specify):

ARCADIS Commercial Motor Vehicles (CMVs)

This section is applicable to ARCADIS operated vehicles only

☑ This project will **not** utilize CMV drivers
☐ This project will utilize CMV drivers

Site Control (*check all that apply*)

- ☑ Not applicable for this project.
- ☐ Site control protocols are addressed in JSA or other supporting document (attach)
- ☐ Maintain an exclusion zone of _____ ft. around the active work area
- ☐ Site control is integrated into the STAR Plan or TCP for the project
- ☐ Level C site control - refer to Level C Supplement attached
- ☐ Other (specify):

Decontamination (*check all that apply*)

- ☐ Not applicable for this project.
- ☑ Decontamination protocols are addressed in JSA or other governing document (attach)
- ☐ Level D work- wash hands and face prior to consuming food, drink or tobacco.
- ☐ Level D Modified work- remove coveralls and contain, wash hands and face prior to consuming food, drink or tobacco. Ensure footwear is clean of site contaminants
- ☐ Level C work - refer to the Level C supplement attached.
- ☐ Other (specify):

Sanitation *(check all that apply)*

- ☑ Mobile operation with access to off-site restrooms and potable water
- ☑ Restroom facilities on site provided by client or other contractor
- ☐ Project to provide portable toilets (1 per 20 workers)
- ☐ Potable water available on site
- ☐ Project to provide potable water (assume 1 gal./person/day)
- ☐ Project requires running water (hot and cold, or tepid) with soap and paper towels

Safety Briefings (*check all that apply*)

- ☑ Safety briefing required daily
- ☐ Safety briefing required twice a day
- ☐ Safety briefings required at the following frequency: _____
- ☐ Subcontractors to participate in ARCADIS safety briefings
- ☐ ARCADIS to participate in client/contractor safety briefings
- ☐ Other (specify):

Safety Equipment and Supplies

Safety equipment/supply requirements are addressed in the JSA or Permit for the task being performed. *If work is not performed under a JSA or Permit, the following safety equipment is required to be present on site in good condition (Check all that apply):*

- ☑ First aid kit
- ☐ Bloodborne pathogens kit
- ☑ Fire extinguisher
- ☐ Eyewash (ANSI compliant)
- ☑ Eyewash (bottle)
- ☑ Drinking water
- ☐ Other: _____

- ☐ Insect repellent
- ☐ Sunscreen
- ☐ Air horn
- ☑ Traffic cones
- ☐ 2-way radios
- ☐ Heat stress monitor

_____

International Travel

☑ This project does not involve international travel
☐ This project involves international travel to:

Contact WorkCare for travel to this country (M=Mandatory, R=Recommended):	NA
iJet Security Rating (1=minimum threat, 5=very high threat):	NA
U.S. State Department Travel Alert (A) or Warning (W) Issued:	NA
ARCADIS Grey (G) or Black (B) listed:	NA

Behavior Based Safety Program (*check all that apply*)

☑ TIP required at the following frequency on this project:
Select One: _____ mhrs 1 time(s) _____ Define: _____
☐ H&S Field Assessment required at the following frequency on this project:
Select One: _____ mhrs _____ time(s) _____ Define: _____
☐ Other (specify):

Signatures

I have read, understand and agree to abide by the requirements presented in this health and safety plan. I understand that I have the absolute right to stop work if I recognize an unsafe condition affecting my work until corrected.

Printed Name	Signature	Date

Add additional sheets if necessary

☐ Subcontractor Acknowledgement Form attached

You have an absolute right to STOP WORK if unsafe conditions exist!

Attachments

Job Safety Analysis

General

JSA ID	HASP 1	**Status**	Complete
Job Name	General Industry-Driving - passenger vehicles	**Created Date**	3/23/2015
Task Description	Driving a car, van, or truck on public roadways.	**Completed Date**	03/23/2015

Client / Project

Client	NYSEG
Project Number	B0013080.0006
Project Name	Goshen Former MGP Site
Project Manager	Jason Golubski, P.E.

User Roles

Role	Employee	Due Date	Completed Date
Developer	Meghan Kiser	3/23/2015	3/23/2015
HASP Reviewer	Gang, Bob	3/23/2015	3/23/2015
Quality Reviewer			

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Pre-Trip Inspection	1	Failing to perform pre-trip inspections may cause mechanical failure, accident or injury	Perform walk around of vehicle with particular attention to tire inflation and condition. Check lights, wipers, seatbelts for proper operating condition. Properly adjust seat and mirrors prior to vehicle operation. Use or review vehicle inspection checklist as required under the MVSP.	ARC HSGE024 Motor Vehicle Safety Standard (MVSP)
		2	Scrapes, cuts, burns to hand if inspecting engine fluids and/or tires. Eye splash hazard if inspecting engine fluids. Pinch or crush hazards when opening or closing hood, trunk or tailgate.	Wear protective gloves and safety glasses as described below when checking under hood or tires. Use TRACK and keep hands clear when opening/closing hood, trunk, or tailgate to avoid crush or pinch hazard.	
		3	Struck by other vehicles while walking around vehicle performing inspections	Wear high visibility vest, shirt, or coat while performing inspections in parking lots or other areas with a traffic hazard. Remain vigilant of moving vehicles or equipment in area, face oncoming vehicles to extent practical.	
		4	Improperly secured cargo may dislodge creating injury, property damage or road hazard.	Ensure all cargo is properly secured to prevent movement while the vehicle is in opertation. This includes cargo in the cab of the vehicle.	
2	Driving a motor vehicle on public streets	1	Failing to observe traffic flow ahead increases risk of hard braking resulting in potential impact of vehicle ahead, being struck by another vehicle from behind and decreases decision making time.	Use Smith System Key #1, "Aim High in Steering". **Look ahead (15 seconds if possible) to observe traffic flow and traffic signals.** Adjust speed accordingly to keep vehicle moving and avoid frequent braking. Select lane of least traffic and adjust speed based on observed signal timing when possible. Avoid following directly behind large vehicles that obscure view ahead.	Smith System "5-Keys" is a registered trademark of Smith System Driver Improvement Institute, Inc.

		2	Failing to observe vehicles, pedestrians, bicyclists and other relevant objects in vicinity of your vehicle increases risk of side swipes, rear ending, and third party injury.	Use Smith System Key #2, "Get the Big Picture". **Maintain 360 degrees of awareness around vehicle.** Check a mirror every 6-8 seconds, maintain space around the vehicle, choose a lane that avoids being boxed in. Look for pedestrian activity ahead in crosswalks or sidewalks. Watch for construction zone approach signs and act early by executing lane changes and reducing speed.	
		3	Failing to keep your eyes moving increases risk of not seeing relevant vehicles, pedestrians and objects in your vicinity that may impair your ability to make timely and appropriate driving decisions and also increases risk of accident.	Use Smith System Key #3, "Keep Your Eyes Moving". **Move your eyes every 2 seconds and avoid staring while evaluating relevant objects.** Scan major and minor intersections prior to entering them. Check mirrors.	
		4	Failing to maintain space around and in front of your vehicle increases risk of striking another vehicle or being struck by another vehicle. Insufficient space shortens time for effective driving decision making resulting in increased accident risk.	Use Smith System #4, "Leave Yourself an Out". **Use 4 second rule when following a vehicle.** Avoid driving in vehicle clusters by adjusting speed and using lanes that permit maximum space and visibility. When stopped, keep one car length space in front of vehicle ahead or white line.	
		5	Failing to communicate with other drivers and pedestrians increases risk of striking vehicles, pedestrians, or being struck by other vehicles, especially from the rear.	Use Smith System Key #5, "Make Sure They See You". **Brake early and gradually when stopping to reduce potential of being rear ended.** Keep foot on brake while stopped. Use turn signals and horn effectively. Establish eye contact with other drivers and pedestrians to extent practical. Use vehicle positioning that promotes being seen.	
		6	Distractions within the vehicle takes focus off driving, increases risk of accident decreases time for making effective driving decisions.	**Cell phone use (any type or configuration) is prohibited while the vehicle is in motion.** Familiarize yourself with vehicle layout and controls (radio, temperature controls, etc.) prior to operating unfamiliar vehicles. Set controls prior to operating vehicle. Use GPS in unfamiliar areas to avoid use of paper maps/directions while driving. Set GPS prior to vehicle operation. Pull over and stop to modify GPS functions. Avoid consuming food or drink while driving.	
3	Parking	1	Parking vehicle in areas of clustered parked vehicles or near facility entrance may impair visibility to oncoming traffic in lot and increase exposure to pedestrian traffic.	**Use pull through parking or back into parking space when permitted or practical.** When practical and safe to do so, park away from other vehicles and avoid parking near the facility entrance or loading docks. If available, use a spotter to aid in backing activity. Back no further than necessary and back slowly. Get out and look (GOAL) if uncertain of immediate surroundings. Tap horn prior to backing.	

PPE **Personal Protective Equipment**

Type	Personal Protective Equipment	Description	Required
Eye Protection	safety glasses	While checking engine or tires	Required
Hand Protection	work gloves (specify type)	Leather or equivalent checking engine or	Required

Supplies

Type	Supply	Description	Required
Communication Devices	mobile phone		Required
	other	Vehicle kit (applies to company trucks)	Required
Miscellaneous	fire extinguisher	Applies to company trucks	Required
	first aid kit	Applies to company trucks	Required

ARCADIS Weekly Vehicle Inspection Form

Vehicle # / License Plate # | **Lease Plan # / Last 6 of Vin #**

Inspection Date												
Odometer reading												
Driver / Inspector Name												
Check the appropriate box and enter repair date for identified repairs:	OK	Needs Repair	Repair Date	OK	Needs Repair	Repair Date	OK	Needs Repair	Repair Date	OK	Needs Repair	Repair Date
Interior Horn operational												
Door Locks operational												
Seat Belts in good repair												
Seats and Seating Controls												
Steering Wheel - No Excessive Play												
Interior Lights and Light Controls												
Instrument Panel/Gauges												
Wiper Controls operational												
Heat/Defrost/Air Conditioning working												
Rear View Mirror present												
Backup Camera/Sensors working												
Jack and Lug Wrench present												
Exterior[1] Lights and Signals operational												
Tires properly inflated/good tread depth												
Spare Tire properly inflated												
Doors operational												
Windows Not Cracked/Damaged												
Side View Mirrors												
Body Panels and Bumpers												
Engine & Brakes Engine Start & Running Smoothly												
Fluid Levels, No Noticeable Leaks												
Belts tight, no cracks												
Brakes operational, no squeaking												
Emergency Equipment[2] First Aid Kit, inspected weekly												
Fire Extinguisher properly secured												
Fire Extinguisher inspected weekly												
Orange/Yellow emergency warning light												
Roadside Assistance Information												
Recommend spotter cones available												
Cargo Cargo Secure and Properly Distributed												
Securing Devices in Good Condition												
Registration License Plate /Tags												
Registration and Insurance												
City/State Inspection Decal												
Lease Plan information/Fuel Card												

[1] **Note all damages to the vehicle on the back of this page**

[2] **Emergency Equipment required per Motor Vehicle Standard ARC HSGE024**

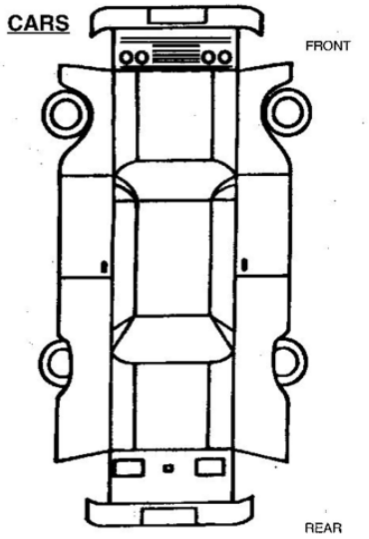
Note All Vehicle Damage Below

All Vehicle Damage must be reported to Sue Berndt (Corporate Legal), Andrew McDonald (Corporate H&S), and Roger Elliot (Corporate Fleet Manger)

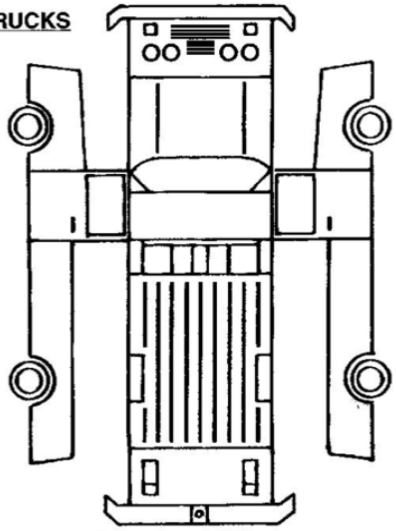
CODES:

B-BENT
BR-BROKEN
BU-BULGE
C-CHAFED
CH-CHIPPED
CPM-COVERED WITH PROTECTIVE MATERIAL-UNABLE TO DETERMINE DEFECTS IF ANY
CSA-CHAFED AND SCRATCHED ALL OVER
CR-CRACKED
D-DENTED
DMC-DUST AND MUD COVERED UNABLE TO DETERMINE OTHER DEFECTS IF ANY
G-GOUGED OR CUT
GC-GLASS CRACKED
HS-HAIRLINE SCRATCH
M-MISSING
P-PUNCTURED
R-RUSTY
S-SCRATCHED
SC-SCRAPED
SM-SMASHED
ST-STAINED AND/OR SOILED
T-TORN

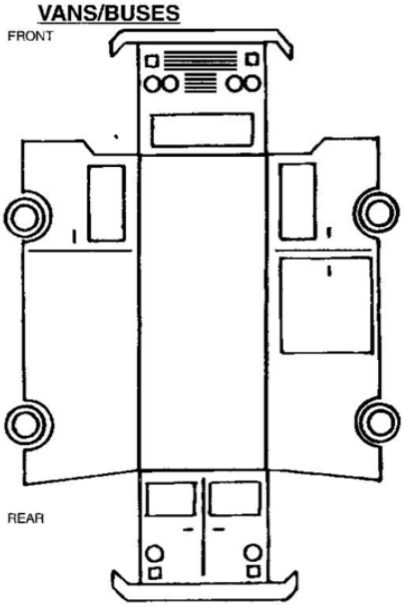
CARS



TRUCKS



VANS/BUSES



-INDICATE ON DIAGRAM-
-GIVE DIMENSIONS-
-CIRCLE WHERE APPLICABLE-

Notes:

Tread guide: If a tread gauge is not available coins may be used to determine remaining tread. 2/32” is the minimum by law in most states (top of Lincoln’s head on penny), 4/32” is minimum recommended for wet surfaces (top of Washington’s head on quarter), 6/32” is minimum recommended for snowy surfaces (top of Lincoln Memorial on penny).Vehicle tires should be replaced if the tread depth is less than 6/32”.

2/32” remaining 4/32” remaining 6/32” remaining

Reference JSA 10907 For Weekly Vehicle Inspection

Job Safety Analysis

General

JSA ID	12451	**Status**	(3) Completed
Job Name	Environmental-Other	**Created Date**	3/5/2015
Task Description	Monitoring well decommissioning	**Completed Date**	03/23/2015
Template	False	**Auto Closed**	False

Client / Project

Client	IBERDROLA USA
Project Number	B00130800006
Project Name	Goshen Former MGP Site
PIC	WHITE, KEITH
Project Manager	GOLUBSKI, JASON

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Kiser, Meghan R.	3/31/2015	3/23/2015	Brien, Jason D.	☑
HASP Reviewer	Gang, Robert J.	4/6/2015	3/23/2015	Cullen, Lucas B.	☑

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Proper PPE verification	1	Lack of adequate PPE on site.	Wear proper PPE including safety boots, knee pads and safety glasses and wear chemical protective gloves when gauging.	H&S Standard: Section III/E: General H&S Rules
2	Stage at site and set up work zone	1	Broken bones/lacerations from tripping over equipment and tools.	Keep equipment organized and staged in one central location to prevent tripping hazards. Wear type II cut-resistant gloves to protect hands from lacerations from potential fall. Wear steel-toed puncture resistant work boots to protect feet from debris on the ground.	H&S Standard: Section III, Subsection G #3: Work Zones
3	Oversight of drill rig operation	1	Excessive noise is generated by rig operation.	When the engine is used at high RPMs use hearing protection.	H&S Standard Section IV/E: Heavy Equipment
		2	Moving parts of the drilling rig can pull you in causing injury. Pinch points on the rig and auger connections can cause pinching or crushing of body parts.	Stay at least 15 feet away from moving parts of the drill rig. Know where the kill switch is, and have the drillers test it to verify that it is working. Do not wear loose clothing, and tie long hair back. Cone off the work area to keep general public away from the drilling rig.	
		3	Dust and debris can cause eye injury and soil cuttings and/or water could contain COCs.	Wear safety glasses and stay as far away from actual drilling operation as practicable. Wear appropriate gloves to protect from COCs.	
		4	Drilling equipment laying on the ground (i.e. augers, split spoons, decontamination equipment, coolers, etc.), create a tripping hazard. Water from decontamination buckets generate mud and cause a slipping hazard.	Keep equipment and trash picked up, and store away from the primary work area.	
		5	The raised derrick can strike overhead utilities, tree limbs or other elevated items.	Never move the rig with the derrick up. Ensure there is proper clearance to raise the derrick, and that you are far enough away from overhead power lines. See the Utility Clearance H&S Standard for guidance.	
		6	Cave in/undermining.	While removing the well casing there is a potential for cave ins or undermining as a result of sand or other loosely granular material used when installing the well.	
4	Removing Well Box.	1	Rig Operation	See step 3.	H&S Standard Section IV/F: Hoisting and Rigging, Cranes, and Derricks

4	Removing Well Box.	2	Pinch Points	Many pinch point hazards present themselves while attaching the device used to remove the well box (i.e. chain). Wear proper gloves and proper communication with crew.	
		3	Heavy lifting can cause muscle strain.	Whether removing a well box with a rig and maneuvering while suspended or using hand tools to remove the heavy well box it is important to use proper ergonomics (lift using legs and not back, use a two person lift).	
5	Removing PVC well casing using hook and winch	1	Pinch Points	See Step 4, Critical Action 2.	H&S Standard Section IV/F: Hoisting and Rigging, Cranes, and Derricks
6	Over drilling using hollow stem auger	1	All hazards in step 3 apply. Additionally, the raised derrick can strike overhead utilities, tree limbs, or other elevated items	Never move the rig with the derrick up. Ensure there is proper clearance to raise the derrick, and that you are far enough away from overhead power lines. See the Utility Location H&S policy and procedure for guidance.	H&S Standard Sections III/MM: Utility Location, IV/E: Heavy Equipment
		2	Hands or fingers can get caught and crushed if trying to clean by hand or with tools while the auger is still turning.	Auger should always be stopped and clutch disengaged prior to cleaning.	
		3	Dust and debris from over-drilling through the 4-inch steel casing and cutting steel casing approximately 2 feet below grade can cause eye injury.	Wear safety glasses and stay as far away from actual drilling operation as practicable.	
7	Monitoring well abandonment	1	Monitoring well construction materials can clutter the work area causing tripping hazards.	Well construction materials should be picked up during the well installation process.	H&S Standard: Section III, Subsection G #3: Work Zones
		2	Heavy lifting can cause muscle strains, and cutting open bags can cause lacerations.	Well construction materials are usually 50 lbs or greater. Team lift or use drill rig to hoist bags. Always use work gloves while cutting open bags.	
		3	Well abandonment material (i.e. sand, grout, bentonite) can become airborne and get in your eyes.	Wear safety glasses for protection from airborne sand and dust.	
		4	Jagged/sharp edges on the top of the well casing after it has been cut.	Wear leather gloves when working with the top of the well casing, and file any sharp jagged edges that resulted from cutting to size.	
8	Grout management	1	Moving full drums can cause back injury, or pinching/crushing injury.	Preferably have the drilling contractor move full drums with their equipment. If this is not practicable, use lift assist devices such as drum dollies, lift gates, etc. Employ proper lifting techniques (lifting with legs and not back, two person lift), and perform TRACK to identify pinch/crush points. Wear leather work gloves, and clear all walking and work areas of debris prior to moving a drum.	H&S Standard: Section III/E: General H&S Rules
		2	Splashing	While moving drums and/or filling in wells with grout there is a potential for grout to splash. It is important that proper PPE is worn at all times and the crew communicates so employees are not in an area where splashing may occur.	

PPE — Personal Protective Equipment

Type	Personal Protective Equipment	Description	Required
Eye Protection	safety glasses		Required
Foot Protection	steel-toe boots		Required
Hand Protection	chemical resistant gloves (specify type)	Nitrile	Required
	work gloves (specify type)	Leather	Required
Head Protection	hard hat		Required
Hearing Protection	ear plugs		Required
Miscellaneous PPE	traffic vest--Class II or III		Required

Supplies

Type	Supply	Description	Required
Communication Devices	mobile phone		Required
Decontamination	Decon supplies (specify type)	Temporary decon pad	Required
Miscellaneous	fire extinguisher		Required
	first aid kit		Required
Personal	eye wash (specify type)		Required
	water/fluid replacement		Required
Traffic Control	traffic cones		Required

Review Comments

Reviewer		Comments
Employee: **Role** **Review Type** **Completed Date**	Gang, Robert J. HASP Reviewer Approve 3/23/2015	well thought JSA. Nicely done!

Job Safety Analysis

General

JSA ID	12454	**Status**	(3) Completed
Job Name	Environmental-Drilling, soil sampling, well installation	**Created Date**	3/6/2015
Task Description	Waste characterization sampling (soil borings be completed using an air spade/vacuum and hand augers and the sediment sampling will be completed via manual methods).	**Completed Date**	03/23/2015
Template	False	**Auto Closed**	False

Client / Project

Client	IBERDROLA USA
Project Number	B00130800006
Project Name	Goshen Former MGP Site
PIC	WHITE, KEITH
Project Manager	GOLUBSKI, JASON

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Kiser, Meghan R.	4/6/2015	3/23/2015	Brien, Jason D.	☑
HASP Reviewer	Gang, Robert J.	4/6/2015	3/23/2015	Cullen, Lucas B.	☑

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Proper PPE verification	1	Lack of adequate PPE on site.	Wear proper PPE including safety boots, safety glasses, and wear chemical protective gloves when collecting waste characterization samples.	H&S Standard: Section III/E: General H&S Rules
2	Stage at site and set up work zone	1	Broken bones/lacerations from tripping over equipment and tools.	Keep equipment organized and staged in one central location to prevent tripping hazards. Wear type II cut-resistant gloves to protect hands from lacerations from potential fall. Wear steel-toed puncture resistant work boots to protect feet from debris on the ground.	H&S Standard: Section III, Subsection G #3: Work Zones
3	Utility Clearance	1	Potential to encounter underground or above ground utilities while drilling.	Complete utility clearance in accordance with the ARCADIS Utility Clearance H&S Standard.	H&S Standard: Section III/MM: Utility Location; ARCHSFS019
4	Installation of hand auger boring	1	Muscle strains from pulling/pushing could occur when installing the boring, and when removing the auger from the boring	Stretch out arms/back/shoulder muscles prior to beginning soil boring. Using firm grip on handle, slowly turn auger and progress downward in 6" increments. Slowly pull auger from hole use legs to pull auger out of hole. If water is encountered, a suction will be created when trying to remove the auger. Ask for assistance from another worker if you can't remove safely on your own.	H&S Standard: Section III/E: General H&S Rules
		2	Hand strain and blisters could develop from prolonged use of hand auger	Select proper gloves for task, usually leather type work gloves or mechanics style gloves. If hot spots develop on hands (Hot Spots are where blisters start to form) readjust gloves or change to better padded glove. If blisters begin to form, stop work so as not to worsen blistering.	
		3	Collect waste characterization sample	Wear proper PPE including safety boots, safety glasses, and wear chemical protective gloves when collecting waste characterization samples.	
5	Sample collection and processing	1	Injuries can result from pinch points on sampling equipment, and from breakage of sample containers.	Care should be taken when opening sampling equipment. Look at empty containers before picking them up, and do not over-tighten container caps. Use dividers to store containers in the cooler so they do not break. Wear Cut II Resistant gloves if required to handle broken glassware.	H&S Standard: Section III/E: General H&S Rules

6	Decontamination of hand auger	1	Exposure to COCs while decontaminating equipment.	Wear chemical protective gloves as outlined in the HASP, and wear safety glasses.	H&S Standard: Section III/E: General H&S Rules
		2	Cleaning solutions can splash while decontaminating equipment	Use PPE as outlined in the HASP and JSA, and try to minimize splashing.	
		3	The end of the hand auger has sharp edges, and lacerations can occur	Use brush to scrub off soils and not hands. Do not reach into the nose (the end with teeth) of the auger with hand.	
7	Restore Sampling Location	1	Open boreholes are a trip hazard	Following the completion of the soil sampling activities, disturbed asphalt will be restored with a cold-mix patch.	H&S Standard: Section III/E: General H&S Rules

PPE — Personal Protective Equipment

Type	Personal Protective Equipment	Description	Required
Eye Protection	safety glasses		Required
Foot Protection	steel-toe boots		Required
Hand Protection	chemical resistant gloves (specify type)	Nitrile	Required
	work gloves (specify type)	Leather	Required
Head Protection	hard hat		Required
Hearing Protection	ear plugs		Required
Miscellaneous PPE	traffic vest--Class II or III		Required

Supplies

Type	Supply	Description	Required
Communication Devices	mobile phone		Required
Miscellaneous	fire extinguisher		Required
	first aid kit		Required
Personal	eye wash (specify type)		Required
	water/fluid replacement		Recommended

Review Comments

Reviewer		Comments
Employee: **Role** **Review Type** **Completed Date**	Gang, Robert J. HASP Reviewer Revise 3/23/2015	Nice JSA, add wear Cut II Resistant gloves if required to handle broken glassware to Section 5.1
Employee: **Role** **Review Type** **Completed Date**	Gang, Robert J. HASP Reviewer Approve 3/23/2015	

ARCADIS

Control Number: TSM- B0013080.0006

TSM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

TAILGATE HEALTH & SAFETY MEETING FORM

Project Name:			**Project Location:**
Date:	**Time:**	**Conducted by:**	**Signature/Title:**

Issues or concerns from previous day's activities:

Task anticipated to be performed today:

☐ Additional permits/checklists attached

USE TRACK! Evaluate the hazards (h) for the tasks being performed today and rank as Low (L), Medium (M) or High (H). Use relevant JSAs, FHSHB, permit or other work standard to communicate controls (c) to be used to eliminate or mitigate identified hazards.

☐ Gravity (i.e., ladder, scaffold, trips) (L M H) h: c:	☐ Motion (i.e., traffic, moving water) (L M H) h: c:	☐ Mechanical (i.e., augers, motors) (L M H) h: c:
☐ Electrical (i.e., utilities, lightning) (L M H) h: c:	☐ Pressure (i.e., gas cyl., wells) (L M H) h: c:	☐ Environment (i.e., heat, cold, ice) (L M H) h: c:
☐ Chemical (i.e., fuel, acid, paint) (L M H) h: c:	☐ Biological (i.e., ticks, poison ivy) (L M H) h: c:	☐ Radiation (i.e., alpha, sun, laser) (L M H) h: c:
☐ Sound (i.e., machinery) (L M H) h: c:	☐ Personal (i.e. alone, night) (L M H) h: c:	☐ Driving (i.e. car, ATV, boat, dozer) (L M H) h: c:

☐ Refer to the attached Hazard Analysis Sheet(s) or JSA

Comments:

Signature and Certification: I have read and understand the project specific HASP for this project.

Printed Name/Signature/Company	Sign In Time	Sign Out Time

Place any additional signatures on the back of this form.

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**: and then amend the hazard assessments

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call **WorkCare at 1.800.455.6155** and then notify the field supervisor

Task Improvement Process

General

Observed Company:

Observation Type:

TIP Form: H&S Field Multi-Task (General)

Task Observed:

Observee Name:

Observer Name:

Observation Date:

Project Number: B0013080.0006

Project Name: Goshen Former MGP SiteWest Main Street, Goshen, New YorkSite No. 3-36-046

Supervisor:

Equipment On Site:

Pertinent Information:

Observation

Task	Correct	Questionable	Comments
General			
PPE worn according to HASP/JLA specifications and inspected before use?			
STOP work authority used where appropriate?			
Body Use/Positioning			
Proper lifting/pushing / pulling techniques used (no awkward positions/posture; no twisting or excessive reaching; no straining; no excessive weight; load under control/stable; etc.)?			
Body parts away from pinch points (clear or protected from being caught between objects/equipment or from contacting sharp objects/edges, etc.)?			
Body parts not in the Line of Fire (protected from being struck by traffic, equipment, falling/flying objects, etc.)?			
Work Procedures/Environment			
Correct type and number of barricades/warning devices/cones?			

Communication with others when necessary (hand signals, flags, etc.)?			
Right tools and equipment selected for the job and inspected before use?			
Tools and equipment used properly?			
Housekeeping performed (work areas and pathways clear of hazards, uneven surfaces addressed, etc.)?			
Slip/trip/fall hazards addressed (path selected and cleared, eyes on path, speed footing, etc.)?			
Proper energy control (electrical systems grounded, lock out/tag out performed, isolated, cords/fixtures in good condition, GFCI inspected and utilized when appropriate and used properly, etc.)?			
Protected from overhead/underground utilities (proper clearance, properly marked, spotters as necessary, etc.)?			
Safe work on/near water (appropriate flotation device, appropriate boat for body of water and operation of boat, etc.)?			
Chemical/Radiation protection (decontamination zones set up properly, air monitoring, completed, and logged, etc.)?			
Fall from elevated height prevention (maintains 3-points of contact, appropriate ladder, mounting/dismounting vehicle/equipment, fall arrest system, etc.)?			
Any additional safety issues identified:			

Tip Summary **Enter details of the TIP and follow up discussion provide details on how any questionable items were resolved.**

Discussion following the TIP led by: _____

Date of follow-up discussion: _____

Positive Comments:

Discussion Summary Completed:

- ☐ Supervisor Led
- ☐ Peer to Peer
- ☐ ARCADIS Employee to Subcontractor

Summary of Questionable Items

Action Items (Optional) Assign appropriate action items based on the observations made. You can add more than one action item if needed.

Item #	Action Item	Responsible Person	Due Date	Comp. Date
1				
2				
3				

Standard Review

Reviews to be performed after entry of this TIP into 4-Sight.

Quality Review

Quality Reviews to be performed after entry of this TIP into 4-Sight.

Field Validation and Verification

Use the 4-Sight generated copy of this TIP to perform field V&V activities.

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Goshen Former MGP Site
Project Number: B0013080.0006
Form Completion Date: _____ Form Expiration Date: _____
(15 business days post form completion date)

Pre-Field Work

One Call or "811" notified 48-72 hours in advance of work? ☐ Yes ☐ No Ticket #: _____

Ticket Expiration Date _____ (Review State Requirements)

Utility companies notified during the One Call process ☐ See attached ticket

_____ _____ _____ _____

_____ _____ _____ _____

List any other utilities requiring notification: ☐ None

_____ _____ _____ _____

Private Locator Contacted ☐ Yes ☐ No

Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? ☐ Yes ☐ No

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:

***Lines of* Evidence** - Must have **3 Reliable Lines of Evidence** Prior to Starting any Subsurface Intrusive Work

☐ One Call/"811" (Acceptable as a line of evidence when working in public right of way or easement)
Utility Markings Present: ☐ Paint ☐ Pin flags/stakes ☐ Other ☐ None

☐ Client Provided Maps/Drawings **OR** ☐ Maps/Drawings requested but not provided
☐ Client Clearance Name(s)/Affiliation(s) _____
☐ Interview(s): Name(s)/Affiliation(s) _____
_____

Did person(s) interviewed indicate depths of any utilities in the subsurface?
☐ Yes, depths provided: ☐ Did not know or refused to answer
Additional Comments:

☐ Site Inspection (**Complete Page 2 & Photo Document Marked Utilities & Utility Structures**)
☐ Public Records / Maps / Asbuilits
☐ Private Locator: (Name and Company) _____
☐ Ground Penetrating Radar (GPR)
☐ Radiofrequency (RFLoc)
☐ Electromagnetic (EM)
☐ Metal Detector

Soft Dig Methods
☐ Termination Depth _____ft. bgs
☐ Potholing / Vacuum Extraction
☐ Air-Knife ☐ Hydro-Knife

Tips for Successful Utility Location:
1. Don't forget to look up
2. Be on site when utilizing private utility locators
3. Ask Private Locators to "confirm" other's markings.
4. Select alternate/backup locations during clearance process
5. Mark out all known utilities. Leave nothing to question
6. No hammering - no pickaxes - no digging bars - no shortcutting
7. No excessive turning or downward force of hand augers/shovels, etc.
8. Utilities may run directly under asphalt/concrete or be > 5 ft. in depth

☑ Probing
☐ Hand Auguring
☐ Other: _____
☐ Marine Locator: (Name and Company) _____

During the site inspection look for the following: **("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work)**:

Site Inspection	**Utility Color Codes**	**Present**	
a) Natural gas line present (evidence of a gas meter)?	Yellow	☐ Yes	☐ No
i) Feeder Lines to buildings or homes?		☐ Yes	☐ No
b) Evidence of electric lines:	Red		
i) Conduits to ground from electric meter or along wall?		☐ Yes	☐ No
iii) Conduits from power poles running into ground?		☐ Yes	☐ No
ii) Light poles, electric devices with no overhead lines?		☐ Yes	☐ No
iii) Overhead electric lines present? (See Section l)		☐ Yes	☐ No
c) Evidence of sewer drains:	Green		
i) Restrooms or kitchen on site?		☐ Yes	☐ No
ii) Sewer cleanouts present?		☐ Yes	☐ No
iii) Combined sewer /storm lines or multiple sewer lines?		☐ Yes	☐ No
d) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		☐ Yes	☐ No
ii) Fire hydrants in vicinity of work?		☐ Yes	☐ No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		☐ Yes	☐ No
e) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		☐ Yes	☐ No
ii) Gutter down spouts going into ground		☐ Yes	☐ No
f) Evidence of telecommunication lines:	Orange		
i) Fiber optic warning signs in areas?		☐ Yes	☐ No
iv) Aboveground cable boxes or housings or wires in work area?		☐ Yes	☐ No
g) Underground storage tanks:			
i) Tank pit present, tank vent present?		☐ Yes	☐ No
ii) Product lines running to dispensers/buildings?		☐ Yes	☐ No
h) Do utilities enter or exit existing structures/buildings?			
If Yes, confirm the utility markings outside of structure/building match up.		☐ Yes	☐ No
i) Proposed excavation marked in white?	White	☐ Yes	☐ No
j) Unclassed utilities / anomalies marked in pink?	Pink	☐ Yes	☐ No
k) **Overhead** Utilities/Communication Lines - **Look Up**:			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		☐ Yes	☐ No
ii) Overhead fire sprinkler system?		☐ Yes	☐ No
l) **Overhead** Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		☐ Yes	☐ No
ii) >50 - 200 kV within 15 ft. of work area?		☐ Yes	☐ No
iii) >200-350 kV within 20 ft. of work area?		☐ Yes	☐ No
iv) >350-500 kV within 25 ft. of work area?		☐ Yes	☐ No
v) >500-750 kV within 35 ft. or work area?		☐ Yes	☐ No
vi) >750-1000 kV within 45 ft. of work area?		☐ Yes	☐ No
m) Other:			
i) Evidence of linear asphalt or concrete repair?		☐ Yes	☐ No
ii) Evidence of linear ground subsidence or change in vegetation?		☐ Yes	☐ No
iii) Unmarked manholes or valve covers in work area?		☐ Yes	☐ No
iv) Warning signs ("Call Before you Dig", etc.) on or adjacent to site?		☐ Yes	☐ No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	☐ Yes	☐ No
n) Has the Utilities & Structures Checklist been reviewed by the PM or Designee		☐ Yes	☐ No
PM or Designee Name: _____			

Name and Signature of person completing the checklist: _____
Date: _____

Do not perform **mechanized** intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S .

ARCADIS

Air Monitoring Documentation Form

PID Model: _____ Monitor Frequency: _____

LEL/O_2 Model: _____

CIT Model: _____

Dust Mon. Model: _____

Air Monitoring Results

Date	Time	PID (units)	O_2 (%)	LEL (% LEL)	CIT (ppm)	Dusts (mg/m^3)	Location

PID	Photoionization Detector	ppm	Part per million
LEL	Lower Explosive Limit	%	Percent
O2	Oxygen	mg/m3	Miligram per cubic meter
CIT	Colorimetric Indicator Tube		

Material Safety Data Sheet # 5010 **LaRoche Industries Inc.** **Revision 10/15/99**

SECTION 1: CHEMICAL PRODUCT & COMPANY IDENTIFICATION

CHEMICAL NAME: Nitric Acid

TRADE NAMES/SYNONYMS: Nitric Acid

PRODUCT CODE: NA: NA57WW; NA61, NA65B; NA68B

MANUFACTURER:
LaRoche Industries Inc.
1100 Johnson Ferry Rd., NE
Atlanta, GA 30342

EMERGENCY TELEPHONE NUMBERS:
Transportation (CHEMTREC): 1-800-424-9300
Environmental/Health/Safety: 1-800-528-4963
Customer Service 1-800-226-4585

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL	FORMULA	% By WEIGHT	CAS	OSHA PEL	NIOSH REL	ACGIH TLV
Nitric Acid	HNO3	53-68	7697-37-2	5mg/m3(TWA)	5mg/m3(TWA) 10mg/m3(STEL)	5mg/m3(TWA) 10mg/m3(STEL)
Water	H_20	32-47	7732-18-5	None	None	None

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: (1) Colorless to light brown fuming liquid, pungent odor sinks and mixes with water; **(2)** Harmful vapor is produced; **(3)** Avoid contact with liquid and vapor; **(4)** Harmful to aquatic life, even at low concentrations; **(5)** Not flammable; **(6)** May cause fire on contact with combustibles.

POTENTIAL HEALTH EFFECT:

ROUTES OF ENTRY: Eyes, Inhalation & Ingestion. **EYE CONTACT:** Low concentrations of vapor or mist may produce ocular irritation and conjunctivitis. High concentrations of liquid nitric acid may cause severe burns or corneal opacification and ulceration. Necrosis of the conjunctiva may also result. In severe cases, permanent damage and visual impairment may occur. **SKIN CONTACT:** Exposure to vapor or mist may produce dermal irritation and can cause dermatitis on prolonged exposure. Liquid nitric acid is corrosive and may produce severe skin burns with ulcers and necrosis and yellow discoloration of the skin. **INHALATION:** Low concentrations of vapor or mist may be highly irritating to the mucous membranes of the eye and respiratory tract and cause coughing, sore throat, shortness of breath and labored breathing. Continued exposure may cause chronic bronchitis. Chemical pneumonitis may also result. Higher concentrations may cause severe breathing difficulties which may be delayed in on-set for several hours or abate and recur later. Prolonged exposure may produce dental erosion.. **INGESTION:** May cause corrosion and severe burns of the oral mucous membranes, throat and esophagus with immediate pain and dysphagia. Epigastric pain which may be associated with nausea and vomiting may occur. A 1 ml volume of nitric acid has been reported as a fatal dose.

CARCINOGENICITY: **NTP?** No **IARC?** No **OSHA?** No

SECTION 4: FIRST AID MEASURES

EYE CONTACT: Flush immediately with large amounts of water for at least 15 minutes while holding the eyelids open to ensure contact of water with all surfaces. Immediately seek medical aid. **SKIN CONTACT:** Immediately flush the affected area with large quantities of water together with soap and water washing. Remove contaminated clothing. Immediately seek medical aid. **INHALATION:** Remove from exposure. If breathing has stopped or is difficult, administer artificial respiration or oxygen as needed. Immediately seek medical aid. **INGESTION:** Do NOT induce vomiting. Immediately give large amounts of water to dilute the acid. If vomiting occurs, repeat treatment. Immediately seek medical aid.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT: None **LOWER FLAMMABLE LIMIT:** N/A **UPPER FLAMMABLE LIMIT:** N/A

EXTINGUISHING MEDIA: As required by fire conditions. If needed, dilute acid with large quantities of water.

FIRE & EXPLOSION HAZARDS: Noncombustible, but dangerously reactive with many materials. Reacts explosively with metallic powders, carbides, hydrogen sulfide and turpentine. Increases the flammability of combustible, organic and readily oxidizable materials. Soluble in water.

NFPA HAZARD CLASSIFICATION: **Health:** 3 **Flammability:** 0 **Reactivity:** 0 - Oxidizer (0=least ----- 4=highest)

SECTION 6: ACCIDENTAL RELEASE MEASURES

In case of release to the environment, report spills to the National Response Center 1-800-424-8802. RQ = 1,000 lbs.

Keep people away. Avoid contamination with organic matter. Flush away leaks or spill by flooding with water as quickly as possible. Dike to prevent watershed, waterway and water supply contamination. Using extreme caution because of heat generation, neutralize diluted acid with limestone, line or soda ash. Any release of this material, during the course of loading, transporting, unloading or temporary storage, must be reported to U.S. DOT as required by 49 CFR 171.15 and 171.16.

For ADDITIONAL ASSISTANCE IN ANY TRANSPORTATION EMERGENCY, CALL CHEMTREC @ 1-800-424-9300.

SECTION 7: HANDLING AND STORAGE

Extreme caution is important in all phases of handling and storage. Do not store near metal powders, carbides, hydrogen sulfide, solvents, organic acids and all combustible or oxidizable materials. Avoid direct sunlight.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION: Respiratory protection approved by NIOSH/OSHA for protection against acid gases or mist should be used to avoid inhalation of excessive air contaminants. Appropriate respirator selection depends on the type and magnitude of exposure.

SKIN PROTECTION: Chemical resistance data for protective equipment used should be determined based on the use of this product. Neoprene and polyvinyl chloride protective garments have been suggested for protection against materials of this chemical class (ACGIH Guidelines for the Selection of Chemical Protective Clothing, 1983). A faceshield should be used when appropriate to prevent face and eye contact with splashed materials.

EYE PROTECTION: Employees should be required to wear chemical safety goggles to prevent eye contact.

VENTILATION: Local exhaust ventilation should be used to control release of air contaminants in the work place. General dilution ventilation may assist with the reduction of air contaminant concentrations.

OTHER EQUIPMENT: Emergency eye wash stations and deluge safety showers should be available in the work area. When handling bulk shipments a full rubber suit, boots, gloves, faceshield and hard hat should be worn.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT:	246°F @ 57%	**VAPOR PRESSURE:**	7.4 mm Hg @ 78°F
VAPOR DENSITY:	Exceeds 1.0	**SOLUBILITY IN WATER:**	Complete
DENSITY:	1.350 @ 78°F (57%).	**PERCENT VOLATILE BY VOLUME:**	0.0%
MELTING POINT:	-5.8°F @ 57%	**pH:**	0.1 in 10% Solution

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Material generally considered stable. **INCOMPATIBILITY (Materials to Avoid):** Avoid organic materials and metallic powders which can cause spontaneous ignition. **HAZARDOUS DECOMPOSITION PRODUCTS:** Oxides of nitrogen. **HAZARDOUS POLYMERIZATION:** Will not occur. **CONDITIONS TO AVOID:** Stable under normal conditions. Avoid contact with oxidizable materials, such as wood, alcohol, paper, charcoal, sulfur, etc.

SECTION 11: TOXICOLOGICAL INFORMATION

IDLH: 25 ppm Following an inhalation exposure, an extended observation period is indicated since respiratory symptoms may be delayed in onset for as many as 30 hours or initial symptoms may abate and recur later with greater severity. Decomposition of nitric acid or its contact with oxidizable materials may produce toxic gases and vapors, such as various oxides of nitrogen.

SECTION 12: ECOLOGICAL INFORMATION

Damages environment if not recovered or neutralized.

SECTION 13: DISPOSAL CONSIDERATIONS

Wastes may be classified as hazardous under EPA characteristic of Corrosivity (D002). Follow all applicable federal, state and local regulations when disposing of waste materials.

For Hazardous Waste Regulations call 1-800-424-9346, the RCRA Hotline.

SECTION 14: TRANSPORT INFORMATION

PROPER SHIPPING NAME:	Nitric Acid	**DOT HAZARD CLASS:**	8 (corrosive)
IDENTIFICATION NUMBER:	UN2031	**PACKING GROUP:**	II

SECTION 15: REGULATORY INFORMATION

NOTICE: This product is subject to the reporting requirements of SARA (1986, Section 313 of Title III) and 40 CFR Part 370.

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200: Nitric Acid is a hazardous chemical.

TOXIC SUBSTANCE CONTROL ACT: This material is listed in the TSCA Inventory.

EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT (SARA, TITLE III):

Section 302 Extremely Hazardous Substance: Yes
Section 311/312 Hazardous Categories: Acute
Section 313 Toxic Chemical: Yes

CERCLA/SUPERFUND, 40 CFR 117,302: Reportable Quantity is 1,000 lbs.

WHMIS: 1.0%

CALIFORNIA PROPOSITION 65: Reproductive: No Carcinogen: No

OSHA PROCESS SAFETY MANAGEMENT 29 CFR 1910.119: This product is not subject to the Process Safety Management requirements of 29 CFR 1910.119.

EPA CHEMICAL ACCIDENTAL RELEASE PREVENTION, 40 CFR PART 68: This product is not subject to the Risk Management Plan requirements of 40 CFR Part 68.

SECTION 16: OTHER INFORMATION

REASON FOR REVISION: a). New format MSDS; b). Revised Product Code and Customer Service Number information in Section No. 1; c) Addition of PSM/RMP information in Section 15; and d). Supercedes MSDS dated 02/01/97.

MSDS PREPARED BY: LaRoche Industries Inc. Regulatory Affairs Department

SAFETY DATA SHEET

Methanol (Methyl Alcohol)

Section 1. Identification

GHS product identifier : Methanol (Methyl Alcohol)

Chemical name : methanol

Other means of identification : Methyl alcohol

Product use : Synthetic/Analytical chemistry.

Synonym : Methyl alcohol

SDS # : 001065

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

Emergency telephone number (with hours of operation) : 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 LIQUIDS - Category 2
ACUTE TOXICITY (oral) - Category 3
ACUTE TOXICITY (dermal) - Category 3
ACUTE TOXICITY (inhalation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Highly flammable liquid and vapor.
May displace oxygen and cause rapid suffocation.
Toxic if swallowed, in contact with skin or if inhaled.
Causes damage to organs.

Precautionary statements

General : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention : Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Section 2. Hazards identification

Response : IF exposed: Call a POISON CENTER or physician. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or physician if you feel unwell. Take off contaminated clothing. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage : Store locked up. Store in a well-ventilated place. Keep cool.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : methanol

Other means of identification : Methyl alcohol

CAS number/other identifiers

CAS number : 67-56-1

Product code : 001065

Ingredient name	%	CAS number
methanol	100	67-56-1

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. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Section 4. First aid measures

Ingestion : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Toxic if inhaled.

Skin contact : Toxic in contact with skin. Causes skin irritation.

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

Ingestion : Toxic if swallowed. Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

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. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

Section 5. Fire-fighting measures

Specific hazards arising from the chemical : Highly flammable liquid and vapor. 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. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

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. 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.

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. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised 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 : 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 : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. 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). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

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 original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
methanol	**ACGIH TLV (United States, 3/2012).** **Absorbed through skin.** STEL: 328 mg/m³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 262 mg/m³ 8 hours. TWA: 200 ppm 8 hours. **NIOSH REL (United States, 1/2013).** **Absorbed through skin.** STEL: 325 mg/m³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 260 mg/m³ 10 hours. TWA: 200 ppm 10 hours. **OSHA PEL (United States, 6/2010).** TWA: 260 mg/m³ 8 hours. TWA: 200 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** **Absorbed through skin.** STEL: 325 mg/m³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 260 mg/m³ 8 hours. TWA: 200 ppm 8 hours.

Section 8. Exposure controls/personal protection

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

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: chemical splash goggles.

Skin 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. 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. 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 : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid. [CLEAR, COLORLESS, FLAMMABLE, POISONOUS LIQUID WITH CHARACTERISTIC PUNGENT ODOR]

Color : Colorless. Clear.

Molecular weight : 32.05 g/mole

Molecular formula : C-H4-O

Boiling/condensation point : 64.7°C (148.5°F)

Melting/freezing point : -97.8°C (-144°F)

Critical temperature : Not available.

Odor : Characteristic.

Section 9. Physical and chemical properties

Odor threshold	:	Not available.
pH	:	Not available.
Flash point	:	Closed cup: 9.7°C (49.5°F)
Burning time	:	Not applicable.
Burning rate	:	Not applicable.
Evaporation rate	:	2.1 (butyl acetate = 1)
Flammability (solid, gas)	:	Not available.
Lower and upper explosive (flammable) limits	:	Lower: 6% Upper: 44%
Vapor pressure	:	16.9 kPa (126.963291808 mm Hg) [room temperature]
Vapor density	:	1.1 (Air = 1)
Specific Volume (ft ^{3}/lb)	:	
Gas Density (lb/ft ^{3})	:	Not available.
Relative density	:	0.79
Solubility	:	Not available.
Solubility in water	:	1000 g/l
Partition coefficient: n-octanol/water	:	-0.77
Auto-ignition temperature	:	455°C (851°F)
Decomposition temperature	:	Not available.
SADT	:	Not available.
Viscosity	:	Dynamic (room temperature): 0.544 to 0.59 mPa·s (0.544 to 0.59 cP)

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 vapor to accumulate in low or confined areas.
Incompatibility with various substances	:	Extremely reactive or incompatible with the following materials: oxidizing materials.
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

Product/ingredient name	Result	Species	Dose	Exposure
methanol	LC50 Inhalation Gas. LC50 Inhalation Gas.	Rat Rat	145000 ppm 64000 ppm	1 hours 4 hours

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
methanol	Eyes - Moderate irritant Eyes - Moderate irritant Skin - Moderate irritant	Rabbit Rabbit Rabbit	- - -	24 hours 100 milligrams 40 milligrams 24 hours 20 milligrams	- - -

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
methanol	Category 1	Not determined	Not determined

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 : Causes serious eye irritation.

Inhalation : Toxic if inhaled.

Skin contact : Toxic in contact with skin. Causes skin irritation.

Ingestion : Toxic if swallowed. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Section 11. Toxicological information

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

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
methanol	-0.77	<10	low

Mobility in soil

Section 12. Ecological information

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. 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. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Methanol (I); Methyl alcohol (I)	67-56-1	Listed	U154

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1230	UN1230	UN1230	UN1230	UN1230
UN proper shipping name	METHANOL	METHANOL	METHANOL	METHANOL	METHANOL
Transport hazard class(es)	3 	3 	3 	3 (6.1) 	3 (6.1) 
Packing group	II	II	II	II	II
Environment	No.	No.	No.	No.	No.
Additional information	**Reportable quantity** 5000 lbs / 2270 kg [759.08 gal / 2873.4 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements. **Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 1 L	**Explosive Limit and Limited Quantity Index** 1 **Passenger Carrying Road or Rail Index** 1 **Special provisions** 43	-	-	**Passenger and Cargo Aircraft** Quantity limitation: 1 L **Cargo Aircraft Only** Quantity limitation: 60 L **Limited Quantities - Passenger Aircraft** Quantity limitation: 1 L

Section 14. Transport information

	Cargo aircraft Quantity limitation: 60 L **Special provisions** IB2, T7, TP2				

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

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 Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : 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 : Fire hazard
Immediate (acute) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
methanol	100	Yes.	No.	No.	Yes.	No.

SARA 313

Section 15. Regulatory information

	Product name	CAS number	%
Form R - Reporting requirements	methanol	67-56-1	100
Supplier notification	methanol	67-56-1	100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : This material is listed.

New York : This material is listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
methanol	No.	Yes.	No.	No.

Canada inventory : This material is listed or exempted.

International regulations

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: This material is listed or exempted.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Canada

WHMIS (Canada) : Class B-2: Flammable liquid
Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

CEPA Toxic substances: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class B-2: Flammable liquid
Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

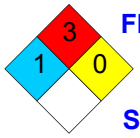
Hazardous Material Information System (U.S.A.)

Health	*	2
Flammability		3
Physical hazards		0

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 are not required on SDSs 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 mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

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



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.

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.

History

Date of printing : 10/16/2014.

Date of issue/Date of revision : 10/16/2014.

Date of previous issue : 10/12/2014.

Version : 0.03

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 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act

Section 16. Other information

(EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

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

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS

Printing date: 31.12.2013 **Revision:** 31.12.2013

1 Identification of the substance/mixture and of the company/undertaking

· **1.1 Product identifier**

· **Trade name: ALCONOX**

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.

· **Application of the substance / the mixture:** Cleaning material/ Detergent

· **1.3 Details of the supplier of the Safety Data Sheet**

· **Manufacturer/Supplier:**
Alconox, Inc.
30 Glenn St., Suite 309
White Plains, NY 10603
Phone: 914-948-4040

· **Further information obtainable from:** Product Safety Department

· **1.4 Emergency telephone number:**
ChemTel Inc.
(800)255-3924, +1 (813)248-0585

2 Hazards identification

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**

GHS05 corrosion

Eye Dam. 1; H318: Causes serious eye damage.

GHS07

Skin Irrit. 2; H315: Causes skin irritation.

· **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**

Xi; Irritant

R38-41: Irritating to skin. Risk of serious damage to eyes.

· **Information concerning particular hazards for human and environment:**
The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

· **Classification system:**
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.
The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.

(Contd. on page 2)

Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS

Printing date: 31.12.2013 **Revision:** 31.12.2013

Trade name: ALCONOX

(Contd. of page 1)

· **Hazard pictograms**

GHS05

· **Signal word:** Danger

· **Hazard-determining components of labelling:**
sodium dodecylbenzene sulfonate
· **Hazard statements**
H315: Causes skin irritation.
H318: Causes serious eye damage.
· **Precautionary statements**
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P264: Wash thoroughly after handling.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER or doctor/physician.
P321: Specific treatment (see on this label).
P362: Take off contaminated clothing and wash before reuse.
P332+P313: If skin irritation occurs: Get medical advice/attention.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
· **Hazard description:**
· **WHMIS-symbols:**
D2B - Toxic material causing other toxic effects

· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 1
Fire = 0
Reactivity = 0

· **HMIS Long Term Health Hazard Substances**
None of the ingredients is listed.

· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

(Contd. on page 3)

Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS

Printing date: 31.12.2013 **Revision:** 31.12.2013

Trade name: ALCONOX

(Contd. of page 2)

3 Composition/information on ingredients

· **3.2 Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 68081-81-2	sodium dodecylbenzene sulfonate Xn R22; Xi R36 Acute Tox. 4, H302; Eye Irrit. 2, H319	10-25%
CAS: 497-19-8 EINECS: 207-838-8 Index number: 011-005-00-2	Sodium Carbonate Xi R36 Eye Irrit. 2, H319	2,5-10%
CAS: 7722-88-5 EINECS: 231-767-1	tetrasodium pyrophosphate substance with a Community workplace exposure limit	2,5-10%
CAS: 151-21-3 EINECS: 205-788-1	sodium dodecyl sulphate Xn R21/22; Xi R36/38 Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Irrit. 2, H315; Eye Irrit. 2, H319	2,5-10%

· **Additional information:** For the wording of the listed risk phrases refer to section 16.

4 First aid measures

· **4.1 Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
· **After eye contact:**
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; call for medical help immediately.
· **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

(Contd. on page 4)

Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS

Printing date: 31.12.2013 **Revision:** 31.12.2013

Trade name: ALCONOX

(Contd. of page 3)

· **5.2 Special hazards arising from the substance or mixture:** No further relevant information available.
· **5.3 Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
· **Additional information:** No further relevant information available.

6 Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Product forms slippery surface when combined with water.
· **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **6.3 Methods and material for containment and cleaning up:**
Pick up mechanically.
Clean the affected area carefully; suitable cleaners are:
Warm water
· **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **7.1 Precautions for safe handling**
Prevent formation of dust.
Keep receptacles tightly sealed.
· **Information about fire - and explosion protection:** No special measures required.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Protect from humidity and water.
· **7.3 Specific end use(s):** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
7722-88-5 tetrasodium pyrophosphate	
REL (USA)	5 mg/m³
TLV (USA)	TLV withdrawn
EV (Canada)	5 mg/m³

(Contd. on page 5)

Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS

Printing date: 31.12.2013 **Revision:** 31.12.2013

Trade name: ALCONOX

(Contd. of page 4)

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
· **Respiratory protection:**
Not required under normal conditions of use.
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.
· **Material of gloves**
Butyl rubber, BR
Nitrile rubber, NBR
Natural rubber, NR
Neoprene gloves
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**

Safety glasses

· **Body protection:** Protective work clothing

(Contd. on page 6)

Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS

Printing date: 31.12.2013 **Revision:** 31.12.2013

Trade name: ALCONOX

(Contd. of page 5)

9 Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Powder
Colour:	White
· **Odour:**	Odourless
· **Odour threshold:**	Not determined.
· **pH-value (10 g/l) at 20 °C:**	9,5 (- NA for Powder form)
· **Change in condition**	
Melting point/Melting range:	Not Determined.
Boiling point/Boiling range:	Undetermined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not determined.
· **Ignition temperature:**	
Decomposition temperature:	Not determined.
· **Self-igniting:**	Product is not self-igniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapour pressure:**	Not applicable.
· **Density at 20 °C:**	1,1 g/cm³
· **Relative density**	Not determined.
· **Vapour density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with water:**	Soluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Solvent content:**	
Organic solvents:	0,0 %
Solids content:	100 %
· **9.2 Other information**	No further relevant information available.

(Contd. on page 7)

Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS

Printing date: 31.12.2013 **Revision:** 31.12.2013

Trade name: ALCONOX

(Contd. of page 6)

10 Stability and reactivity

· **10.1 Reactivity**
· **10.2 Chemical stability**
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **10.3 Possibility of hazardous reactions**
Reacts with acids.
Reacts with strong alkali.
Reacts with strong oxidizing agents.
· **10.4 Conditions to avoid:** No further relevant information available.
· **10.5 Incompatible materials:** No further relevant information available.
· **10.6 Hazardous decomposition products:**
Carbon monoxide and carbon dioxide
Phosphorus compounds
Sulphur oxides (SOx)

11 Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **On the skin:** Irritant to skin and mucous membranes.
· **On the eye:** Strong irritant with the danger of severe eye injury.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Irritant
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information

· **12.1 Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **12.2 Persistence and degradability:** No further relevant information available.
· **12.3 Bioaccumulative potential:** Not worth-mentioning accumulating in organisms
· **12.4 Mobility in soil:** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water.
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **12.5 Results of PBT and vPvB assessment**
· **PBT:** Not applicable.

(Contd. on page 8)

Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS

Printing date: 31.12.2013 **Revision:** 31.12.2013

Trade name: ALCONOX

(Contd. of page 7)

· **vPvB:** Not applicable.
· **12.6 Other adverse effects:** No further relevant information available.

13 Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Smaller quantities can be disposed of with household waste.
Small amounts may be diluted with plenty of water and washed away. Dispose of bigger amounts in accordance with Local Authority requirements.
The surfactant used in this product complies with the biodegradability criteria as laid down in Regulation (EC) No. 648/2004 on detergents. Data to support this assertion are held at the disposal of the competent authorities of the Member States and will be made available to them, at their direct request or at the request of a detergent manufacturer.

· **Uncleaned packaging:**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

14 Transport information

· **14.1 UN-Number** · **DOT, ADR, IMDG, IATA, ICAO**	Not Regulated
· **14.2 UN proper shipping name** · **DOT, ADR, IMDG, IATA, ICAO**	Not Regulated
· **14.3 Transport hazard class(es)** · **DOT, ADR, IMDG, IATA, ICAO** · **Class**	Not Regulated
· **14.4 Packing group** · **DOT, ADR, IMDG, IATA, ICAO**	Not Regulated
· **14.5 Environmental hazards:** · **Marine pollutant:**	No
· **14.6 Special precautions for user**	Not applicable.
· **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	Not Regulated

(Contd. on page 9)

Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS

Printing date: 31.12.2013 **Revision:** 31.12.2013

Trade name: ALCONOX

(Contd. of page 8)

15 Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **United States (USA)**
· **SARA**

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.
· **Section 313 (Specific toxic chemical listings):**
None of the ingredients is listed.
· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

· **Proposition 65 (California):**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.
· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.
· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.
· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic Categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.
· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.
· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.
· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.
· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

(Contd. on page 10)

Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS

Printing date: 31.12.2013 **Revision:** 31.12.2013

Trade name: ALCONOX

(Contd. of page 9)

· **Canada**

· **Canadian Domestic Substances List (DSL)**	
All ingredients are listed.	
· **Canadian Ingredient Disclosure list (limit 0.1%)**	
None of the ingredients is listed.	
· **Canadian Ingredient Disclosure list (limit 1%)**	
497-19-8	Sodium Carbonate
7722-88-5	tetrasodium pyrophosphate
151-21-3	sodium dodecyl sulphate

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**
H302: Harmful if swallowed.
H312: Harmful in contact with skin.
H315: Causes skin irritation.
H319: Causes serious eye irritation.

R21/22: Harmful in contact with skin and if swallowed.
R22: Harmful if swallowed.
R36: Irritating to eyes.
R36/38: Irritating to eyes and skin.

· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
ACGIH: American Conference of Governmental Industrial Hygienists
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)

Traffic Control Plan/Site Traffic Awareness and Response Plan
Revision 5, 5/22/2014

1.0 General

Project Name:	Goshen Former MGP Site
Project Number:	B0013080.0006
TCP Developer Name:	Meghan Kiser
Engineering Judgment (EJ) Review By:	Daniel Jozity
Duration of Work (hours or days):	5 Days
Roadway Work Zone Start Point	Western Service Center Entrance
Roadway Work Zone End Point	Eastern Service Center Entrance
Posted Speed Limit (roadway)	30 mph
Number of Lanes (each direction)	1
Time Restrictions (describe below)[2]:	None

Comments:

The western service center parking lot entrance is across from the intersection of West Main Street and Nelson Street.

2.0 Work Description

Provide a brief description of the work being performed.
The Goshen Former MGP Site is owned by NYSEG and presently serves as a natural gas service center. In preparation for remedial construction activities at the site, monitoring well decommissioning and pre-remediation in-situ waste characterization soil sampling will be conducted at the site in late April/early May 2015. The monitoring wells that will be decommissioned and the waste characterization sampling locations are located within the paved parking lot of the natural gas service center.

Check all that apply:
- ☐ Work is planned on off-site properties.
- ☐ TCP was developed by a 3rd party on behalf of and under contract to ARCADIS, see attached.
- ☐ Regulatory permit/authorization attached.

To facilitate identification of traffic controls to use, check all that apply to this project:

STAR Short Duration Work (<1 hour)	STAR Intermediate Duration Work (1-8 hours)
☐ Water-level gauging and well sounding	☐ Intermediate/deep or >2 in. diameter well sampling
☐ Surface soil sampling using manual methods	☐ Slug testing and similar tests
☐ Intermediate depth soil sampling using DPT	☐ Deep handauger sampling (>20 ft depth)
☐ Shallow monitor well purging and sampling	☑ Manual soil sampling through concrete/asphalt
☐ Product recovery using manual methods	☐ Deep soil sampling using DPT (>40 ft depth)
☐ Surveying	☐ Soil sampling using other automated drilling method
☐ Other (specify):	☑ Other (specify):
	Monitoring well decommissioning

STAR Long Duration Work (>8 hours)	Roadway Work Type (*check all that apply*):

☐ Deep monitor well installation (>50 ft depth)
☐ Monitor wells with surface casing installation
☐ Intermediate depth monitor wells ≥ 4 inch diameter
☐ Long term product recovery using equipment
☐ Long term pump testing
☐ Other (specify):

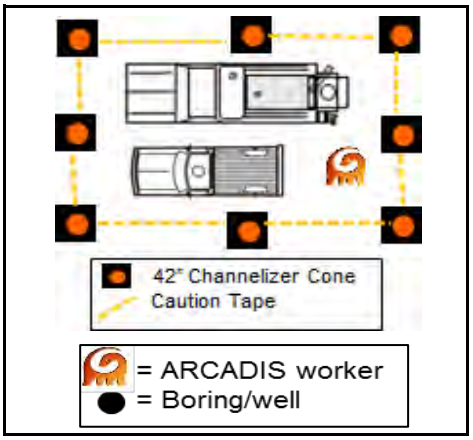
☐ Off shoulder ☐ Turn lane ☐ Mobile operation
☐ On shoulder ☐ Intersection ☐ Road closure
☐ Travel lane ☐ Sidewalk ☐ Bicycle lane
☐ Other: ☐ See attached TCP

STAR (*check all that apply*):
☑ Automobiles ☐ Forklifts ☐ Construction equipment
☑ Straight truck ☐ Bicycles
☐ Semi truck ☐ Pedestrian
☐ Other:

3.0 Traffic Control Layout

The following are applicable to this project:
Notes: DOT Fact Sheets have numbered scenarios, select the appropriate scenario(s) for the project and

STAR			1	2	3	4	5	6	7	8	9	S	I	L
☐	DOT Facts-302a	Retail Gas Station/Small Business Parking Lot (<1 Hour)												
	☐ With truck ☐ Without truck		☐	☐	☐	☐	☐							
☑	DOT Facts-302b	Retail Gas Station/Small Business Parking Lot (1-8 Hours)	☑	☐	☐	☑								
☐	DOT Facts-302c	Retail Gas Station/Small Business (>8 Hours)	☐	☐	☐									
☐	DOT Facts-302e	Multi-business Parking Lot	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	DOT Facts-302e	Facility Parking Area	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	Parking Garage (develop drawing for controls)													
☐	Other (specify):													
☐	STAR Select controls to the right will be used													



Roadway

☐	DOT Facts-301i	Off Shoulder Work
☐	DOT Facts-301j	On Shoulder Work
☐	DOT Facts-301k	On Shoulder Mobile or Short Duration Work
☐	DOT Facts-301m	On Shoulder Work with Minor Encroachment
☐	DOT Facts-301n	Lane Closure, 2 Lane Road, with Flagger
☐	DOT Facts-301o	Lane Closure, 2 Lane Low Volume Road
☐	DOT Facts-301p	Temporary Road Closure
☐	DOT Facts-301r	Work in Center of Low Volume Road
☐	DOT Facts-301t	Lane Closure on Urban Minor Street
☐	NA	Major Intersection, High Volume Road (attach drawing)
☐	NA	Lane Closure, Urban High Volume Street (attach drawing)
☐	DOT Facts-301u	Other Atypical Application (attach drawing)

Pedestrian

☐	DOT Facts-301x	Sidewalk Detour or Diversion
☐	DOT Facts-301y	Sidewalk Closure and Pedestrian Detours

How will the above documents be communicated to field staff?
☐ The above documents or modified documents are attached to this TCP, and/or
☑ The above documents are appropriate without significant modification and are available to field staff in the Field Guide for Roadway Work Zone Safety.

4.0 Required Traffic Control Devices and Phasing

Modify statements as appropriate:

STAR Tasks:

Tasks on this project may be implemented both individually or concurrently. Selection and number of traffic

control devices required will be dependent on the scope of work.

Roadway Tasks:
Regardless of TCP responsibility for this project, all ARCADIS vehicles in a RWZ will, at a minimum, have a functioning high intensity strobe or rotating orange light. All ARCADIS employees in the RWZ will wear, at a minimum, a retroflective high visibility vest meeting Class II or III requirements and other PPE required by JSA or HASP. ARCADIS employees will not enter a 3rd party RWZ if observed to be deficient or inconsistent with the ARCADIS RWZ Safety Program.

ARCADIS RWZ requirements stipulated in this TCP from above selected DOT Fact Sheet(s) or through attached document require the following traffic control devices to be present on site during work in the roadway or right-of-way:

Need sign help?	DOT Facts-301d
Need channelizing device help?	DOT Facts-301e
Need Flagger help?	DOT Facts-301f
View Flagger training requirements by state:	DOT Facts-301w

Check all that apply:	*Wording or Pictogram*	*Number:*
☐ Warning signs		
☐ Warning signs		
☐ Warning signs		
☐ Stop/Slow paddle		
☐ Red flag		
☐ Drums		
☑ Channelizer cone (42 inch height, 10 lb base)		6
☐ Channelizer cone (42 inch height, 30 lb base)		
☐ Traffic cones (≥ 18 inches tall)		
☐ Barricade ☐ Type I ☐ Type II		
☑ Flags for cones		1
☐ Lights (for night work)		
☐ Plastic fencing (rolls)		
☑ Caution tape (rolls)		1
☐ Other (specify):		

STAR Phasing:
1) Position truck as shield, if practical
2) Deploy traffic control devices
3) Affix flags, caution tape or fencing as prescribed in fact sheet
4) Unload project equipment
5) Commence work
6) SSO to maintain controls
7) Remove controls in reverse order

TCP Phasing:
1) Deploy warning signs at first approach, if required
2) Deploy subsequent approach warning signs, if required
3) Deploy channeling devices, if required, starting with first approach
4) Deploy "End Road Work" signs, if required
5) Position vehicle as shield to the extent practical
6) Commence work, SSO or designated contractor to maintain devices
7) Remove devices in reverse order

5.0 Approvals

	Printed Name	Date	Signature
Plan Developer:	Meghan Kiser	3/16/2015	Meghan Kiser
EJE Approval:	Daniel Jozity	3/16/2015	Daniel Jozity
HASP Reviewer[1]			

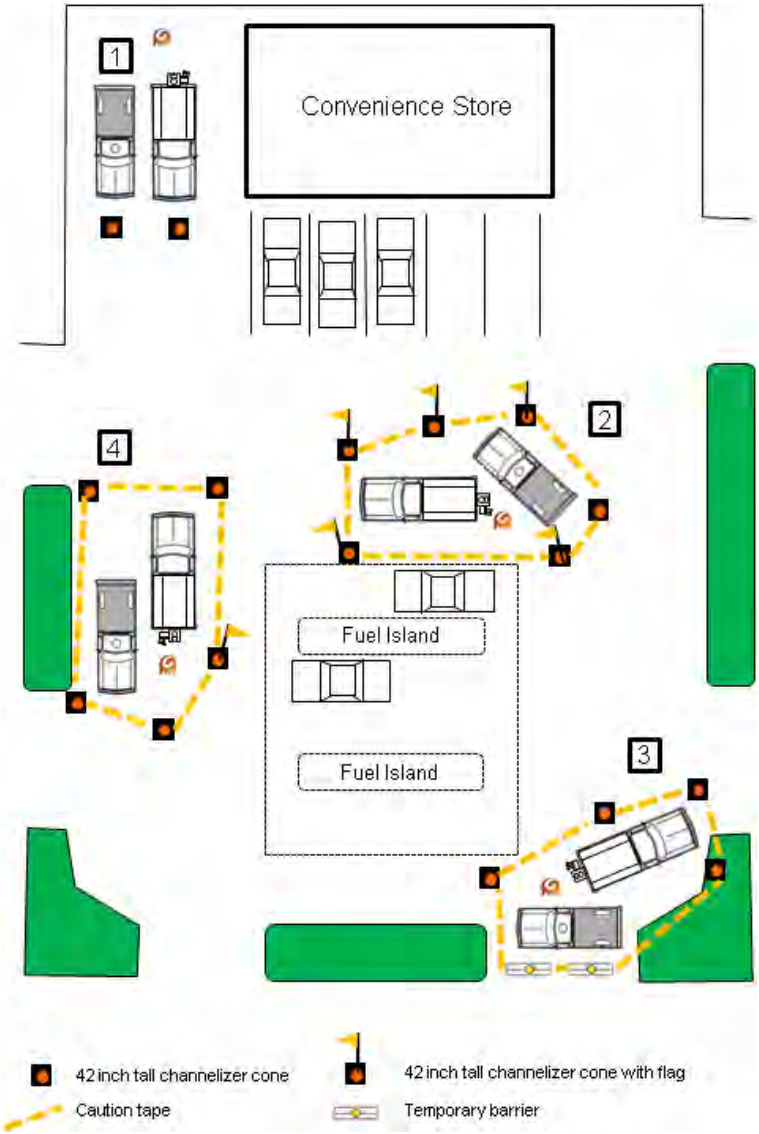
☐ EJ signature on attached TCP

1) Optional, required if EJE does not approve STAR elements in TCP.

You have the absolute right to stop work if unsafe conditions exist!

DOT Facts-302b
Recommended Best Practices for Intermediate Duration Work in Parking Areas (1 to 8 Hour Duration per Location)

The following configurations should be considered for traffic protection in retail parking areas for work durations of 1 to 8 hours.



General Guidelines for Safety:

This fact sheet is not a substitute for ARCADIS Transportation Safety Program procedures or applicable OSHA regulation. The user should review the actual procedure or regulation for compliance issues. Procedures, fact sheets, and training/education materials may be revised without notice. Always refer to the current copy on the Source for accurate information.

The ARCADIS Transportation Safety Program is committed to continuous improvement. Report all errors or omissions to Sam Moyers in the Knoxville, TN office. sam.moyers@arcadis-us.com.

Revision 3, 8/26/2014

G:\Clients\Iberdrola\Iberdrola USA\NYSEG\Goshen Former MGP\10 Final Reports and Presentations\2015\Sampling Work Plan\Attachment 1 - HASP\0841511022_Attachment_DOT Facts-302b Intermediate Duration Parking Area Work.doc

- Use the vehicle as a shield when possible. Orient the rear of the ARCADIS vehicle away from site entrances and areas of increased backing or movement of other vehicles, when practical.
- Always work facing the area with greatest traffic movement and least protection
- Always assume vehicles will move in either direction (frontwards or backwards)
- Always use TRACK to predict traffic movement and stage vehicle and Control Zones in manner that offers protection without impairing site entrance or blocking access to fuel islands when possible. STAR Plan requirements should be reviewed against HASP exclusion zone requirements for consistency.
- If there is a perceived drivable space or if there is an unused gas pump, you must assume that someone will attempt to access or drive to/through the location. Plan, deploy and work accordingly.
- Class II high visibility vest (minimum) to be worn at all times (refer to HASP or JLA for additional requirements, if any).
- Discuss with site operator or manager times of lower traffic volume and attempt to schedule work activity during traffic lulls. For retail gas station, always find out when the fuel deliveries arrive and avoid areas of the site during planned delivery times. For other facilities with dumpsters, inquire about dumpster emptying days and times.
- Areas in green above may appear to be site property but may actually be within the roadway right-or way. Work performed in the right-of-way has additional requirements. See ARC DOT-301 for more information.

Scenario Descriptions:

1) The work location is in a non-traffic area with low expectation for pedestrian traffic. Stage the vehicle to offer protection from someone who may try to park in the area. Deploy channelizer cones and caution tape similarly to other scenarios if pedestrian or bicycle traffic a concern.
2) In this scenario, there is high vehicular and pedestrian traffic potential. Best practices include:
    a. Use the truck as a shield for vehicles backing out of parking places or entering the site. Orient rear of truck away from higher potential backing areas of other vehicles.
    b. Use 42 inch channelizer cones and caution tape around the work area and maintain adequate walking work space around the vehicles in the work area. Size of the work area dependant numerous factors including any exclusion zone requirements. However, traffic flow and volume will be a primary consideration in size and configuration of the work area demarcation.
    c. Use channelizer cones with flags on the parking space side of the work area so backing vehicles have increased awareness of work area boundary, not just the vehicle.
    d. Do not cross caution tape when trying to access or egress from the work area. Create a designated opening for entry and exit, preferably on a side with lesser potential for pedestrian access.
3) All scenario #2 recommendations above apply. The work location involves closing an entrance to the site. Use barricades (Type I, II or III) to close the entrance.
4) All scenario #2 recommendations above apply. Flags placed on the channelizer cones near the fuel island are recommended if work zone interferes with normal traffic flow into and away from the fuel islands. Orient vehicle rear away from the site entrances.

Revision 3, 8/26/2014

G:\Clients\Iberdrola\Iberdrola USA\NYSEG\Goshen Former MGP\10 Final Reports and Presentations\2015\Sampling Work Plan\Attachment 1 - HASP\0841511022_Attachment_DOT Facts-302b Intermediate Duration Parking Area Work.doc

This fact sheet is not a substitute for ARCADIS Transportation Safety Program procedures or applicable OSHA regulation. The user should review the actual procedure or regulation for compliance issues. Procedures, fact sheets, and training/education materials may be revised without notice. Always refer to the current copy on the Source for accurate information.

The ARCADIS Transportation Safety Program is committed to continuous improvement. Report all errors or omissions to Sam Moyers in the Knoxville, TN office. sam.moyers@arcadis-us.com.

Revision 3, 8/26/2014

G:\Clients\Iberdrola\Iberdrola USA\NYSEG\Goshen Former MGP\10 Final Reports and Presentations\2015\Sampling Work Plan\Attachment 1 - HASP\0841511022_Attachment_DOT Facts-302b Intermediate Duration Parking Area Work.doc

SHIPPING DETERMINATION FORM Revision 7a

Date:	3/10/2015
Project Name:	NYSEG Goshen Former MGP Site
Project Number:	B0013080.0006.00010
Supplemental Information:	None

1) Description of the Material to be Transported or Shipped

Soil/sludge with high concentrations of volatile constituents with visible chemical staining and/or strong odors

Benzene, toluene, ethylene, xylene (BTEX) compounds and polycyclic aromatic hydrocarbons (PAHs)

☐ This material is mixed with water, soil or other inert material

☑ This material will be shipped on wet or blue ice

☐ This material will be shipped on dry ice

2) Classification and Identification

This material is: Not Restricted/Not Regulated for transportation purposes

Complete for Hazardous Materials ONLY:

UN/NA# "UNXXXX":	NA	PG:	NA	Hazard Class:	NA
				Subsidiary Hazard Class:	NA
PSN:	NA				

This material is a: No additional criteria applies to this material

3) Packaging, Exceptions and Shipping Information

This material will be shipped (mode of transport and type of shipment):

None

If using an exception/exemption, list the exception/exemption below

None

Carrier/Transporter information:

None

Auth. Air Limits for EQ, LQ and Fully Reg. Shipments and Selected Ground LQ and SQE:

Inner Container Limit (NA- Not Applicable; F- Forbidden; mg, g, or kg for solids; ml or L for liquids):

Glass	NA	NA	Plastic Bag	NA	NA
Metal	NA	NA	Paper Bag	NA	NA
Plastic	NA	NA	Fibre	NA	NA

Outer package Limit:	NA	NA

Air Shipping Specification Package Requirements (NA-Not Available or Not Applicable):

Combination Packages					
Drums:	Steel	Aluminum	Plywood	Fibre	Plastic
	NA	NA	NA	NA	NA
Jerricans:	Steel	Aluminum	Plastic		
	NA	NA	NA		
Boxes:	Steel	Aluminum	Plywood	Fibreboard	Plastic
	NA	NA	NA	NA	NA
Single Packages					
Drums:	Steel	Aluminum	Fibre	Wood	Plastic
	NA	NA	NA	NA	NA
Jerricans:	Steel	Aluminum	Plastic		
	NA	NA	NA		
Boxes:	Steel	Aluminum	Plywood	Fibreboard	Plastic
	NA	NA	NA	NA	NA
Bags:	Textile	Plastic	Paper		
	NA	NA	NA		

Specification packages are not required.

Complete for all Shipments :

Packaging Type:		Single Package - Non-Bulk		
Inner Packaging:		Glass receptacles		
≤# of Single /Inners:	8	Net Qty Each Single/Inner:		None
Intermediate Packaging:		Plastic bag/liner		
Outer Packaging:		Non-specification box- plastic (sample cooler)		
Other:		None		

☑ ARCADIS Shipping Guide US-001 attached
☐ Other package closure information attached
☐ ARCADIS Shipping Guide or HSSP is available for this shipment: NA

4) Marks and Labels

☐ PSN, ID # (ID # -12 mm text height required)
☐ To/From Address (10 pt. font, Arial)
☐ Hazard Class Label(s) :
☐ Cargo Aircraft Only Label
☐ Orientation Arrows (2 req.)
☐ LTD QTY (Ground - no "Y")
☐ LTD QTY (Air -"Y")
☐ Excepted Quantity
☐ Small Quantity Exception by Hwy/Rail
☐ OVERPACK (12mm text height required)
☐ PG III (place adjacent to Div. 6.1 label)
☐ Scientific Research Specimen
☐ Inside packages meet prescribed spec.
☐ RQ (place before PSN on package)
☐ Radioactive Matateria, Exc Package
☐ Other: _____

Checked marks and labels are usually required - consult applicable regulation for actual marks/labels required.

5) Documentation (check all that apply)

☑ No special documentation required
☐ Requires a Shipper's Declaration (air) prepared using : None
☐ Requires HazMat ground shipping papers prepared using: None
☐ Requires a Bill of Lading or Manifest (>MOT, Freight,Trucking Co., Waste Hauler, etc.)
☐ Requires Special Permit — Special Permit # _____
☐ Other: _____

6) Emergency Response

☐ Use ChemTel 24/7 Emergency Phone and Contract Number or approved equivalent (authorized client or vendor) for this shipment: 1-800-255-3924 (ChemTel #MIS0007883) Register this shipment with ChemTel: Have carrier tracking number available. http://arcadis.chemtel.net/
☐ Ensure current edition of North American Emergency Response Guidebook in vehicle (ARCADIS Transport requiring a shipping paper)

7) Special Instructions

8) References and Rationale for the Determination (add additonal sheets, if requried):

NA
Surface soil, subsurface soil, groundwater, surface water, sediment, and soil vapor were evaluated during investigation activities. Site data indicated that soil, groundwater, and/or sediment contain elevated levels of benzene, toluene, ethylbenzene and xylenes (BTEX), a subset of volatile organic compounds (VOCs); polycyclic aromatic hydrocarbons (PAHs); and several inorganic compounds.
☐ See attached for rationale (IF CHECKED, DETERMINATION IS VOID IF RATIONALE NOT ATTACHED)

9) Signatures

☐ PG I determinations have been emailed to Sam Moyers

Determination performed by: Meghan Kiser

Determination QA/QC performed by:
(right click on signature, select "sign") X