DOCKETED	
Docket Number:	09-AFC-03C
Project Title:	MARIPOSA ENERGY PROJECT - Compliance
TN #:	231780
Document Title:	2019 Annual Compliance Report
Description:	2019 ACR
Filer:	Wayne Forsyth
Organization:	DGC
Submitter Role:	Applicant
Submission Date:	1/29/2020 8:32:53 AM
Docketed Date:	1/29/2020

Annual Compliance Report #07

January 01 – December 31, 2019 Reporting Period

Submitted by

Mariposa Energy Project

09-AFC-3C

Submitted to

California Energy Commission

January 22, 2020

Contents

Annual Compliance Report #03

1.0 Introduction

This Mariposa Energy Project (MEP) Annual Compliance Report (ACR) #07 is being submitted to the California Energy Commission (CEC) as required in "Compliance-7" of the CEC Final Decision (MEP 09-AFC-3C). The ACR covers the ongoing operational, safety, environmental and compliance activities occurring on a routine basis. As approved by the CEC Compliance Project Manager (CPM), all ACR's shall be delivered by email exclusively.

2.0 Current Project Status – 2019

MEP is currently operated as a "peaking" facility operating under a Power Purchase Agreement (PPA) with Pacific Gas & Electric (PG&E). MEP is primarily marketed to offset bulk electric system (BES) instability to the electrical grid by providing 10-minute start-up capability by each of its four (4) GE LM6000 Gas Turbine units and has a station nominal 200 mw output rating. MEP has operated without major safety or environmental incidents in the 2019 calendar year, (January 01-December 31). Furthermore, MEP has operated without any major safety or environmental incidents since the Commercial Operation Date (COD) of October 01, 2012.

3.0 Specific Condition Activities - 2016

This section includes a description of the documents by specific CEC Conditions to be submitted as part of the ACR. (Note: CEC Conditions which have been verified by the CPM and submitted in prior ACR's are not in current or future ACR's.)

Exhibit 1, Summary of Major Equipment Failures during report period: There were no major equipment failures in the 2019 calendar year. A Letter of Attestation (LOA) has been added to the exhibit.

Exhibit 2, Exclusionary Fencing Report, BIO-10: 2019 quarterly inspection records have been added to the exhibit.

Exhibit 3 Hazardous Materials List, HAZ-1: 2019 Hazardous Materials List from the Alameda County of Environmental Health (ACDEH) California Environmental Reporting Systems (CERS) has been added to the exhibit.

Exhibit 4, Cattle Trough Inspections, LAND-2: 2019 quarterly inspection records have been added to the exhibit.

Exhibit 5, Annual Water Usage, S & W-4d: A copy of the MEP CEC-1304 (3-A Pg1) "Recordable Monthly and Annual Station Water Usage (gals) has been added to the exhibit.

Exhibit 6, Right-of-Way, TLSN-3: Since Commercial Operation Date (COD) of October 01, 2012, MEP has provided evidence that "no fire prevention activities" have occurred at MEP. A Letter of Attestation (LOA) has been added to the exhibit.

> *"During the first 5 years of plant operation, MEP shall provide a summary of inspection results and "if applicable" any fire prevention activities carried out along the right-of-way in the exhibit."*

Exhibit 7, Surface Treatment Report, VIS-1: MEP has no new status to report regarding surface treatment maintenance. The condition of the surfaces on all MEP structures and buildings for 2019 was in "good" condition. There was no scheduled major surface treatment activities in 2019. A Letter of Attestation (LOA) has been added to the exhibit.

Exhibit 8, Waste Management Plan, WASTE-6: MEP maintains records of all Hazardous Waste Manifests and monitors waste output totals. Copies of the 2019 Hazardous Waste Manifests have been added to the exhibit.

Exhibit 9, WEAP Training Sign-In Sheets: Copies of the 2019 Worker Environmental Awareness Program (WEAP) records have been added to the exhibit.

Exhibit 10, Monthly Safety Inspection Sheets: Copies of the 2019 Monthly Plant Safety Inspections have been added to the exhibit.

Exhibit 11, Regulatory On-Site Inspections: Copies of 2019 Regulatory On-Site Inspections have been added to the exhibit.

Exhibit 12, Major Permits approved or submitted during ACR period: The Mariposa Risk Management Plan (RMP) and Spill Prevention, Control and Countermeasure Plan (SPCC) were update, submitted and approved in 2019. A Letter of Attestation (LOA) has been added to the exhibit.

4.0 Post-Certification Changes Approved - 2019

No post-certification changes were approved during calendar year 2019.

5.0 Submittal Deadlines Missed - 2019

No permit required submittal condition deadlines were missed during calendar year 2019.

6.0 Listing of Permits, Filings Submitted - 2019

The Risk Management Plan (RMP) and Spill Prevention, Control and Countermeasure Plan (SPCC) were update, submitted and approved in 2019.

7.0 Projected Compliance Activities - 2019

- RATA/Source Test/Biennial Source Test – February/March 2019
- PTO Renewals Sources 1-4 and Source 6

8.0 Additions to Onsite Compliance File - 2019

All documentation regarding MEP regulatory, operational, safety, environmental and NERC/WECC including complaints, violations, warnings and citations are warehoused and maintained at the site. All exhibits to the ACRs are added to the onsite compliance files.

9.0 Contingency Plan – Unplanned Facility Closure - 2019

Mariposa Energy has no updates to Conditions 12 and 13 of the May, 2011 Mariposa Energy Project (MEP) FINAL "Commission Decision" (09-AFC-3).

10.0 Complaints, Violations, Warnings, Citations - 2019

No complaints, violations, warnings, or citations were noted for Mariposa during the 2019 year.

Exhibit 1
Summary of Major Equip Failures during report period

January 10, 2020

Mariposa Energy, LLC (09-AFC-3C) did not have any major equipment breakdowns during the 2019 calendar year (January 01 - December 31).

Wayne Forsyth

Wayne Forsyth
Program Manager – EHS & Regulatory
Mariposa Energy, LLC
633 West Fifth Street, Suite 2700
Los Angeles, CA 90071
(213) 473-0093
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Exhibit 2
Exclusionary Fence Inspections

Mariposa Energy, LLC

Plant Exclusionary Fence Inspection

Person performing the inspection: Name: D. BAILEY

Date: 3/13/19

Are there any holes under the exclusionary fencing? (Yes) No

If yes, list problems and corrective action taken/write WO if cannot be repaired immediately: HOLES FILLED

Is there damage to the above ground exclusionary fencing? Yes (No)

If yes, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Is there trash along the fence line? (Yes) No

If yes, lists problems and corrective action taken: TRASH PICKED UP

Comments: _____

Manager Signature: _____

Mariposa Energy, LLC

Plant Exclusionary Fence Inspection

Person performing the inspection: Name: D. BAKERY

Date: 6/18/19

Are there any holes under the exclusionary fencing? (Yes) No

If yes, list problems and corrective action taken/write WO if cannot be repaired immediately: HOLES FILLED

Is there damage to the above ground exclusionary fencing? Yes (No)

If yes, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Is there trash along the fence line? (Yes) No

If yes, lists problems and corrective action taken: TRASH PICKED UP

Comments: _____

DGC Operations, LLC, its agent
Kevin Knight
Plant Manager

Manager Signature: _____

Mariposa Energy, LLC

Plant Exclusionary Fence Inspection

Person performing the inspection: Name: D. GAUGRY

Date: 9/23/19

Are there any holes under the exclusionary fencing? (Yes) No

If yes, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Is there damage to the above ground exclusionary fencing? Yes (No)

If yes, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Is there trash along the fence line? (Yes) No

If yes, lists problems and corrective action taken: _____

Comments: TRASH/DEBRIS REMOVED, HOLES FILLED

Manager Signature: Burke 9/23/19

Mariposa Energy, LLC

Plant Exclusionary Fence Inspection

Person performing the inspection: Name: Burke Schmidlapp

Date: 12-30-19

Are there any holes under the exclusionary fencing? (Yes) No

If Yes, list problems and corrective actions taken. Write a WO if repairs cannot be made immediately: _____

Is there damage to the above ground exclusionary fencing? Yes (No)

If Yes, list problems and corrective actions taken. Write a WO if repairs cannot be made immediately: _____

Is there trash along the fence? Yes (No)

If yes, list problems and corrective action taken: _____

Comments: Holes Filled

Manager Signature: _____ Burke

Exhibit 3
Hazardous Materials List, HAZ-1

MARIPOSA ENERGY PROJECT (CERSID: 10189267)

Facility Information **Submitted Dec 5, 2019**
Submitted on 12/5/2019 7:55:57 AM by *Wayne Forsyth* of MARIPOSA ENERGY PROJECT (BYRON, CA)

- Business Activities
- Business Owner/Operator Identification

Hazardous Materials Inventory **Submitted Dec 5, 2019**
Submitted on 12/5/2019 7:55:57 AM by *Wayne Forsyth* of MARIPOSA ENERGY PROJECT (BYRON, CA)

- Hazardous Material Inventory (36)
- Site Map (Official Use Only)
  - *Annotated Site Map (Official Use Only)* (Adobe PDF, 522KB)

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org: **MARIPOSA ENERGY PROJECT**
Facility Name: **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location: **230 KV Circuit Breaker**

CERS ID: **10189267**
Facility ID:
Status: **Submitted on 12/5/2019 7:55 AM**

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Quantities: Largest Cont.	Quantities: Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixtures only): Component Name	Wt.	EHS
DOT: 2.2 - Nonflammable Gases	**Sulfur Hexafluoride (SF6)** CAS No. 2551-62-4 Map: Fig. 2 Grid: 29	**Pounds**	**150** State: Gas Type: Pure	**150** Storage Conditions: Other Days on Site: 365	150 Pressure: Ambient Temperature: Ambient	Waste Code	- Physical Gas Under Pressure - Health Acute Toxicity - Health Aspiration Hazard			

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org. **MARIPOSA ENERGY PROJECT**
Facility Name **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location
Anti-icing Transformer

CERS ID **10189267**
Facility ID
Status **Submitted on 12/5/2019 7:55 AM**

DOT Hazard/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Largest Cont.	Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only): Component Name	% Wt.	EHS CAS No.
	Mineral Oil	**Gallons**	**863**	**863**	863		- Physical Flammable			
	CAS No 8042-47-5 Map: Fig 2 Grid 58	State Liquid Type Pure	Storage Container Other Days on Site: 365		Pressure Ambient Temperature Ambient	Waste Code				

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org: **MARIPOSA ENERGY PROJECT**
Facility Name: **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location: **Aqueous Ammonia Storage Tank**

CERS ID: **10189267**
Facility ID:
Status: **Submitted on 12/5/2019 7:55 AM**

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Quantities: Largest Cont.	Quantities: Avg. Daily	Annual Waste Amount	Health Hazard Categories	Hazardous Components (For mixtures only): Component Name	%Wt	EHS CAS No.
DOT: 8 - Corrosives (Liquids and Solids) Corrosive	**Ammonium Hydroxide Solution** CAS No: Map: Fig 2 Grid: 38	**Gallons** State: Liquid Type: Mixture	**8500** Storage Container: Aboveground Tank Days on Site: 365	**10000**	6000 Pressure: Ambient Temperature: Ambient	Waste Code:	- Physical Flammable - Physical Explosive - Physical Corrosive To Metal - Health Acute Toxicity - Health Respiratory Skin Sensitization - Health Serious Eye Damage Eye Irritation	Aqueous Ammonia	19 %	1336-21-6

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org. **MARIPOSA ENERGY PROJECT**
Facility Name **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location
Aux Transformers (x2)

CERS ID **10189267**
Facility ID
Status **Submitted on 12/5/2019 7:55 AM**

DOT Code/Fire Haz. Class	Common Name	Units	Quantities: Max. Daily	Largest Cont.	Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (for mixture only): Component Name	% Wt.	EHS - CAS No.
	Mineral Oil	**Gallons**	**906**	**453**	906		- Physical Flammable			
	CAS No. 8042-47-5 Map: Fig. 2 Grid: 23	State Liquid Use Pure	Storage Condition Other Days on Site: 365		Pressure Ambient Temperature Ambient	Waste Code				

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org: **MARIPOSA ENERGY PROJECT**
Facility Name: **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location: **Chemical Storage Drums/Sodium Hypochlorite Skid**

CERS ID: **10189267**
Facility ID:
Status: **Submitted** on 12/5/2019 7:55 AM

DOT Code/Fire Haz. Class	Chemical Name	Unit	Quantities: Max. Daily	Largest Cont.	Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixtures only): Component Name	% Wt	EHS	CAS No.
DOT: 8 - Corrosives (Liquids and Solids) Corrosive	**Sodium Hypochlorite, 12% Solution** CAS No: Map Fig: 2 Grid: S2	**Gallons** State: Liquid Type: Mixture	**165** Storage Container: Plastic/Non-metalic Drum Days on Site: 365	**55**	165 Pressure: Ambient Temperature: Ambient	Waste Code:	- Health Skin Corrosion Irritation - Health Serious Eye Damage Eye Irritation - Health Specific Target Organ Toxicity - Health Aspiration Hazard	Sodium Hypochlorite Sodium Hydroxide Water	14 % 1 % 87 %		7681-52-9 1310-73-2 7732-18-5

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org. **MARIPOSA ENERGY PROJECT**
Facility Name **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location
Chiller Package

CERS ID **10189267**
Facility ID
Status **Submitted on 12/5/2019 7:55 AM**

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Largest Cont.	Avg. Daily	Annual Waste Amount	Hazard Class/ Category	Hazardous Components (Mixtures only): Component Name	% Wt.	EHS (CAS No.
	R134A CAS No. 811-97-2 Map Fig 2 Grid 42	**Cu. Feet**	**172853**	**172853**	172853	Waste Code	- Physical Gas Under Pressure - Health Acute Toxicity - Health Simple Asphyxiant			
		State: Liquid	Storage Condition: Other		Pressure: > Ambient					
		Type: Pure	Days on Site: 365		Temperature: Ambient					
	Solest 220 Oil CAS No. Map Fig 2 Grid 42	**Gallons**	**560**		560	Waste Code	- Physical Flammable - Health Skin Corrosion Irritation - Health Respiratory Skin Sensitization	Polyol ester	100 %	
		State: Liquid	Storage Condition: Other		Pressure: Ambient					
		Type: Mixture	Days on Site: 365		Temperature: Ambient					

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org: **MARIPOSA ENERGY PROJECT**
Facility Name: **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location: **Combustion Turbine Generators (CTG) Auxiliary Skid (x4)**

CERS ID: **10189267**
Facility ID
Status: **Submitted** on 12/5/2019 7:55 AM

DOT Shipping Haz. Class	Common Name	Unit	Quantities: Max. Daily	Quantities: Largest Cont.	Quantities: Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (Percentage only): Component Name	% Wt	EHS CAS No.
	Gas Turbine Oil / Mobil Jet Oil II	**Gallons**	**760**	**150**	760		- Physical Flammable - Health Acute Toxicity - Health Reproductive Toxicity - Health Skin Corrosion Irritation - Health Serious Eye Damage Eye Irritation	Tricresyl Phosphate	3 %	1330-78-5
	CAS No:	State: Liquid	Storage Containment: Aboveground Tank		Physical: Ambient	Waste Code:		Naphthylamine, N-Phenyl	1 %	90-30-2
	Map: Fig 2 Grid: 10	Type: Mixture	Days on Site: 365		Temperature: > Ambient					

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org. **MARIPOSA ENERGY PROJECT**
Facility Name **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location
Combustion Turbine Generators (CTG) Fire Protection Skid (x4)

CERS ID **10189267**
Facility ID
Status **Submitted on 12/5/2019 7:55 AM**

DOT Class/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Quantities: Largest Can	Quantities: Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only): Component Name	% Wt.	EHS CAS No.
DOT: 2.2 - Nonflammable Gases	**Carbon Dioxide**	**Cu. Feet**	**146832**	**2622**	146832		- Physical Gas Under Pressure			
	CAS No: 124-38-9	State: Gas	Storage Container: Cylinder		Pressure: > Ambient	Waste Code:				
	Map: Fig 2 Grid: 13	Use: Pure	Days on Site: 365		Temperature: Ambient					

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org. **MARIPOSA ENERGY PROJECT**
Facility Name **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location
Continuous Emissions Monitoring System (CEMS) enclosures (x4)

CERS ID **10189267**
Facility ID
Status **Submitted** on 12/5/2019 7:55 AM

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Largest Cont.	Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only): Component Name	% Wt	EHS	CAS No
DOT: 2.2 - Nonflammable Gases	**CEMS Calibration Gases**	**Cu. Feet**	**6400**	**200**	6400		- Physical Gas Under Pressure	Nitrogen	70 %		7727-37-9
	CAS No	State: Gas	Storage Container: Cylinder		Pressure: > Ambient	Waste Code	- Health Acute Toxicity	Oxygen	30 %		7782-44-7
	Map: Fig. 2 Grid: 8	Type: Mixture	Days on Site: 365		Temperature: Ambient		- Health Reproductive Toxicity	Carbon Monoxide	0 %		630-08-0
							- Health Skin Corrosion Irritation	Nitric Oxide	0 %	✓	10102-43-9
							- Health Respiratory Skin Sensitization				
							- Health Serious Eye Damage Eye Irritation				
							- Health Aspiration Hazard				

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org: **MARIPOSA ENERGY PROJECT**
Facility Name: **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location: **Control Building/Electrical Control Room**

CERS ID: **10189267**
Facility ID:
Status: **Submitted on 12/5/2019 7:55 AM**

DOT Bulk/No Bulk/Class	Common Name	Unit	Quantities: Max. Daily	Quantities: Largest Cont.	Quantities: Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (Per mixture only): Component Name	EHS	CAS No.
	FM200 Fire Extinguishing Agent CAS No 431-89-0 Map: Fig. 2 Grid: 4A	**Pounds** State Gas Type Pure	**263** Storage Container Cylinder Days on Site: 365	**263**	263 Pressure > Ambient Temperature Ambient	Waste Code	- Physical Gas Under Pressure - Health Skin Corrosion Irritation - Health Serious Eye Damage Eye Irritation - Health Aspiration Hazard			

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org. Facility Name: **MARIPOSA ENERGY PROJECT**
MARIPOSA ENERGY PROJECT
4887 BRUNS RD, BYRON 94514

Chemical Location: **Fire Water Pump Skid**

CERS ID: **10189267**
Facility ID:
Status: **Submitted on 12/5/2019 7:55 AM**

DOT Cmbl/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Quantities: Largest Cont.	Quantities: Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixtures only): Component Name	% Wt	EHS	CAS No.
	Diesel Fuel No. 2	**Gallons**	**280**	**280**	280		- Physical Flammable	Diesel Fuel No. 2	100 %		68476-34-6
Combustible Liquid, Class II		State: Liquid	Storage Container: Aboveground Tank		Pressure: Ambient	Waste Code	- Health Carcinogenicity	Naphthalene	1 %		91-20-3
	Map: Fig 2 Grid: 32	Type: Mixture	Days on Site: 365		Temperature: Ambient		- Health Acute Toxicity				
							- Health Skin Corrosion Irritation				
							- Health Serious Eye Damage Eye Irritation				
							- Health Aspiration Hazard				

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org: **MARIPOSA ENERGY PROJECT**
Facility Name: **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location: **Fuel Gas Letdown Station**

CERS ID: **10189267**
Facility ID:
Status: **Submitted** on 12/5/2019 7:55 AM

DOT Class/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Largest Cont.	Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only): Component Name	% Wt	EHS	CAS No
DOT: 2 2 - Nonflammable Gases	**Helium Gas** CAS No 7440-59-7 Map: Fig. 2 Grid: 41	**Cu. Feet**	**670**	**335**	670	Waste Code	- Physical Gas Under Pressure - Health Skin Corrosion Irritation - Health Serious Eye Damage Eye Irritation - Health Aspiration Hazard				
		State: Gas	Storage Container: Cylinder		Pressure: > Ambient						
		Type: Pure	Days on Site: 365		Temperature: Ambient						
DOT: 2 1 - Flammable Gases Flammable Gas	**Hydrogen Gas** CAS No 1333-74-0 Map: Fig. 2 Grid: 41	**Cu. Feet**	**600**	**300**	300	Waste Code	- Physical Flammable - Physical Gas Under Pressure - Physical Explosive - Health Skin Corrosion Irritation - Health Respiratory Skin Sensitization - Health Aspiration Hazard				
		State: Gas	Storage Container: Cylinder		Pressure: > Ambient						
		Type: Pure	Days on Site: 365		Temperature: Ambient						

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org: **MARIPOSA ENERGY PROJECT**
Facility Name: **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location
General Electric (GE) LM-6000PC Sprint Combustion Turbine Generators (CTG) (X4)

CERS ID: **10189267**
Facility ID:
Status: **Submitted on 12/5/2019 7:55 AM**

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Quantities: Largest Cont.	Quantities: Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (for mixture only): Component Name	% Wt.	EHS CAS No.
	Generator Lubrication Oil (Mobil DTE Oil Light)	**Gallons**	**2000**	**500**	2000		- Health Acute Toxicity - Health Respiratory Skin Sensitization - Health Serious Eye Damage Eye Irritation			
	CAS No	State: Liquid	Storage Container: Other		Pressure: Ambient	Waste Code				
	Map: Fig. 2 Grid: 1	Type: Mixture	Days on Site: 365		Temperature: > Ambient					

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org: **MARIPOSA ENERGY PROJECT**
Facility Name: **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location: **Generator Step-Up Transformer (GSU) (x4)**

CERS ID: **10189267**
Facility ID:
Status: **Submitted on 12/5/2019 7:55 AM**

DOT Sane/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Largest Cont.	Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For pressure only): Component Name	%Wt	EHS CAS No.
	Mineral Oil	**Gallons**	**31488**	**7872**	31488		- Physical Flammable			
	CAS No 8042-47-5 Map: Fig. 2 Grid: 18	State Liquid	Storage Container Other		Pressure Ambient	Waste Code				
		Type Pure	Days on Site: 365		Temperature Ambient					
DOT: 2.2 - Nonflammable Gases	**Nitrogen Gas**	**Cu. Feet**	**1600**	**200**	1600		- Physical Gas Under Pressure - Health Simple Asphyxiant			
	CAS No 7727-37-9 Map: Fig. 2 Grid: 18	State Gas	Storage Container Cylinder		Pressure > Ambient	Waste Code				
		Type Pure	Days on Site: 365		Temperature Ambient					

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org: **MARIPOSA ENERGY PROJECT**
Facility Name: **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location: **PCM Transformer (x4)**

CERS ID: **10189267**
Facility ID:
Status: **Submitted on 12/5/2019 7:55 AM**

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Quantities: Largest Cont.	Quantities: Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only): Component Name	Conc.	EHS	CAS No.
	Mineral Oil	**Gallons**	**1144**	**286**	**1144**		- Physical Flammable				
	CAS No 8042-47-5 Map: Fig. 2 Grid: 46	State Liquid Type Pure	Storage Container Other Days on Site: 365		Pressure Ambient Temperature Ambient	Waste Code					

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org. Facility Name: **MARIPOSA ENERGY PROJECT**
MARIPOSA ENERGY PROJECT
4887 BRUNS RD, BYRON 94514

Chemical Location: **Power Control Module (PCM)**

CERS ID: **10189267**
Facility ID:
Status: **Submitted** on 12/5/2019 7:55 AM

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Largest Cont.	Avg. Daily	Annual Waste Amount	Federal Haz. Cat.	Hazardous Components (For mixture only): Component Name	%Wt.	EHS CAS No.
DOT: 8 - Corrosives (Liquids and Solids)	**Sealed Lead Acid Battery** Map: Fig. 2 Grid: 45	**Gallons** State: Solid Type: Mixture	**63** Storage Condition: Other Days on Site: 365	**2**	63 Pressure: Ambient Temperature: Ambient	Waste Code:	- Physical Explosive - Health Carcinogenicity - Health Acute Toxicity - Health Skin Corrosion Irritation - Health Respiratory Skin Sensitization - Health Serious Eye Damage Eye Irritation - Health Specific Target Organ Toxicity	Sulfuric Acid	20 %	✓ 7664-93-9

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org: **MARIPOSA ENERGY PROJECT**
Facility Name: **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location
Power Distribution Center (PDC)

CERS ID: **10189267**
Facility ID:
Status: **Submitted** on 12/5/2019 7:55 AM

DOT Classification Hazard Class	Common Name	Unit	Quantities: Max Daily	Largest Cont	Avg Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only): Component Name	% Wt	EHS	CAS No
DOT: 8 - Corrosives (Liquids and Solids) Corrosive	**lead acid batteries** CAS #: Map: Fig. 2 Grid: 22	**Gallons** State: Liquid Type: Mixture	**460** Storage Container: Other Days on Site: 365	**2**	460 Pressure: Ambient Temperature: Ambient	0 Waste Code:	- Physical Explosive - Health Carcinogenicity - Health Acute Toxicity - Health Skin Corrosion Irritation - Health Respiratory Skin Sensitization - Health Serious Eye Damage Eye Irritation - Health Specific Target Organ Toxicity	sulfuric acid	40 %	✓	7664-93-9

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org: **MARIPOSA ENERGY PROJECT**
Facility Name: **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location: **Process Waste Water Forwarding Pumps**

CERS ID: **10189267**
Facility ID:
Status: **Submitted on** 12/5/2019 7:55 AM

DOT Code/Federal Class	Common Name	Unit	Quantities: Max. Daily	Largest Cont.	Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only): Component Name	% Wt.	EHS CAS No.
	Megafloc 8634P	**Gallons**	**250**	**55**	55		- Health Acute Toxicity	Aluminum Chloride Hydroxide	50 %	12042-91-0
	CAS No	State: Liquid	Storage Container: Plastic/Non-metalic Drum		Pressure: > Ambient	Waste Code				
	Map: 2 Grid: 34	Type: Mixture	Days on Site: 365		Temperature: > Ambient					

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org. **MARIPOSA ENERGY PROJECT**
Facility Name **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location
Station Service Transformers (x4)

CERS ID **10189267**
Facility ID
Status **Submitted on 12/5/2019 7:55 AM**

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Quantities: Largest Cont.	Quantities: Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only): Component Name	% Wt.	EHS	CAS No.
	Mineral Oil	**Gallons**	**2634**	**1317**	2634		- Physical Flammable				
	CAS No. 8042-47-5 Map: Fig. 2 Grid: 5S	State Liquid	Storage Condition Other		Pressure Ambient	Waste Code					
		Type Pure	Days on Site: 365		Temperature Ambient						

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org: **MARIPOSA ENERGY PROJECT**
Facility Name: **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location: **Warehouse and Maintenance Building (Storage)**

CERS ID: **10189267**
Facility ID:
Status: **Submitted on 12/5/2019 7:55 AM**

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Largest Cont.	Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixtures only): Component Name	% W/	EHS / CAS No.
	Hydraulic Oil CAS No: Map: Fig. 2 Grid: 40	**Gallons** State: Liquid Type: Mixture	**165** Storage Container: Steel Drum Days on Site: 365	55	55 Pressure: Ambient Temperature: Ambient	Waste Code:	- Physical Flammable - Health Acute Toxicity - Health Skin Corrosion Irritation - Health Serious Eye Damage Eye Irritation - Health Aspiration Hazard	Distillates, petroleum, solvent-refined light paraffinicparaffinic Distillates, petroleum, solvent-refined heavy paraffinicparaffinic Proprietary Ingredients Zinc alkyldithiophosphate	50 % 60 % 2 % 1 %	64741-89-5 64741-89-5 Proprietary 68649-42-3
	Generator Lubrication Oil / Mobil DTE Oil Light CAS No: Map: Fig. 2 Grid: 40	**Gallons** State: Liquid Type: Mixture	**440** Storage Container: Steel Drum Days on Site: 365	55	220 Pressure: Ambient Temperature: Ambient	Waste Code:	- Physical Flammable - Health Serious Eye Damage Eye Irritation			
	Gas Turbine Oil / Mobil Jet Oil II CAS No: Map: Fig. 2 Grid: 40	**Gallons** State: Liquid Type: Mixture	**440** Storage Container: Steel Drum Days on Site: 365	55	220 Pressure: Ambient Temperature: Ambient	Waste Code:	- Physical Flammable - Health Acute Toxicity - Health Reproductive Toxicity - Health Skin Corrosion Irritation - Health Serious Eye Damage Eye Irritation	Naphthylamine, N-Phenyl Tricresyl Phosphate	1 % 3 %	90-30-2 1330-78-5
	ZOK mx Gas Turbine Compressor Cleaning Fluid CAS No: Map: Fig. 2 Grid: 40	**Gallons** State: Liquid Type: Mixture	**110** Storage Container: Plastic/Non-metalic Drum Days on Site: 365	55	55 Pressure: Ambient Temperature: Ambient	Waste Code:	- Health Skin Corrosion Irritation - Health Respiratory Skin Sensitization	Isotridecylalcohol, ethoxylated 3-butoxypropan-2-ol	30 % 5 %	9043-30-5 5131-66-8

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org. Facility Name: **MARIPOSA ENERGY PROJECT** / **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location: **Warehouse and Maintenance Building (Storage)**

CERS ID: **10189267**
Facility ID:
Status: **Submitted on 12/5/2019 7:55 AM**

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Largest Cont.	Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only): Component Name	% Wt.	EHS / CAS No.
DOT: 2.1 - Flammable Gases Flammable Gas	**Propane** CAS No 74-98-6 Map: Fig. 2 Grid: 40	**Cu. Feet** **904** State: Liquid Type: Pure Storage Container: Cylinder Days on Site: 365		**452**	904 Pressure: > Ambient Temperature: Ambient	Waste Code	- Physical Flammable - Physical Gas Under Pressure - Physical Explosive - Health Respiratory Skin Sensitization - Health Serious Eye Damage Eye Irritation - Health Aspiration Hazard			
DOT: 2.2 - Nonflammable Gases	**Nitrogen Gas** CAS No 7727-37-9 Map: Fig. 2 Grid: 40	**Cu. Feet** **2400** State: Gas Type: Pure Storage Container: Cylinder Days on Site: 365		**200**	2400 Pressure: > Ambient Temperature: Ambient	Waste Code	- Physical Gas Under Pressure - Health Simple Asphyxiant			
DOT: 2.2 - Nonflammable Gases	**CEMS Calibration Gases** CAS No Map: Fig. 2 Grid: 40	**Cu. Feet** **4400** State: Gas Type: Mixture Storage Container: Cylinder Days on Site: 365		**200**	4400 Pressure: > Ambient Temperature: Ambient	Waste Code	- Physical Gas Under Pressure - Health Acute Toxicity - Health Reproductive Toxicity - Health Skin Corrosion Irritation - Health Respiratory Skin Sensitization - Health Serious Eye Damage Eye Irritation - Health Aspiration Hazard	Nitrogen Oxygen Carbon Monoxide Nitric Oxide	70 % 30 % 0 % 0 %	7727-37-9 7782-44-7 630-08-0 ✓ 10102-43-9
Combustible Liquid, Class III-B	**Mobil DTE Extra Heavy Compressor Oil** CAS No Map: Fig 2 Grid: 40	**Gallons** **110** State: Liquid Type: Mixture Storage Container: Steel Drum Days on Site: 365		**55**	55 Pressure: Ambient Temperature: Ambient	0 Waste Code	- Health Acute Toxicity - Health Serious Eye Damage Eye Irritation - Health Aspiration Hazard	Lubricating Oils (Petroleum), C20-50, Hydrotreated Neutral Oil-Based Phosphorodithioic acid	99 % 1 %	72623-87-1 68649-42-3

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org.: **MARIPOSA ENERGY PROJECT**
Facility Name: **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location: **Warehouse and Maintenance Building (Storage)**

CERS ID: **10189267**
Facility ID:
Status: **Submitted** on 12/5/2019 7:55 AM

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Largest Cont.	Avg. Daily	Annual Waste Amount	Federal Hazard Category	Hazardous Component (For Inventory Only): Component Name	% W/	EHS	CAS No.
	Solest 220 Oil	**Gallons**	**165**	**55**	165		- Health Skin Corrosion Irritation - Health Serious Eye Damage Eye Irritation	Polyol ester	100 %		
	CAS No.	State: Liquid	Storage Container: Steel Drum		Pressure: Ambient	Waste Code:					
	Map: Fig 2 Grid: 40	Type: Mixture	Days on Site: 365		Temperature: Ambient						

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org: **MARIPOSA ENERGY PROJECT**
Facility Name: **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location: **Waste storage area**

CERS ID: **10189267**
Facility ID:
Status: **Submitted on 12/5/2019 7:55 AM**

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Largest Cont.	Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only): Component Name	% Wt.	EHS	CAS No.
	oily debris (non-RCRA hazardous) CAS No: Map: Fig 2 Grid: HW	**Pounds** State: Solid Type: Mixture	**450** Storage Container: Steel Drum Days on Site: 270	**450**	200 Pressure: Ambient Temperature: Ambient	450 Waste Code: 223	- Health Carcinogenicity - Health Reproductive Toxicity - Health Skin Corrosion Irritation - Health Serious Eye Damage Eye Irritation - Health Aspiration Hazard - Health Germ Cell Mutagenicity	waste lubricating oil	20 %		70514-12-4
DOT: 3 - Flammable and Combustible Liquids Combustible Liquid, Class III-B	**Used lubricating oils** CAS No: 70514-12-4 Map: Fig 2 Grid: HW	**Gallons** State: Liquid Type: Mixture	**55** Storage Container: Steel Drum Days on Site: 270	**55**	20 Pressure: Ambient Temperature: Ambient	55 Waste Code: 221	- Physical Flammable - Health Acute Toxicity - Health Skin Corrosion Irritation - Health Respiratory Skin Sensitization - Health Serious Eye Damage Eye Irritation - Health Aspiration Hazard - Health Germ Cell Mutagenicity				

Hazardous Materials And Wastes Inventory Matrix Report

CERS Business/Org: **MARIPOSA ENERGY PROJECT**
Facility Name: **MARIPOSA ENERGY PROJECT**
4887 BRUNS RD, BYRON 94514

Chemical Location: **Water tank area**

CERS ID: **10189267**
Facility ID:
Status: **Submitted on 12/5/2019 7:55 AM**

DOT Code/Fire Haz. Class	Common Name	Unit	Quantities: Max. Daily	Largest Cont.	Avg. Daily	Annual Waste Amount	Federal Hazard Categories	Hazardous Components (For mixture only): Component Name	% Wt.	EHS	CAS No.
DOT: 8 - Corrosives (Liquids and Solids)	**Spectrus NX1100 Biocide**	**Gallons**	**55**	**55**	40		- Health Carcinogenicity	2-BROMO-2-NITROPROPANE-1,3 DIOL	10 %		52-51-7
	CAS No.	State: Liquid	Storage Container: Steel Drum		Pressure: Ambient	Waste Code	- Health Acute Toxicity	magnesium nitrate	5 %		10377-60-3
		Type: Mixture	Days on Site: 365		Temperature: Ambient		- Health Respiratory Skin Sensitization	5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE MIXTURE WITH 1-5	5 %		55965-84-9
							- Health Aspiration Hazard	magnesium chloride	5 %		7786-30-3
DOT: 8 - Corrosives (Liquids and Solids) Corrosive	**DMP 6016**	**Gallons**	**275**	**275**	150		- Health Skin Corrosion Irritation - Health Respiratory Skin Sensitization - Health Serious Eye Damage Eye Irritation	Ferric chloride	45 %		7708-05-0
	CAS No.	State: Liquid	Storage Container: Tote Bin		Pressure: Ambient	Waste Code		Hydrochloric acid	5 %	✓	7647-010-0
		Type: Mixture	Days on Site: 365		Temperature: Ambient						
	DMP 300L	**Gallons**	**410**	**275**	150		- Health Skin Corrosion Irritation - Health Respiratory Skin Sensitization - Health Serious Eye Damage Eye Irritation				
	CAS No.	State: Liquid	Storage Container: Tote Bin		Pressure: Ambient	Waste Code					
		Type: Mixture	Days on Site: 365		Temperature: Ambient						

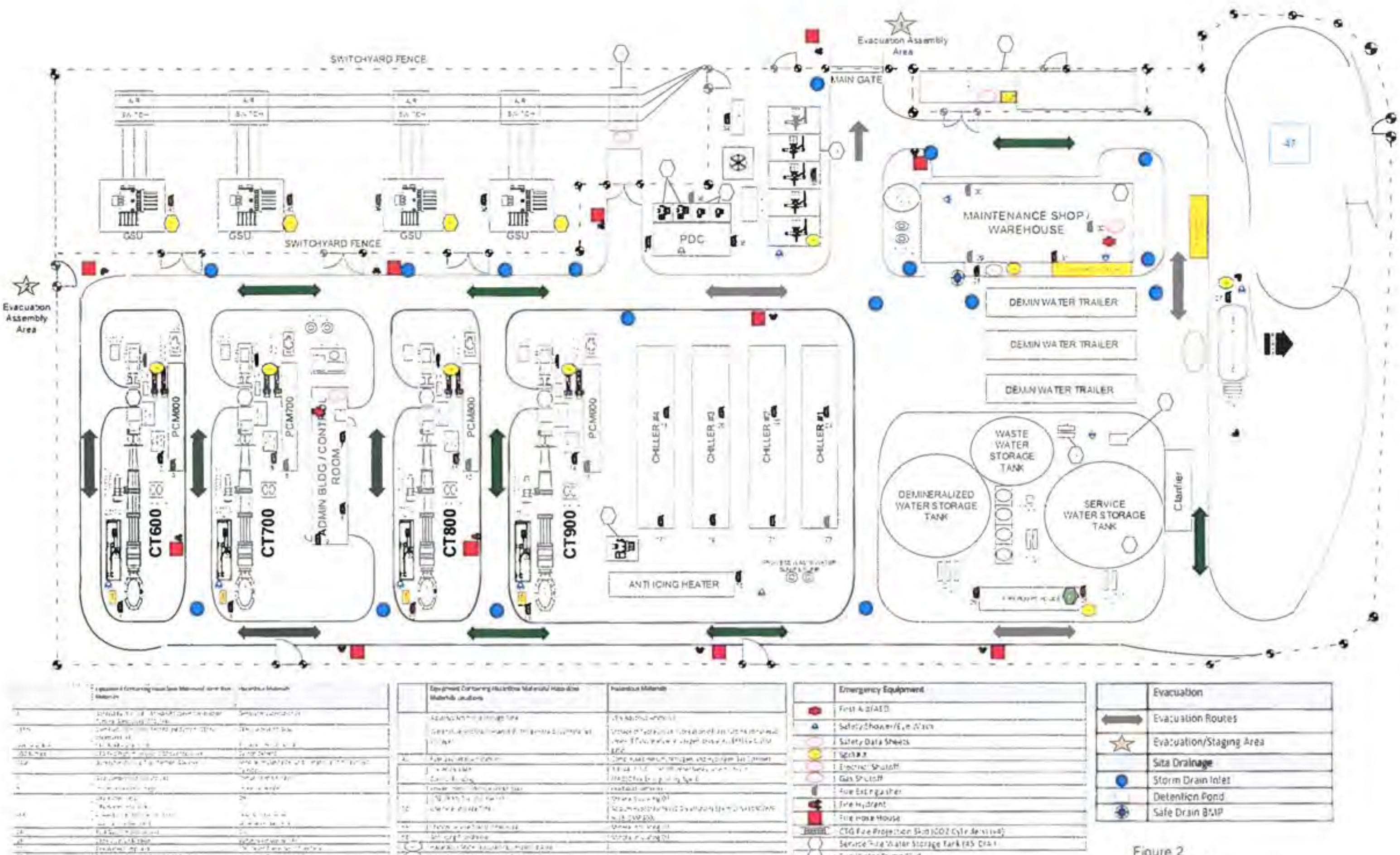


Figure 2
Facility Site Map
Mariposa Energy Project

Exhibit 4
Cattle Trough Inspections, LAND-2

Mariposa Energy, LLC

Cattle Trough Monthly Inspection

NOTE: This inspection includes both cattle troughs (north and south).

Gas Turbine Technician performing the inspection: Name: D. BAKERY
Date: 1/8/15

Any leaks found?: Yes ____ No ✓
if yes, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Do the float valves work properly?: Yes ✓ No ____
if no, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Is there debris in the troughs?: Yes ____ No ✓
if yes, lists problems and corrective action taken: _____

- If any other problems are found, list in "comments" section below, corrective actions taken, and write WO's as required.

Comments: _____

Plant Manager Signature: _____

Mariposa Energy, LLC

Cattle Trough Monthly Inspection

NOTE: This inspection includes both cattle troughs (north and south).

Gas Turbine Technician performing the inspection: Name: D. BAILEY
Date: 1/5/15

Any leaks found?: Yes ___ No ✓
if yes, list problems and corrective action taken/write WO if cannot be repaired immediately: ___

Do the float valves work properly?: Yes ✓ No ___
if no, list problems and corrective action taken/write WO if cannot be repaired immediately: ___

Is there debris in the troughs?: Yes ___ No ✓
if yes, lists problems and corrective action taken: ___

- If any other problems are found, list in "comments" section below, corrective actions taken, and write WO's as required.

Comments: ___

Plant Manager Signature: ___

Mariposa Energy, LLC

Cattle Trough Monthly Inspection

NOTE: This inspection includes both cattle troughs (north and south).

Gas Turbine Technician performing the inspection: Name: D. BAUTRY DAB
Date: ~~1/5/15~~ 2/5/15

Any leaks found?: Yes ___ No ✓
if yes, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Do the float valves work properly?: Yes ✓ No ___
if no, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Is there debris in the troughs?: Yes ___ No ✓
if yes, lists problems and corrective action taken: _____

- If any other problems are found, list in "comments" section below, corrective actions taken, and write WO's as required.

Comments: _____

Plant Manager Signature: _____

Mariposa Energy, LLC

Cattle Trough Monthly Inspection

NOTE: This inspection includes both cattle troughs (north and south).

Gas Turbine Technician performing the inspection: Name: D. BAKER
Date: 3/13/19

Any leaks found?: Yes ___ No ✓
if yes, list problems and corrective action taken/write WO if cannot be repaired immediately: ___

Do the float valves work properly?: Yes ✓ No ___
if no, list problems and corrective action taken/write WO if cannot be repaired immediately: ___

Is there debris in the troughs?: Yes ✓ No ___
if yes, lists problems and corrective action taken: DEBRIS REMOVED

- If any other problems are found, list in "comments" section below, corrective actions taken, and write WO's as required.

Comments: ___

Plant Manager Signature: ___

Mariposa Energy, LLC

Cattle Trough Monthly Inspection

NOTE: This inspection includes both cattle troughs (north and south).

Gas Turbine Technician performing the inspection: Name: Dan BAKER
Date: 4/9/15

Any leaks found?: Yes ____ No ✓
if yes, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Do the float valves work properly?: Yes ✓ No ____
if no, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Is there debris in the troughs?: Yes ✓ No ____
if yes, lists problems and corrective action taken: DEBRIS REMOVED

- If any other problems are found, list in "comments" section below, corrective actions taken, and write WO's as required.

Comments: _____

Plant Manager Signature: _____

Mariposa Energy, LLC

Cattle Trough Monthly Inspection

NOTE: This inspection includes both cattle troughs (north and south).

Gas Turbine Technician performing the inspection: Name: Dan Bancroft
Date: 5/8/15

Any leaks found?: Yes ___ No ✓
if yes, list problems and corrective action taken/write WO if cannot be repaired immediately: ___

Do the float valves work properly?: Yes ✓ No ___
if no, list problems and corrective action taken/write WO if cannot be repaired immediately: ___

Is there debris in the troughs?: Yes ___ No ✓
if yes, lists problems and corrective action taken: ___

- If any other problems are found, list in "comments" section below, corrective actions taken, and write WO's as required.

Comments: ___

MGC Operations, LLC, its agent
Kevin Kriegle
Plant Manager

Plant Manager Signature: ___

Mariposa Energy, LLC

Cattle Trough Monthly Inspection

NOTE: This inspection includes both cattle troughs (north and south).

Gas Turbine Technician performing the inspection: Name: D. BAILEY
Date: 6/13/19

Any leaks found?: Yes ___ No ✓
if yes, list problems and corrective action taken/write WO if cannot be repaired immediately: ___

Do the float valves work properly?: Yes ✓ No ___
if no, list problems and corrective action taken/write WO if cannot be repaired immediately: ___

Is there debris in the troughs?: Yes ___ No ✓
if yes, lists problems and corrective action taken: ___

- If any other problems are found, list in "comments" section below, corrective actions taken, and write WO's as required.

Comments: ___

MDC Operations, LLC, its agent:
Kevin Kringle
Ken Knight
Plant Manager

Plant Manager Signature: ___

Mariposa Energy, LLC

Cattle Trough Monthly Inspection

NOTE: This inspection includes both cattle troughs (north and south).

Gas Turbine Technician performing the inspection: Name: D. BAVERY
Date: 7/2/19

Any leaks found?: Yes ___ No ✓
if yes, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Do the float valves work properly?: Yes ✓ No ___
if no, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Is there debris in the troughs?: Yes ___ No ✓
if yes, lists problems and corrective action taken: _____

- If any other problems are found, list in "comments" section below, corrective actions taken, and write WO's as required.

Comments: _____

MGC Operations, LLC, its agent
Kevin Kohale
Plant Manager

Plant Manager Signature: _____

Mariposa Energy, LLC

Cattle Trough Monthly Inspection

NOTE: This inspection includes both cattle troughs (north and south).

Gas Turbine Technician performing the inspection: Name: Dan Bailey
Date: 8/6/15

Any leaks found?: Yes ___ No ✓
if yes, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Do the float valves work properly?: Yes ✓ No ___
if no, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Is there debris in the troughs?: Yes ___ No ✓
if yes, lists problems and corrective action taken: _____

- If any other problems are found, list in "comments" section below, corrective actions taken, and write WO's as required.

Comments: _____

Plant Manager Signature: _____

Mariposa Energy, LLC

Cattle Trough Monthly Inspection

NOTE: This inspection includes both cattle troughs (north and south).

Gas Turbine Technician performing the inspection: Name: D. BAUER

Date: 9/3/19

Any leaks found?: Yes ___ No ✓

if yes, list problems and corrective action taken/write WO if cannot be repaired immediately: ___

Do the float valves work properly?: Yes ✓ No ___

if no, list problems and corrective action taken/write WO if cannot be repaired immediately: ___

Is there debris in the troughs?: Yes ___ No ✓

if yes, lists problems and corrective action taken: ___

- If any other problems are found, list in "comments" section below, corrective actions taken, and write WO's as required.

Comments: Reviewed by Burke 9/5/19 9/11/19 SD

Plant Manager Signature: [signature]

Mariposa Energy, LLC

Cattle Trough Monthly Inspection

NOTE: This inspection includes both cattle troughs (north and south).

Gas Turbine Technician performing the inspection: Name: D. BAKERY
Date: 10/1/19

Any leaks found?: Yes ___ No ✓
if yes, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Do the float valves work properly?: Yes ✓ No ___
if no, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Is there debris in the troughs?: Yes ___ No ✓
if yes, lists problems and corrective action taken: _____

- If any other problems are found, list in "comments" section below, corrective actions taken, and write WO's as required.

Comments: _____

10/1/19

Plant Manager Signature: _____

Mariposa Energy, LLC

Cattle Trough Monthly Inspection

NOTE: This inspection includes both cattle troughs (north and south).

Gas Turbine Technician performing the inspection: Name: G PITTS
Date: 11-4-19

Any leaks found?: Yes ___ No ✓
if yes, list problems and corrective action taken/write WO if cannot be repaired immediately: ___

Do the float valves work properly?: Yes ✓ No ___
if no, list problems and corrective action taken/write WO if cannot be repaired immediately: ___

Is there debris in the troughs?: Yes ___ No ✓
if yes, lists problems and corrective action taken: ___

- If any other problems are found, list in "comments" section below, corrective actions taken, and write WO's as required.

Comments: ___

Plant Manager Signature: ___

Mariposa Energy, LLC

Cattle Trough Monthly Inspection

NOTE: This inspection includes both cattle troughs (north and south).

Gas Turbine Technician performing the inspection: Name: D. BAILEY
Date: 2/6/15

Any leaks found?: Yes ___ No ✓
if yes, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Do the float valves work properly?: Yes ✓ No ___
if no, list problems and corrective action taken/write WO if cannot be repaired immediately: _____

Is there debris in the troughs?: Yes ___ No ✓
if yes, lists problems and corrective action taken: _____

- If any other problems are found, list in "comments" section below, corrective actions taken, and write WO's as required.

Comments: _____

Plant Manager Signature: _____

Exhibit 5
Annual Water Usage, S & W-4d

TESCO
EMASS

Instrument Calibration / Verification Report

Project Name: Byron-Bethany Irrigation District, Flowmeter Calibrations

Project Number: T-9000TV Project Date: 2/4/19

Description:	MEP, Flow		
Instrument Type:	FIT	Manufacturer:	Siemens
Tag Ref Number:	n/a	Serial Number:	105930U241
Transmitter Model #:	Sitrans MAG6000 HART	Signal Output:	HART
Process Range:	0 - 2.5	Instrument Span:	0-2.5 cfs
Engineering Units:	cfs	Chem Exp Date:	n/a

Simulate transmitter outputs utilizing manufacturers diagnostic tools at the specified values below. Measure output utilizing a calibrated meter and record the results below.

Simulated Value	Expected mA Output	Actual mA Output		Display - Local / SCADA		Deviation
		As Found	As Left	As Found	As Left	
0% Span (0 cfs)	4.000	-	-	0.00	0.00	-
25% Span (0.625 cfs)	8.000	-	-	0.62	0.62	-
50% Span (1.25 cfs)	12.000	-	-	1.25	1.25	-
75% Span (1.875 cfs)	16.000	-	-	1.87	1.87	-
100% Span (2.5 cfs)	20.000	-	-	2.50	2.5	-

Comments:

**All deviations are between 'Expected mA Output' and 'Actual mA Output' (as measured with DMM in series).

This flowmeter communicates to the PLC via HART protocol, and therefore is not scaled from 4-20mA. Measurements were only able to be obtained from the local OIT. The scaling at the OIT matched the scaling at the transmitter.

Matt Boyer
Completed By:

4-Feb-19
Calibration Date:

CEC-1304 Schedule 3 Part A (page 1)
Annual Water Supply and Use, and Wastewater Discharge Report

Year	2019
CEC Plant ID	G1015
EIA Plant ID	57483

Section 1. Power Plant Water Supply

1a	Primary Water Supply Source	SW	1e	Backup Water Supply Source	NA
1b	Name of Primary Water Purveyor, Wastewater Supplier, or Well	NA	1f	Name of Backup Water Purveyor, Wastewater Supplier, or	NA
1c	Primary Water Supply Average Total Dissolved Solids (mg/l)	190	1g	Backup Water Supply Average Total Dissolved Solids (mg/l)	NA
1d	Regional Water Quality Control Board	Region 2			

Section 2. Power Plant Water Use

2a *Check this box if water use at the power plant is not metered and cannot reasonably estimated.*

2b *Check the boxes below if the categorized water use is not metered and cannot reasonably be estimated or is not applicable.*

Volume of Water Required (in gallons)	Sanitation	Landscaping (No metering)	Dust Supression	Raw Water Supply Ac/Ft	Raw Water Supply Gallons	Sprint Water & NOx Water	Daily Maximum
January	NA	NA	NA	0.44	142,462	0	0
Febraury	NA	NA	NA	1.50	489,978	85,526	3,055
March	NA	NA	NA	0.76	248,388	11,564	373
April	NA	NA	NA	0.08	25,102	5,047	168
May	NA	NA	NA	0.54	175,714	183,010	5,904
June	NA	NA	NA	1.30	424,126	424,813	14,160
July	NA	NA	NA	2.37	770,664	702,670	22,667
August	NA	NA	NA	2.17	707,746	728,908	23,513
September	NA	NA	NA	1.81	589,408	546,003	18,200
October	NA	NA	NA	0.88	288,162	348,161	11,231
November	NA	NA	NA	2.22	722,090	630,425	21,014
December	NA	NA	NA	1.17	379,730	538,605	17,374

2c	Metering Frequency	Instantaneous	Metering Technology	Flowmeters

Section 3. Power Plant Wastewater Disposal

3a *Check box if wastewater is not metered and cannot reasonably estimated.*

3b	Wastewater Disposal Method	NA
3c	Average Total Dissolved Solids (mg/l)	NA
3d	Equipment Manufacturer	NA
3e	Year of Installation	NA
3f	Waste Reduction Equipment or Measures Taken	NA
3g	Name of the Facility or Water Body Receiving the Wastewater	NA
3h	**Notes:** No wastewater is disposed of from the facility. The water captured from the oily waste water sump is re-introduced back into the water system and used as in-process water.	

3i

Volume of Discharged Waste (in gallons)	Daily Maximum	Monthly Total
January	NA	NA
Febraury	NA	NA
March	NA	NA
April	NA	NA
May	NA	NA
June	NA	NA
July	NA	NA
August	NA	NA
September	NA	NA
October	NA	NA
November	NA	NA
December	NA	NA

Exhibit 6
Right-of-Way, TLSN-3

January 10, 2020

Mariposa Energy, LLC (09-AFC-3C) did not have any fire prevention activities carried out along the right-of-way during the 2019 calendar year (January 01 - December 31).

"During the first 5 years of plant operation, MEP shall provide a summary of inspection results and "if applicable" any fire prevention activities carried out along the right-of-way in the exhibit."

Wayne Forsyth

Wayne Forsyth
Program Manager – EHS & Regulatory
Mariposa Energy, LLC
633 West Fifth Street, Suite 2700
Los Angeles, CA 90071
(213) 473-0093
w.forsyth@dgc-us.com

Mariposa Energy, LLC

TRANSMISSION LINE RIGHT-OF-WAY INSPECTION
Quarterly Inspection

Technician performing the inspection: Name: Dan Colburn
Date: 1-8-19

Onsite transmission:

Are there any signs of vegetation grown within the 230KV yard: Yes ___ No K
if yes, list location and corrective action taken: _____

Are there any signs of vegetation grown under or near the 230KV lines between the plant and the PG&E yard:
Yes ___ No ___
if yes, list location and corrective action taken: _____

Reviewed By: _____
Plant Manager

Mariposa Energy, LLC

TRANSMISSION LINE RIGHT-OF-WAY INSPECTION
Quarterly Inspection

Technician performing the inspection: Name: Randy Gardner
Date: 7/16/2019

Onsite transmission:

Are there any signs of vegetation grown within the 230KV yard: Yes ___ No X
if yes, list location and corrective action taken: _____

Are there any signs of vegetation grown under or near the 230KV lines between the plant and the PG&E yard:
Yes ___ No x
if yes, list location and corrective action taken: _____

DGC Operations, LLC, its agent
Kevin Kohigle
Plant Manager

Reviewed By: _____
Plant Manager

Mariposa Energy, LLC

TRANSMISSION LINE RIGHT-OF-WAY INSPECTION
Quarterly Inspection

Technician performing the inspection: Name: Randy Gardner
Date: 11-12-19

Onsite transmission:

Are there any signs of vegetation grown within the 230KV yard: Yes ___ No X
if yes, list location and corrective action taken: _____

Are there any signs of vegetation grown under or near the 230KV lines between the plant and the PG&E yard: Yes ___ No X
if yes, list location and corrective action taken: _____

Brian Burke 11/13/19

Reviewed By: _____
Plant Manager

Mariposa Energy, LLC

TRANSMISSION LINE RIGHT-OF-WAY INSPECTION
Quarterly Inspection

Technician performing the inspection: Name: Dan Colburn
Date: 1-8-19

Onsite transmission:

Are there any signs of vegetation grown within the 230KV yard: Yes ___ No K
if yes, list location and corrective action taken: _____

Are there any signs of vegetation grown under or near the 230KV lines between the plant and the PG&E yard:
Yes ___ No ___
if yes, list location and corrective action taken: _____

Reviewed By: _____
Plant Manager

Mariposa Energy, LLC

TRANSMISSION LINE RIGHT-OF-WAY INSPECTION
Quarterly Inspection

Technician performing the inspection: Name: Randy Gardner
Date: 7/16/2019

Onsite transmission:

Are there any signs of vegetation grown within the 230KV yard: Yes ___ No X
if yes, list location and corrective action taken: _____

Are there any signs of vegetation grown under or near the 230KV lines between the plant and the PG&E yard:
Yes ___ No x
if yes, list location and corrective action taken: _____

DGC Operations, LLC, its agent
Kevin Kyhgle
Plant Manager

Reviewed By: _____
Plant Manager

Mariposa Energy, LLC

TRANSMISSION LINE RIGHT-OF-WAY INSPECTION
Quarterly Inspection

Technician performing the inspection: Name: Randy Gardner
Date: 11-12-19

Onsite transmission:

Are there any signs of vegetation grown within the 230KV yard: Yes ___ No X
if yes, list location and corrective action taken: _____

Are there any signs of vegetation grown under or near the 230KV lines between the plant and the PG&E yard: Yes ___ No X
if yes, list location and corrective action taken: _____

Burke 11/13/19

Reviewed By: _____
Plant Manager

Exhibit 7
Surface Treatment Report, VIS-1

January 10, 2020

Mariposa Energy, LLC (09-AFC-3C) did not have any major surface treatment activities that occurred during the 2019 calendar year (January 01 - December 31).

Wayne Forsyth

Wayne Forsyth
Program Manager – EHS & Regulatory
Mariposa Energy, LLC
633 West Fifth Street, Suite 2700
Los Angeles, CA 90071
(213) 473-0093
w.forsyth@dgc-us.com

Exhibit 8
Waste Management Plan, WASTE-6

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
CAL000361636	1	800-575-1056-5897	03082019ACL-1

GENERATOR

5. Generator's Name and Mailing Address
MARIPOSA ENERGY PROJECT
4887 BURNS ROAD
BYRON, CA 94514 USA
Generator's Phone: 209-833-3878-5220

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: DILLARD ENVIRONMENTAL SERVICES #1715
U.S. EPA ID Number: CAD982523433

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
POTRERO HILLS LANDFILL
3675 POTRERO HILLS LANE
SUISUN, CA 94585 USA
Facility's Phone: ~~707-425-5013-7557~~
U.S. EPA ID Number: CAR000089466

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	NON HAZARDOUS WASTE LIQUID (RAW WATER SUPPLY WITH CANAL SILT)	001	TT	2400	G	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
APPROVAL# PHLF-16-442

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: DAVID RAMON
Signature
Month: 3 Day: 11 Year: 19

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: DONALD A ROUSE
Signature
Month: 03 Day: 11 Year: 19

Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month Day Year

RECEIVED
MAR 1 1 2019
By

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name
Signature
Month Day Year: 3/11/19

169-BLC-O 6 10498 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

maripOSa 4147001 - 84

Please print or type. Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
CAL000351636	1	800-675-1066-5057	020045470 JJK

GENERATOR

5. Generator's Name and Mailing Address
MARIPOSA ENERGY PROJECT
4887 BURNS ROAD
BYRON, CA 94514 USA
Generator's Phone: 209-833-3878-5220

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: DILLARD ENVIRONMENTAL SERVICES #1715
U.S. EPA ID Number: CAD982523133

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
US ECOLOGY NEVADA
Highway 95 11 Miles S of Beatty
Beatty, NV 89003 USA
Facility's Phone: 775-553-2203
U.S. EPA ID Number: NVT330010000

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	1. NON RCRA HAZARDOUS WASTE LIQUID (WASTE OIL)	1	DM	50	G	223		
	2. NON RCRA HAZARDOUS WASTE SOLID (SPENT OIL FILTERS)	1	DM	200	P	352		
	3. NON RCRA HAZARDOUS WASTE SOLID (OILY DEBRIS)	~~1~~ 1	DM	100	P	352		
	4. NON RCRA HAZARDOUS WASTE SOLID (SOIL CONTAMINATED WITH OIL)	1	DM	100	P	352		

14. Special Handling Instructions and Additional Information
DES JOB #4147-001
Please Wear Appropriate PPE
9 a 1 PF#070131570 7602
9 a 2 PF#070128300-7500
9a3 PF#070128300 25782
9 a 4 PF#070128300 9278
4X55 DM

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: D. Pidroon | Signature: [signature] | Month 4 Day 4 Year 19

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Trenton Martinez | Signature: [signature] | Month 4 Day 4 Year 19
Transporter 2 Printed/Typed Name | Signature | Month Day Year

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H039	H132	H132	H132

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Jessica Beck | Signature: [signature] | Month 4 Day 16 Year 19

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete. TRANSPORTER COPY

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	CAL000351636	1	800-575-1066-5897	11142018ACL-4

5. Generator's Name and Mailing Address
MARIPOSA ENERGY PROJECT
4887 BURNS ROAD
BYRON, CA 94514 USA
209-833-3878-5220
Generator's Phone:

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: DILLARD ENVIRONMENTAL SERVICES #1715 — U.S. EPA ID Number: CAD982523433

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address
POTRERO HILLS LANDFILL
3575 POTRERO HILLS LANE
SUISUN, CA 94585 USA
Facility's Phone: 707-426-5013-7557
U.S. EPA ID Number: CAR000089465

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	NON HAZARDOUS WASTE LIQUID (RAW WATER SUPPLY WITH CANAL SILT)	001	TT	1200	G	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
APPROVAL# PHLF-16-442 AMEND 3

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Dan BAVERY — Signature — Month 04 Day 18 Year 19

INTERNATIONAL

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: EDWARD A ROUSE — Signature — Month 04 Day 18 Year 19

Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Joe — Signature — Month 04 Day 18 Year 19

169-BLC-O 6 10498 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	N/A	1	562-806-0300	37604112019

5. Generator's Name and Mailing Address
Mariposa Energy, LLC
4887 Bruns Rd. Byron CA 94514
Generator's Phone:

Generator's Site Address (if different than mailing address)
Mariposa Energy, LLC
4887 Bruns Rd.
Byron, CA 94514

6. Transporter 1 Company Name: Carbon Supply Inc — U.S. EPA ID Number: Non Haz Transport

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address
Carbon Supply, Inc
1755 Hubbard Ave.
Batavia, IL 60510
Facility's Phone: — U.S. EPA ID Number: Non Haz Facility

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
	Non-Hazardous Solid Waste Spent Activated Carbon		BA	1	P	
2						
3						
4						

13. Special Handling Instructions and Additional Information

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Kevin Kingle — Signature — Month: 4 Day: 11 Year: 19

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Jesus Vargas — Signature — Month: 4 Day: 11 Year: 19

Transporter 2 Printed/Typed Name — Signature — Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Miguel Gonzalez — Signature — Month: 04 Day: 25 Year: 19

GENERATOR — INT'L — TRANSPORTER — DESIGNATED FACILITY

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number

GENERATOR

5. Generator's Name and Mailing Address

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name — U.S. EPA ID Number

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address — U.S. EPA ID Number

Facility's Phone:

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
	1.					
	2.					
	3.					
	4.					

13. Special Handling Instructions and Additional Information

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name — Signature — Month — Day — Year

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name — Signature — Month — Day — Year

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month — Day — Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name — Signature — Month — Day — Year

DTSC 03715 2180

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	CAL000031553	1	800-575-1035	015168368 JJK

GENERATOR

5. Generator's Name and Mailing Address
MARIPOSA ENERGY PROJECT
4837 BRUNS ROAD
BYRON, CA 94514 USA
Generator's Phone: 888-833-3878-3897

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name
DILLARD ENVIRONMENTAL SERVICES
U.S. EPA ID Number
CAD982624488

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
US ECOLOGY CORPORATION
HIGHWAY 95 - 12 MILES SOUTH OF BEATTY
BEATTY, NV 89003 USA
Facility's Phone: 800-239-3843
U.S. EPA ID Number
NVT330010000

9a. HM	9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	1. Non RCRA Hazardous Waste Solid (soil contaminated with oil)	1	DM	40	P	332		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
DES JOB # 4147-001
1.) - soil contaminted with Mobil Jet Oil II 1X55 DM

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: DAVID DAMON
Signature:
Month: 4 Day: 19 Year: 16

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: KEN WILSON
Signature:
Month: 4 Day: 19 Year: 16

Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Tabitha Mood
Signature:
Month: 04 Day: 27 Year: 16

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR STATE (IF REQUIRED)

7/7

Please print or type. Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: CAL000361636
2. Page 1 of 1
3. Emergency Response Phone: 800-675-1066-5837
4. Manifest Tracking Number: 013331260 FLE

5. Generator's Name and Mailing Address
MARIPOSA ENERGY PROJECT
4887 BURNS ROAD
BYRON, CA 94514 USA
Generator's Phone: 209-835-8876-5230

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: DILLARD ENVIRONMENTAL SERVICES #1715 — U.S. EPA ID Number: CAD982523430

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address — U.S. EPA ID Number: NVT330010000
US ECOLOGY - NEVADA
Highway 95, 11 Miles S of Beatty
Beatty, NV 89003 USA
Facility's Phone: 775-553-2203

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
	1. NON RCRA HAZARDOUS WASTE LIQUID (OILY WATER)	1	TT	~~3000~~ 2700	G	221	223
	2.						
	3.						
	4.						

14. Special Handling Instructions and Additional Information
DES JOB #4147-002 Please Wear Appropriate PPE
9 a 1 PP#070254695-0

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Dan BAVERY — Signature: [signature] — Month 4 Day 24 Year 19

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: J Fowler — Signature: [signature] — Month 4 Day 24 Year 19
Transporter 2 Printed/Typed Name — Signature — Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H039 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Kenny Hammond — Signature: [signature] — Month 4 Day 26 Year 19

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete. TRANSPORTER COPY

Please print or type. 7/7

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of 1	3. Emergency Response Phone	4. Manifest Tracking Number
			01331260 FLE

GENERATOR

5. Generator's Name and Mailing Address

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name — U.S. EPA ID Number

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address — U.S. EPA ID Number

Facility's Phone:

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	1.	1		3500				
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Dan DAVEY — Signature — Month 1 — Day 24 — Year 19

INTL

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: J. Fowler — Signature — Month 1 — Day 24 — Year 19

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☒ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month — Day — Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H039			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name — Signature — Month 1 — Day 26 — Year 19

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

BYRON CA DISCOVERY BAY
3345 BIXLER RD
DISCOVERY BAY
CA
94505-2231
0510800291
05/08/2019 (800)275-8777 12:53 PM

Product Description	Sale Qty	Final Price
First-Class Mail Letter (Domestic) (SACRAMENTO, CA 95812) (Weight:0 Lb 0.40 Oz) (Estimated Delivery Date) (Friday 05/10/2019)	1	$0.55
Certified (@@USPS Certified Mail #) (70160910000103626594)	1	$3.50
Return Receipt (@@USPS Return Receipt #) (9590940100475168301174)	1	$2.80
Total		$6.85
Credit Card Remitd (Card Name:MasterCard) (Account #:XXXXXXXXXXXX1281) (Approval #:082929) (Transaction #:402) (AID:A0000000041010 (AL:MASTERCARD) (PIN:Not Required)		$6.85 Chip)

Text your tracking number to 28777 (2USPS) to get the latest status. Standard Message and Data rates may apply. You may also visit www.usps.com USPS Tracking or call 1-800-222-1811.

5/1 Called DTSC to ask if recd. Was informed that they are backlogged and can't verify but was told "it's probably here".

Please print or type. Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	CAL000361635	1	800-676-1065-5597	021025001 JJK

GENERATOR

5. Generator's Name and Mailing Address
MARIPOSA ENERGY PROJECT
4387 BURNS ROAD
BYRON, CA 94514 USA
Generator's Phone: 209-853-3878-5220

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: DILLARD ENVIRONMENTAL SERVICES #1715
U.S. EPA ID Number: CAD982523453

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
US ECOLOGY - NEVADA
Highway 95, 11 Miles S of Beatty
Beatty, NV 89003 USA
Facility's Phone: 775-553-2203
U.S. EPA ID Number: NVT330010000

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON RCRA HAZARDOUS WASTE LIQUID (WASTE OIL)	1	DM	55	G	223
	2. NON RCRA HAZARDOUS WASTE SOLID (SPENT OIL FILTERS)	1	DM	150	P	352
	3. ~~NON RCRA HAZARDOUS WASTE SOLID (Oil Debris)~~ NRD	~~1~~	~~DM~~		~~G~~	~~223~~
	4. ~~NON RCRA HAZARDOUS WASTE SOLID (Soil CONTAMINATED WITH OIL)~~ NRP	~~1~~	~~DM~~		~~P~~	~~352~~

14. Special Handling Instructions and Additional Information
DES JOB # 4147-001 Please Wear Appropiate PPE
9a1 PF#070131570-7602 9a2 PF#070128300-7500
9a3 PF#070128300-2576 9a4 PF#070128300-9278
1 x 55 DM
1 x 55 DM

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: DAVID DAMON
Signature:
Month: 9 Day: 10 Year: 19

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Trenton Martinez
Signature:
Month: 9 Day: 10 Year: 19

Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H020	H132		

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Jessica Reid
Signature:
Month: 9 Day: 17 Year: 19

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
[illegible]	1	[illegible]	021025002 JJK

GENERATOR

5. Generator's Name and Mailing Address

[illegible]
[illegible]
[illegible]
Generator's Phone: [illegible]

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name — U.S. EPA ID Number

[illegible]

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address — U.S. EPA ID Number

[illegible]
[illegible]
[illegible]
Facility's Phone: [illegible]

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. [illegible]	1	DF	10		[illegible]	[illegible]	
X	2. [illegible]	1	DF	5		[illegible]	[illegible]	
	3.							
	4.							

14. Special Handling Instructions and Additional Information

[illegible] 1X5 DF [illegible] 1X5 DF

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: [illegible] — Signature: [illegible] — Month: 9 — Day: 10 — Year: 19

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Ventura Martinez — Signature: [illegible] — Month: 9 — Day: 10 — Year: 19

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month — Day — Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H141	H132		

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Jessica Daniel — Signature: [illegible] — Month: 9 — Day: 17 — Year: 19

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
CAL000361636	1	800-675-1066-5897	10112019ACL-51

GENERATOR

5. Generator's Name and Mailing Address
MARIPOSA ENERGY PROJECT
4687 BURNS ROAD
BYRON, CA 94514 USA
Generator's Phone: 209-833-3878-5220

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: DILLARD ENVIRONMENTAL SERVICES #1715
U.S. EPA ID Number: CAD982523433

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
POTRERO HILLS LANDFILL
3675 POTRERO HILLS LANE
SUISUN, CA 94585 USA
Facility's Phone: 707-426-5013-7557
U.S. EPA ID Number: CAR000089465

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1	NON HAZARDOUS WASTE LIQUID (RAW WATER SUPPLY WITH CANAL SILT)	1	TT	2,800	G	
2.						
3						
4.						

13. Special Handling Instructions and Additional Information
APPROVAL # PHLF-16-442

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: DON BAILEY
Signature
Month: 10 Day: 14 Year: 19

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Johnny Bandy
Signature
Month: 10 Day: 14 Year: 19

Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month Day Year

RECEIVED
By

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name
Signature
Month: 10 Day: 14 Year:

169-BLC-O 5 11977 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	1		

GENERATOR

5. Generator's Name and Mailing Address

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name — U.S. EPA ID Number

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address — U.S. EPA ID Number

Facility's Phone:

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.						
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable International and national governmental regulations.

Generator's/Offeror's Printed/Typed Name — Signature — Month — Day — Year

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name — Signature — Month — Day — Year

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month — Day — Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name — Signature — Month — Day — Year

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
[illegible]00361635	1	209-833-3678-5597	11272019ACL1

5. Generator's Name and Mailing Address
Mariposa Energy Project (Byron)
4887 Bruns Road
Byron CA 94514 USA
Generator's Phone: 209-833-3678-5597

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name
DILLARD ENVIRONMENTAL SERVICES #1715
U.S. EPA ID Number: CAD982023434

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
AERC RECYCLING SOLUTIONS
1475 Crocker Avenue
Hayward, CA 94544 USA
Facility's Phone: 510-429-1129-7557
U.S. EPA ID Number: CAD982411993

9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1. UN3028, Batteries, Dry, Containing Pottasium Hydroxide, 8, PG III (universal waste)	1	DF	115	P
2.				
3.				
4.				

13. Special Handling Instructions and Additional Information
DES JOB# 8147-001

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: [illegible] Davison
Signature: [signature]
Month/Day/Year: 11 / 27 / 19

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Trenton Martinez
Signature: [signature]
Month/Day/Year: 11 / 27 / 19

Transporter 2 Printed/Typed Name
Signature
Month Day Year

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: Edgar A
Signature: [signature]
Month/Day/Year: 11 / 27 / 19

GENERATOR — INT'L — TRANSPORTER — DESIGNATED FACILITY

REVISED

Please print or type. Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	CAL000361536	1	209-833-3878-5897	021025148 JJK

GENERATOR

5. Generator's Name and Mailing Address
Mariposa Energy Project (Byron)
4887 Bruns Road
Byron, CA 94514 USA
Generator's Phone: 209-833-3878-5897

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: DILLARD ENVIRONMENTAL SERVICES #1715
U.S. EPA ID Number: CAD982523433

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
US ECOLOGY - NEVADA
Highway 95, 11 Miles S of Beatty
Beatty, NV 89003 USA
Facility's Phone: ~~775-553-2203~~
U.S. EPA ID Number: NVT330010000

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. RQ, HAZARDOUS WASTE SOLID, N.O.S. (LEAD ACETATE TAPE)	1	DF	5	P	D008	352	
	2. NON RCRA HAZARDOUS WASTE SOLID (OILY DEBRIS)	1	DM	80	P	352		
	3.							
	4.							

14. Special Handling Instructions and Additional Information
DES JOB#4147-001
PF# 070128301-2191
p# 070128300-6457

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: D. DAMON — Signature — Month 11 Day 21 Year 19

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: TERRY CLARK — Signature — Month 11 Day 21 Year
Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
1) DOT does not match TSDF records. 12/26/19 gw
Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132	H132		

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Breanna Thompson — Signature — Month 12 Day 2 Year 19

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete. DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
CAL000361036	1	209-833-3878-5897	021025148 JJK

GENERATOR

5. Generator's Name and Mailing Address
Mariposa Energy Project (Byron)
4687 Bruns Road
Byron, CA 94514 USA
Generator's Phone: 209 833-3878-5897

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: DILLARD ENVIRONMENTAL SERVICES #1713
U.S. EPA ID Number: CAD982523433

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
US ECOLOGY - NEVADA
Highway 95, 11 Miles S of Beatty
Beatty NV 89003 USA
Facility's Phone: 775-553-2203
U.S. EPA ID Number: NVT330010000

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. RQ, HAZARDOUS WASTE SOLID, N.O.S. (LEAD ACETATE TAPE)	1	DF	5	P	D008	352	
	2. NON RCRA HAZARDOUS WASTE SOLID (OILY DEBRIS)	1	DM	80	P	352		
	3.							
	4.							

14. Special Handling Instructions and Additional Information
DES JOB# 4147-001
PF# 0701283012171
PM# 0701283001457

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: D DAMON — Signature — Month 11 Day 21 Year 19

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: TERRY CLARK — Signature — Month 11 Day 21 Year 19

Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132	H132		

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Melanna Thompson — Signature — Month 12 Day 2 Year 19

Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Please print or type. Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
CALC00361635	1	805-675-1056-9797	020045470 JJK

5. Generator's Name and Mailing Address
MARIPOSA ENERGY PROJECT
4887 BURNS ROAD
BYRON, CA 94514 USA
Generator's Phone: 209 835-5878-6220

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: DILLARD ENVIRONMENTAL SERVICES #7 [illegible] — U.S. EPA ID Number: CAD[illegible]

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address
US ECOLOGY - NEVADA
Highway 95, 11 Miles S of Beatty
Beatty, NV 89003 USA
Facility's Phone: 775-553-2203
U.S. EPA ID Number: NVT330010000

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON RCRA HAZARDOUS WASTE LIQUID (WASTE OIL)	1	DM	30	G	223
	2. NON RCRA HAZARDOUS WASTE SOLID (SPENT OIL FILTERS)	1	DM	200	P	352
	3. NON RCRA HAZARDOUS WASTE SOLID (OILY DEBRIS)	~~2~~ 1	DM	100	P	352
	4. NON RCRA HAZARDOUS WASTE SOLID (SOIL CONTAMINATED WITH OIL)	1	DM	100	P	352

14. Special Handling Instructions and Additional Information
DES JOB #4147-001 Please Wear Appropriate PPE
9.a.1 PF#070131570-7002 9.a.2 PF#070128500-7300
9a3 PF#070128700-25702 9.a.4 PF#070128330-3273
4 x 55 DM

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: D. Damow Signature: [signature] Month 4 Day 4 Year 19

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Keiton Martinez Signature: [signature] Month 4 Day 4 Year 19
Transporter 2 Printed/Typed Name Signature Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H039	H132	H132	H132

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Jessica Reich Signature: [signature] Month 4 Day 16 Year 19

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete. **DESIGNATED FACILITY TO GENERATOR**

Exhibit 9
WEAP Training Sign-In Sheets

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, Andrew Shoot, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: Telstar

Type of Work: Electrical

On Site Foreman/Supervisor: Dan Colombo

Emergency Contact Name & Number: Telstar Office 925 671-2888

Andrew Shoot — 1-11-19

Contractor Acknowledgement Signature — Date

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

— 1/11/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, Tom Finch, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: Nor – Cal Controls ES, INC

Type of Work: Controls

On Site Foreman/Supervisor: _____

Emergency Contact Name & Number: _____

Tom Finch  01/14/2019

Contractor Acknowledgement Signature Date

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

Robert Robancho  01/14/2019

MEP Plant Representative Signature Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, Jess Washington, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: Trimark Assoc

Type of Work: Welding / Rig Support

On Site Foreman/Supervisor: Jess Washington

Emergency Contact Name & Number: Bob Wood 916-792-5185

Jess Washington 1/14/19

Contractor Acknowledgement Signature Date

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

1/14/19

MEP Plant Representative Signature Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, Donald Weingartner, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: Trimark Assoc.

Type of Work: Metering / RLG Support

On Site Foreman/Supervisor: Jess

Emergency Contact Name & Number: ~~Jess~~ Bob Wood ~~916-~~ 916-792 5179

Contractor Acknowledgement Signature — Date: 1/14/19

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

MEP Plant Representative Signature — Date: 1/14/19

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, Alfonso Resendez, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: Johnson Control's FP

Type of Work: Fire Inspectors

On Site Foreman/Supervisor: Brian Spears

Emergency Contact Name & Number: Tami Resendez 510-560-1520

Contractor Acknowledgement Signature — Date: 1/18/19

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

MEP Plant Representative Signature — Date: 1/18/19

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, Adam Ashlin, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: Blue Sky Environmental Inc.

Type of Work: CEMS testing and service

On Site Foreman/Supervisor: Adam Ashlin

Emergency Contact Name & Number: Katina Ashlin 608-474-1062

Contractor Acknowledgement Signature — Date: 1-29-19

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

MEP Plant Representative Signature — Date: 01/29/19

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

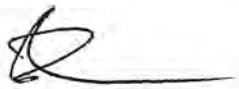
I, Brian Moore, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: American Chiller Services

Type of Work: Chiller Service

On Site Foreman/Supervisor: Dan Columbo

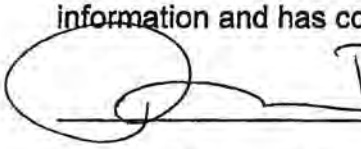
Emergency Contact Name & Number: Holly Moore 209-605-3638



1-30-2019

Contractor Acknowledgement Signature — Date

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:



1/30/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, JOSE DE JESUS CRUZ, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: UNITED SEPTIC SERVICES

Type of Work: PUMP SEPTIC

On Site Foreman/Supervisor: JOSE CRUZ

Emergency Contact Name & Number: JOSE CRUZ (925) 509-7429

JESUS CRUZ — 1/30/19

Contractor Acknowledgement Signature — Date

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

[signature] PP — 01/30/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, Sherry Crommie, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: tgs Backflow Service

Type of Work: Backflow testing

On Site Foreman/Supervisor: Sherry Crommie 0356

Emergency Contact Name & Number: Mike Crome (925) 783-[illegible]

Contractor Acknowledgement Signature — Date: 1-31-19

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

MEP Plant Representative Signature — Date: 01/31/19

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, Dan Neely, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: United Rentals

Type of Work: Boom Certification

On Site Foreman/Supervisor: David

Emergency Contact Name & Number: 916-919-6758

Dan 1-31-19

Contractor Acknowledgement Signature Date

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

01/31/19

MEP Plant Representative Signature Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, Jaime Rios, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: Montrose

Type of Work: Source Test

On Site Foreman/Supervisor: Neal

Emergency Contact Name & Number: Dolores Rios 925 206-1076

2-4-19

Contractor Acknowledgement Signature — Date

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

2/4/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, Kevin Sandoval, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: Montrose

Type of Work: Sourse testing

On Site Foreman/Supervisor: Neal

Emergency Contact Name & Number: 714 378-8510 Christie Lowe

2-4-19

Contractor Acknowledgement Signature — Date

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

2/4/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, WILLIAM BRYANT, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: MONTROSE

Type of Work: SOURCE TESTING

On Site Foreman/Supervisor: NEAL OHLENDORF

Emergency Contact Name & Number: MISTY BRYANT (714) 335-5205

Contractor Acknowledgement Signature — Date: 2.4.19

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

MEP Plant Representative Signature — Date: 2/4/19

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, Madison Koch, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: Montrose

Type of Work: Source Test - RATA

On Site Foreman/Supervisor: Neal Ohlendorf

Emergency Contact Name & Number: Linda Koch 808.223.4397 ~~808.220.3647~~

[signature] 2/4/19

Contractor Acknowledgement Signature Date

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

[signature] 2-4-19

MEP Plant Representative Signature Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, NEAL OHLENDORF, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: MONTROSE ENV.

Type of Work: E SOURCE TEST

On Site Foreman/Supervisor: on duty operator

Emergency Contact Name & Number: ERIN OHLENDORF (916) 207-3746

Contractor Acknowledgement Signature — Date: 2-4-19

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

MEP Plant Representative Signature — Date: 2/4/19

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, Russell Rapp, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: Suez

Type of Work: DM Trailer hookup

On Site Foreman/Supervisor: ON Site operator

Emergency Contact Name & Number: Sarah Rapp 618-520-3690

Russell Rapp 2-6-19

Contractor Acknowledgement Signature Date

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

[signature] 2/6/19

MEP Plant Representative Signature Date

DGC Operations, LLC		*Contractor Safety Training Acknowledgement*	
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, LOUIE LARES, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: LEGACY Mechanical & ENERGY SERVICES

Type of Work: HVAC, Filter change / Inspection / cleaning

On Site Foreman/Supervisor: LOUIE LARES

Emergency Contact Name & Number: Jennifer Lares (209)612-3826

[signature] 02/11/19

Contractor Acknowledgement Signature — Date

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

[signature] 2/11/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, THOMAS VOTTA, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: Killroy Pest Control

Type of Work: WEED Control & Pest Control

On Site Foreman/Supervisor: DAVID

Emergency Contact Name & Number: Killroy Pest Control
408 378 0441, ASK Cody

Contractor Acknowledgement Signature — Date: 2/11/19

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

MEP Plant Representative Signature — Date: 2/11/19

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, Ted Freitas, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: Bay Valve

Type of Work: Valve Repair

On Site Foreman/Supervisor: Ted Freitas

Emergency Contact Name & Number: Amber 925-383-3112

2-11-19

Contractor Acknowledgement Signature — Date

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

2/11/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, David Tropp, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: Alpha Analytical Laboratories

Type of Work: Water Sampling / Analysis

On Site Foreman/Supervisor: David Tropp

Emergency Contact Name & Number: David Pingatore 415-828-6226

Contractor Acknowledgement Signature — Date: 2/11/19

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

MEP Plant Representative Signature — Date: 2/11/19

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 08/30/17**	**Contractor Safety**	**2403.01-MEP-TOL**

I, BRAD BARNETT, have read and understand the Mariposa Energy Project Contractor Orientation. I agree to follow all applicable rules, policies, and procedures. In addition, I acknowledge that I am obligated to follow applicable Cal/OSHA requirements and to conduct all work in a safe manner.

CONTRACTOR/COMPANY: HACH

Type of Work: PM Service

On Site Foreman/Supervisor: BRAD BARNETT

Emergency Contact Name & Number: 209-612-6135

Contractor Acknowledgement Signature — Date: 2-25-19

Individual has received all DGC Operations, LLC Safety, Health, and Wellness information and has completed Contractor Orientation:

MEP Plant Representative Signature — Date: 2/25/19

DGC Operations, LLC		**Contractor Safety Training Acknowledgement**	
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: Field Coats

Type of Work: HPC Work

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
L. Ron Brown	
James Ramirez	
Matt Wilson	
Travis Coats	

On Site Foreman

PRINT NAME	SIGNATURE
L. Ron Brown	

Foreman Cell Number/Company Emergency Contact:

661 331 7325

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

MEP Plant Representative Signature

3/4/19

Date

DGC Operations, LLC		**Contractor Safety Training Acknowledgement**	
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: DC Payne

Type of Work: Eletrical

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Emilio Zepeda	

On Site Foreman

PRINT NAME	SIGNATURE
CHRIS BRUCE	

Foreman Cell Number/Company Emergency Contact:

209 712 8136

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

MEP Plant Representative Signature

3/4/19

Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: ALPINE CONTROLS INC

Type of Work: CALIBRATION OF INSTRUMENTATION

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
STEVE RABINOWITZ	
RONNY MONTOYA	

On Site Foreman

PRINT NAME	SIGNATURE
STEVE RABINOWITZ	

Foreman Cell Number/Company Emergency Contact:

925-683-2760

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

MEP Plant Representative Signature — Date: 3/4/19

DGC Operations, LLC		**Contractor Safety Training Acknowledgement**	
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: APS

Type of Work: ELECTRICAL

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
BRUCE SMITH	

On Site Foreman

PRINT NAME	SIGNATURE
MATT JONES	

Foreman Cell Number/Company Emergency Contact:

925 - 795 - 6583

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

MEP Plant Representative Signature

3/7/19

Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: JCI / & Simplex Grinnell

Type of Work: Fire testing

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Miguel Carrillo	
Steven Ramos Jr.	
Javier Lara	
Abel Mendez	
David Sanchez	

On Site Foreman

PRINT NAME	SIGNATURE
Miguel Carrillo	

Foreman Cell Number/Company Emergency Contact:

Miguel Carrillo 925-724-7240

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

MEP Plant Representative Signature

3/4/19

Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: M Jm

Type of Work: welding

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
MARIO MANSON Robert Calderon	

On Site Foreman

PRINT NAME	SIGNATURE
Robert Calderon	

Foreman Cell Number/Company Emergency Contact:

(209) 954-2200

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

WAYNE FORSYTH 03-05-19

MEP Plant Representative Signature Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: DUCATED

Type of Work: PMP HAZWASTE

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Ed Rouse	

On Site Foreman

PRINT NAME	SIGNATURE
Ed Rouse	

Foreman Cell Number/Company Emergency Contact:

209 830 1404 x 303

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

MEP Plant Representative Signature

03.11.19

Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: MEP

Type of Work: IC+E

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Randy Gardner	Randy Gardner

On Site Foreman

PRINT NAME	SIGNATURE

Foreman Cell Number/Company Emergency Contact:

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

Isabel Gardner 209 277 3516 3/18/19

MEP Plant Representative Signature Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: American Chiller Service

Type of Work: HVAC

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Fernando Sandana	Fernando Sandana

On Site Foreman

PRINT NAME	SIGNATURE
Brian Moore	

Foreman Cell Number/Company Emergency Contact:

209) 222-0912

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

D. Lee — 3.26.19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: LUIS HERNANDEZ / ACS

Type of Work: CHILLER MAINTENANCE & REPAIRS

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
LUIS HERNANDEZ	

On Site Foreman

PRINT NAME	SIGNATURE
Luis Hernandez	

Foreman Cell Number/Company Emergency Contact:

(209) 649-6161 (RUDY)

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

MEP Plant Representative Signature

3/29/19

Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: GE

Type of Work: BSI

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
MIKE Campbell	
Dennis Golder	

On Site Foreman

PRINT NAME	SIGNATURE

Foreman Cell Number/Company Emergency Contact:

Mike Campbell 901-806-7413

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

WAYNE FORSYTH 4/1/19

MEP Plant Representative Signature Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: NJM

Type of Work: Welding

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Alvin Emerick	Alvin Emerick

On Site Foreman

PRINT NAME	SIGNATURE
Alvin Emerick	Alvin Emerick

Foreman Cell Number/Company Emergency Contact:

(209) 470-6635

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

Robert Roland — 4/2/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: CSI

Type of Work: WATER PROCESSING FILTERING

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
JESUS VARGAS	
JUAN CIGAN	

On Site Foreman

PRINT NAME	SIGNATURE
Miguel CSI	

Foreman Cell Number/Company Emergency Contact:

5617 806 0300

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

Robert Robarchek — 4/11/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: Dillard

Type of Work: OWS cleaning

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Jim Fowler	
Trenton Martinez	
Kyle Nickelson	
Alek Ghioso	

On Site Foreman

PRINT NAME	SIGNATURE
Trenton Martinez	

Foreman Cell Number/Company Emergency Contact:

916-716-8686 Dillard

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

Martens — 4/22/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: Hmt

Type of Work: welding

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Michael Avila	

On Site Foreman

PRINT NAME	SIGNATURE
Brian Moore	

Foreman Cell Number/Company Emergency Contact:

209-222-0912 Brian ACS

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

4-23-19

MEP Plant Representative Signature Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: RESCA

Type of Work: ADD OIL TO XFMR

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
GUY AGUSTIN	

On Site Foreman

PRINT NAME	SIGNATURE
GUY AGUSTIN	

Foreman Cell Number/Company Emergency Contact:

707 3162288 / 707 421 9398

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

ROBERT ROBANCHO — 5/9/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: VALLEY ALPHA ELECTRIC

Type of Work: ELECTRICIAN

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
WAYNE RIO	W. R

On Site Foreman

PRINT NAME	SIGNATURE
WAYNE RIO	W. R

Foreman Cell Number/Company Emergency Contact:

BRYAN MOORE

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

DAS — 5/15/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: AUTOMATION GROUP

Type of Work: VALVE AUTOMATION INSTALL

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Jared Houghtelling	
Adam Rice	

On Site Foreman

PRINT NAME	SIGNATURE
BRIAN MOORE	

Foreman Cell Number/Company Emergency Contact:

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

MEP Plant Representative Signature

5/14/19

Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: Manny Green / Johnson Controls

Type of Work: CO2 system

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Manny Green	

On Site Foreman

PRINT NAME	SIGNATURE
Manny Green	

Foreman Cell Number/Company Emergency Contact:

925-724-8282 / Brian Spears

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

DAB — 5/21/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: Allied

Type of Work: IR Scan

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Andrew Condon	
Darren Hammeken	

On Site Foreman

PRINT NAME	SIGNATURE
~~Mike Levitt~~ Andrew Condon	

Foreman Cell Number/Company Emergency Contact:

Mike Levitt 209-649-3514

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

6/4/19

MEP Plant Representative Signature Date

DGC Operations, LLC	Contractor Safety Training Acknowledgement		
MARIPOSA ENERGY PROJECT			
Rev: 2	Date: 03/04/19	Contractor Safety	2403.01-MEP-TOL

CONTRACTOR/COMPANY: WEST COAST COMPRESSION

Type of Work: AIR COMPRESSORS

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Robert Batchelder	

On Site Foreman

PRINT NAME	SIGNATURE
N/A	N/A

Foreman Cell Number/Company Emergency Contact:

925-454-1640

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

MEP Plant Representative Signature — Date: 6-10-19

DGC Operations, LLC	Contractor Safety Training Acknowledgement		
MARIPOSA ENERGY PROJECT			
Rev: 2	Date: 03/04/19	Contractor Safety	2403.01-MEP-TOL

CONTRACTOR/COMPANY: iTeknique

Type of Work: Network

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Brian Clark	
Artem Chuhlakov	

On Site Foreman

PRINT NAME	SIGNATURE
Brian Clark	

Foreman Cell Number/Company Emergency Contact:

(925)825-8300 Alison Chin

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

6.26.19

MEP Plant Representative Signature — Date

DGC Operations, LLC	Contractor Safety Training Acknowledgement		
MARIPOSA ENERGY PROJECT			
Rev: 2	Date: 03/04/19	Contractor Safety	2403.01-MEP-TOL

CONTRACTOR/COMPANY: West Coast Compressor

Type of Work: Compressor

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Tim Ayubi	
Robert Bitchelder	

On Site Foreman

PRINT NAME	SIGNATURE
Tim Ayubi	

Foreman Cell Number/Company Emergency Contact:

209 914 7424

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

Robert J Robertson 7/1/19

MEP Plant Representative Signature Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: PGE

Type of Work: Performance

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
TERRENCE GOODELL	
Lauren Anderson	

On Site Foreman

PRINT NAME	SIGNATURE

Foreman Cell Number/Company Emergency Contact:

_____

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

Jaymes Martens — 7/26/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	Contractor Safety Training Acknowledgement		
MARIPOSA ENERGY PROJECT			
Rev: 2	Date: 03/04/19	Contractor Safety	2403.01-MEP-TOL

CONTRACTOR/COMPANY: Telstar instruments

Type of Work: Weather station replacement

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Ken Lang	

On Site Foreman

PRINT NAME	SIGNATURE

Foreman Cell Number/Company Emergency Contact:

Radio 925/671-2888

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

MEP Plant Representative Signature

7/26/19

Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: FireMaster

Type of Work: Annual Fire Extinguisher Service

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Alan Gravenkamp	

On Site Foreman

PRINT NAME	SIGNATURE
Alan Gravenkamp	

Foreman Cell Number/Company Emergency Contact:

(510) 813-7328 Alan Gravenkamp

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

MEP Plant Representative Signature — Date: 8/13/19

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: AMERICAN CRANE RENTAL

Type of Work: CRANE LIFT

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
JAMES Hudgins	

On Site Foreman

PRINT NAME	SIGNATURE
Same	Same

Foreman Cell Number/Company Emergency Contact:

209 918 8687

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

MEP Plant Representative Signature

08/14/19

Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: Valley Power Systems

Type of Work: DIESEL FIREPUMP MAINTENANCE

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Noah Jackman	

On Site Foreman

PRINT NAME	SIGNATURE
Noah Jackman	

Foreman Cell Number/Company Emergency Contact:

510-693-9973

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

DAB — 9/5/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	Contractor Safety Training Acknowledgement		
	MARIPOSA ENERGY PROJECT		
Rev: 2	Date: 03/04/19	Contractor Safety	2403.01-MEP-TOL

CONTRACTOR/COMPANY: United Site Services.

Type of Work: Service Septic Tanks.

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

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PRINT NAME	SIGNATURE
Joshua Cruz-Gutierrez	

On Site Foreman

PRINT NAME	SIGNATURE

Foreman Cell Number/Company Emergency Contact:

925 260-4011

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

Burke — 9.12.19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: USS

Type of Work: SEPTIC PUMPING

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Martin Cermeno	

On Site Foreman

PRINT NAME	SIGNATURE

Foreman Cell Number/Company Emergency Contact:

Liliana Perez (916)8219186

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

9.17.19

MEP Plant Representative Signature Date

DGC Operations, LLC	Contractor Safety Training Acknowledgement		
MARIPOSA ENERGY PROJECT			
Rev: 2	Date: 03/04/19	Contractor Safety	2403.01-MEP-TOL

CONTRACTOR/COMPANY: LEGACY

Type of Work: HVAC

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Feliciano Camarillo.	
Adam Cameron	

On Site Foreman

PRINT NAME	SIGNATURE

Foreman Cell Number/Company Emergency Contact:

925-336-1637 - Adam Cameron

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

9-19-19

MEP Plant Representative Signature — Date

DGC Operations, LLC	Contractor Safety Training Acknowledgement	
MARIPOSA ENERGY PROJECT		
Rev: 2 | Date: 03/04/19	Contractor Safety	2403.01-MEP-TOL

CONTRACTOR/COMPANY: David Ballaev / Suez Water

Type of Work: drop off

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
David Ballaev	

On Site Foreman

PRINT NAME	SIGNATURE
N/A	

Foreman Cell Number/Company Emergency Contact:

408-639-8668

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

MEP Plant Representative Signature

9/25/19

Date

DGC Operations, LLC	Contractor Safety Training Acknowledgement		
MARIPOSA ENERGY PROJECT			
Rev: 2	Date: 03/04/19	Contractor Safety	2403.01-MEP-TOL

CONTRACTOR/COMPANY: Unique Scaffold

Type of Work: Installing Scaffolding

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

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PRINT NAME	SIGNATURE
Ivan Castillo	
Jorge Mendoza	
Julio Acosta	
Oscar Gonzalez	
Miguel Solis	
Jeff Gamble	
Ramon Estrada	

On Site Foreman

PRINT NAME	SIGNATURE
Ivan Castillo	

Foreman Cell Number/Company Emergency Contact:

925 478 9409 / Ivan Acosta 707 567 7266

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

MEP Plant Representative Signature

9/30/19

Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: PMI

Type of Work: EXHAUST SCR / CLEANING

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Mara Ambaugh	
Brian McBride	

On Site Foreman

PRINT NAME	SIGNATURE

Foreman Cell Number/Company Emergency Contact:

Brian McBride 225 366-1368

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

10/14/19

MEP Plant Representative Signature Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: Ken Mar

Type of Work: BENTLEY NEVADA TESTING

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

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PRINT NAME	SIGNATURE
GRANT MEYER	Grant Myer

On Site Foreman

PRINT NAME	SIGNATURE
GRANT MEYER	Grant Myer

Foreman Cell Number/Company Emergency Contact:

775 721 0136

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

WAYNE FORSYTH 10/14/19

MEP Plant Representative Signature Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: Ethos

Type of Work: Compressors FG

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

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PRINT NAME	SIGNATURE
Brandon Greer	
Daniel Stinson	
Glen Jones	

On Site Foreman

PRINT NAME	SIGNATURE
Glen Jones	

Foreman Cell Number/Company Emergency Contact:

925-890-9205

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

WAYNE FORSYTH — 10/14/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: DC PAYNE

Type of Work: ELECTRICAL WORK (HANG GROUNDS)

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Chris Davis	
Emilio Zepeda	

On Site Foreman

PRINT NAME	SIGNATURE
CHRIS DAVIS	

Foreman Cell Number/Company Emergency Contact:

209-371-7940

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

WAYNE FORSYTH 10/14/19

MEP Plant Representative Signature Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: UNIQUE

Type of Work: ERECT SCAFFOLDING

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Miguel Alvarado	
Rigoberto Renteria	
Antonio Gonzalez	
JUAN PINACHIA	

On Site Foreman

PRINT NAME	SIGNATURE
Jon Castillo	

Foreman Cell Number/Company Emergency Contact:

925 4789404

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

WAYNE FORSYTH 10/14/19

MEP Plant Representative Signature Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: RESA

Type of Work: REPAIR AUX TRANSFORMER

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Tom Gill	
John Hughes	
Rick Hughes	Rick Hughes

On Site Foreman

PRINT NAME	SIGNATURE
TOM GILL	

Foreman Cell Number/Company Emergency Contact:

3304170501

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

WAYNE FORTH _____ 10/14/19

MEP Plant Representative Signature Date

DGC Operations, LLC		Contractor Safety Training Acknowledgement	
MARIPOSA ENERGY PROJECT			
Rev: 2	Date: 03/04/19	Contractor Safety	2403.01-MEP-TOL

CONTRACTOR/COMPANY: Unique Staffing

Type of Work: _____

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Baltazar Alvarez	

On Site Foreman

PRINT NAME	SIGNATURE
Juan Castillo	

Foreman Cell Number/Company Emergency Contact:

(925) 478-9409

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

_____ 10/10/19

MEP Plant Representative Signature Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: CONTRA COSTA ELECTRIC

Type of Work: INSULATOR WASHING

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
CHAD BEESON	
KEVIN HARTIG	

On Site Foreman

PRINT NAME	SIGNATURE
KEVIN HARTIG	

Foreman Cell Number/Company Emergency Contact:

(925) 766-4861 / (925) 766-4889

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

Robert Robarge — 10.17.19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: Universal Plant Service

Type of Work: Pump install

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
John Lennon	
Steven Souza	

On Site Foreman

PRINT NAME	SIGNATURE
John Lennon	

Foreman Cell Number/Company Emergency Contact:

707 373 3815

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

Roland Robanch — 10.16.19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: Resa Power Services

Type of Work: Testing XFMR

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Shane Carnine POR Virgil	

On Site Foreman

PRINT NAME	SIGNATURE
Shane Carnine	

Foreman Cell Number/Company Emergency Contact:

209-275 3288

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

Robert D Rubanche — 10.17.19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: JOHNSON CONTROLS

Type of Work: INSTRUMENTATION AND CONTROLS.

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
JOHNNY WEBB	

On Site Foreman

PRINT NAME	SIGNATURE
N/A	N/A

Foreman Cell Number/Company Emergency Contact:

RICK FRISH 925-290-5871

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

10-20-19

MEP Plant Representative Signature Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: HACH

Type of Work: SERVICE OF SS SAMPLER

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
DAVE STARKEY	

On Site Foreman

PRINT NAME	SIGNATURE
DAVE STARKEY	

Foreman Cell Number/Company Emergency Contact:

209-244-0891

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

P. BARRY — 10/28/15

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: Thompson TANK

Type of Work: TANK INSPECTION

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
Mike Yates	

On Site Foreman

PRINT NAME	SIGNATURE

Foreman Cell Number/Company Emergency Contact:

Josh Thompson 661-979-1436

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

D. BAVERY — 10/30/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: UNIQUE SCAFFOLD

Type of Work: _____

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
CATHY HAGLER	
WILFREDO CORDERO	

On Site Foreman

PRINT NAME	SIGNATURE

Foreman Cell Number/Company Emergency Contact:

7073866870

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

_____ 10-9-19

MEP Plant Representative Signature Date

DGC Operations, LLC		**Contractor Safety Training Acknowledgement**	
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: United Rentals

Type of Work: inspecting boom lift

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
John Silvia	John Silvia

On Site Foreman

PRINT NAME	SIGNATURE

Foreman Cell Number/Company Emergency Contact:

Jonessa Lopez +1 (209) 922-6098

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

FP. 10/31/19

MEP Plant Representative Signature Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: BAY VALVE

Type of Work: PSV TESTING

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
RICK MATA	Rick Mata
Joshua Muratalla	Joshua Muratalla

On Site Foreman

PRINT NAME	SIGNATURE
Rick Mata	Rick Mata

Foreman Cell Number/Company Emergency Contact:

707-373-3572

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

MEP Plant Representative Signature

11-5-19

Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: HUS BROS

Type of Work: AMMONIA DELIVERY

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
LEONARD KELSEY	

On Site Foreman

PRINT NAME	SIGNATURE

Foreman Cell Number/Company Emergency Contact:

MIKE AMODEO. 408-599-5044

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

TAB — 1/7/19

MEP Plant Representative Signature — Date

DGC Operations, LLC	**Contractor Safety Training Acknowledgement**		
MARIPOSA ENERGY PROJECT			
Rev: 2	**Date: 03/04/19**	**Contractor Safety**	**2403.01-MEP-TOL**

CONTRACTOR/COMPANY: FILED CORE

Type of Work: WATER MAPPING

I have read and understand the Mariposa Energy Project Contractor Onboarding Orientation. I agree to follow all applicable rules, policies, and procedures. Also, I acknowledge that I am required to follow all Mariposa safety requirements and to conduct all work in a safe manner at all times.

I also acknowledge my participation in the Worker Environmental Awareness Training (WEAP). I agree to comply with all Mariposa environmental requirements at all times.

PRINT NAME	SIGNATURE
MARTIN TROTTIER	
SCOTT PORTO	

On Site Foreman

PRINT NAME	SIGNATURE
SCOTT PORTO	

Foreman Cell Number/Company Emergency Contact:

661 205 0801

All individuals have received DGC OPS Safety, Health, and Wellness information and completed the Mariposa Contractor Onboarding Orientation:

MEP Plant Representative Signature — Date: 12/2/15

Exhibit 10
Monthly Safety Inspection Sheets

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

Month	January		Year	2019
Inspection Type	GENERAL ☒	TARGETED ☐	Area	

Note: For all items listed as "NOT OK", include reference number of Hazardous Condition / Corrective Action Item No. on (2504.02-MEP-TOL)

Category	Check List		Category	Check List	
A.) General Conditions	OK	NOT OK	**E.) Administrative**	OK	NOT OK
1. Passageways/ Surfaces	x		21. Lock out/Tag out	x	
2. Platforms/ Scaffolding	x		22. Signs/Posters	x	
3. Ladders	x		23. Safe Work Permits	x	
4. Stairs/ Exits	x		24. Confined Space Permits	x	
5. Housekeeping	x		25. SDS Book	x	
6. Road ways	x				
B.) Facilities	OK	NOT OK	**F.) Emergencies**	OK	NOT OK
7. Lighting	x		26. Communication	x	
8. Noise	x		27. Emergency Response Plan	x	
9. Sanitation	x		28. Eye Wash & Showers	x	
10. Ventilation	x		29. First Aid Kits	x	
			30. Fire Extinguishers/Equip.		x
C.) Materials	OK	NOT OK	**G.) Protective Equipment**	OK	NOT OK
11. Stacking & Storage	x		31. Safety Harnesses	x	
12. Chemicals & Fuels	x		32. Eye Protection	x	
13. Compressed Gases	x		33. Hearing Protection	x	
14. Hazardous Waste	x		34. Respirator Protection	x	
15. Hazardous Materials Container Labeling	x		35. Head Protection	x	
			36. Protective Clothing	x	

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

D.) Equipment	OK	NOT OK	H.) Other	OK	NOT OK
16. Portable Tools	x		1. Oil Leaks Noted	x	
17. Machine Guarding	x		2. Company Transportation	x	
17. Pressure Vessels/Lines	x		3.		
18. Forklift	x				
19. Electrical	x				
20. Valves & Controls	x				

ADDITIONAL COMMENTS/NOTE

F. 30 Fire Extinguisher: forklift fire extinguisher label deteriorating.

MEP Employee (Print)	Robert Robancho	Date	01.14.2019
MEP Employee (Sign)			
Reviewer (Printed)		Date	2/11/19
Reviewer (Sign)			
Managers Signature		Date	2/12/19

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

Month	February		Year	2019
Inspection Type	GENERAL ☒	TARGETED ☐	Area	

Note: For all items listed as "NOT OK", include reference number of Hazardous Condition / Corrective Action Item No. on (2504.02-MEP-TOL)

Category	Check List		Category	Check List	
A.) General Conditions	OK	NOT OK	**E.) Administrative**	OK	NOT OK
1. Passageways/ Surfaces	x		21. Lock out/Tag out	x	
2. Platforms/ Scaffolding	x		22. Signs/Posters	x	
3. Ladders		x	23. Safe Work Permits	x	
4. Stairs/ Exits		x	24. Confined Space Permits	x	
5. Housekeeping	x		25. SDS Book	x	
6. Road ways	x				
B.) Facilities	OK	NOT OK	**F.) Emergencies**	OK	NOT OK
7. Lighting		x	26. Communication	x	
8. Noise	x		27. Emergency Response Plan	x	
9. Sanitation	x		28. Eye Wash & Showers	x	
10. Ventilation	x		29. First Aid Kits		x
			30. Fire Extinguishers/Equip.	x	
C.) Materials	OK	NOT OK	**G.) Protective Equipment**	OK	NOT OK
11. Stacking & Storage	x		31. Safety Harnesses	x	
12. Chemicals & Fuels	x		32. Eye Protection	x	
13. Compressed Gases	x		33. Hearing Protection	x	
14. Hazardous Waste	x		34. Respirator Protection	x	
15. Hazardous Materials Container Labeling	x		35. Head Protection	x	
			36. Protective Clothing	x	

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

Month	March		Year	2019
Inspection Type	GENERAL ☒	TARGETED ☐	Area	

Note: For all items listed as "NOT OK", include reference number of Hazardous Condition / Corrective Action Item No. on (2504.02-MEP-TOL)

Category	Check List		Category	Check List	
A.) General Conditions	OK	NOT OK	**E.) Administrative**	OK	NOT OK
1. Passageways/ Surfaces	x		21. Lock out/Tag out	x	
2. Platforms/ Scaffolding	x		22. Signs/Posters	x	
3. Ladders	x		23. Safe Work Permits	x	
4. Stairs/ Exits	x		24. Confined Space Permits	x	
5. Housekeeping	x		25. SDS Book	x	
6. Road ways	x				
B.) Facilities	OK	NOT OK	**F.) Emergencies**	OK	NOT OK
7. Lighting	x		26. Communication	x	
8. Noise	x		27. Emergency Response Plan	x	
9. Sanitation	x		28. Eye Wash & Showers	x	
10. Ventilation	x		29. First Aid Kits	x	
			30. Fire Extinguishers/Equip.	x	
C.) Materials	OK	NOT OK	**G.) Protective Equipment**	OK	NOT OK
11. Stacking & Storage	x		31. Safety Harnesses	x	
12. Chemicals & Fuels		x	32. Eye Protection	x	
13. Compressed Gases	x		33. Hearing Protection	x	
14. Hazardous Waste	x		34. Respirator Protection	x	
15. Hazardous Materials Container Labeling	x		35. Head Protection	x	
			36. Protective Clothing	x	

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

Month	April		Year	2019
Inspection Type	GENERAL ☒	TARGETED ☐	Area	

Note: For all items listed as "NOT OK", include reference number of Hazardous Condition / Corrective Action Item No. on (2504.02-MEP-TOL)

Category	Check List		Category	Check List	
A.) General Conditions	OK	NOT OK	**E.) Administrative**	OK	NOT OK
1. Passageways/ Surfaces		x	21. Lock out/Tag out	x	
2. Platforms/ Scaffolding	x		22. Signs/Posters	x	
3. Ladders	x		23. Safe Work Permits	x	
4. Stairs/ Exits	x		24. Confined Space Permits	x	
5. Housekeeping		x	25. SDS Book	x	
6. Road ways	x				
B.) Facilities	OK	NOT OK	**F.) Emergencies**	OK	NOT OK
7. Lighting	x		26. Communication	x	
8. Noise	x		27. Emergency Response Plan	x	
9. Sanitation	x		28. Eye Wash & Showers	x	
10. Ventilation	x		29. First Aid Kits	x	
			30. Fire Extinguishers/Equip.	x	
C.) Materials	OK	NOT OK	**G.) Protective Equipment**	OK	NOT OK
11. Stacking & Storage	x		31. Safety Harnesses	x	
12. Chemicals & Fuels		x	32. Eye Protection	x	
13. Compressed Gases	x		33. Hearing Protection	x	
14. Hazardous Waste	x		34. Respirator Protection	x	
15. Hazardous Materials Container Labeling	x		35. Head Protection	x	
			36. Protective Clothing	x	

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

Month	MAY		Year	2019
Inspection Type	GENERAL ☒	TARGETED ☐	Area	

Note: For all items listed as "NOT OK", include reference number of Hazardous Condition / Corrective Action Item No. on (2504.02-MEP-TOL)

Category	Check List		Category	Check List	
A.) General Conditions	OK	NOT OK	**E.) Administrative**	OK	NOT OK
1. Passageways/ Surfaces	x		21. Lock out/Tag out	x	
2. Platforms/ Scaffolding	x		22. Signs/Posters	x	
3. Ladders	x		23. Safe Work Permits	x	
4. Stairs/ Exits	x		24. Confined Space Permits	x	
5. Housekeeping	x		25. SDS Book	x	
6. Road ways	x				
B.) Facilities	OK	NOT OK	**F.) Emergencies**	OK	NOT OK
7. Lighting	x		26. Communication	x	
8. Noise	x		27. Emergency Response Plan	x	
9. Sanitation	x		28. Eye Wash & Showers	x	
10. Ventilation	x		29. First Aid Kits	x	
			30. Fire Extinguishers/Equip.	x	
C.) Materials	OK	NOT OK	**G.) Protective Equipment**	OK	NOT OK
11. Stacking & Storage	x		31. Safety Harnesses	x	
12. Chemicals & Fuels	x		32. Eye Protection	x	
13. Compressed Gases	x		33. Hearing Protection	x	
14. Hazardous Waste	x		34. Respirator Protection	x	
15. Hazardous Materials Container Labeling	x		35. Head Protection	x	
			36. Protective Clothing	x	

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

Month	June		Year	2019
Inspection Type	GENERAL ☒	TARGETED ☐	Area	PLANT WIDE

Note: For all items listed as "NOT OK", include reference number of Hazardous Condition / Corrective Action Item No. on (2504.02-MEP-TOL)

Category	Check List		Category	Check List	
A.) General Conditions	OK	NOT OK	**E.) Administrative**	OK	NOT OK
1. Passageways/ Surfaces	✓		21. Lock out/Tag out	✓	
2. Platforms/ Scaffolding	✓		22. Signs/Posters		✓
3. Ladders	✓		23. Safe Work Permits	✓	
4. Stairs/ Exits	✓		24. Confined Space Permits	✓	
5. Housekeeping			25. SDS Book	✓	
6. Road ways	✓				
B.) Facilities	OK	NOT OK	**F.) Emergencies**	OK	NOT OK
7. Lighting	✓		26. Communication		✓
8. Noise	✓		27. Emergency Response Plan	✓	
9. Sanitation	✓		28. Eye Wash & Showers	✓	
10. Ventilation	✓		29. First Aid Kits	✓	
			30. Fire Extinguishers/Equip.	✓	
C.) Materials	OK	NOT OK	**G.) Protective Equipment**	OK	NOT OK
11. Stacking & Storage	✓		31. Safety Harnesses	✓	
12. Chemicals & Fuels	✓		32. Eye Protection	✓	
13. Compressed Gases	✓		33. Hearing Protection	✓	
14. Hazardous Waste	✓		34. Respirator Protection	✓	
15. Hazardous Materials Container Labeling	✓		35. Head Protection	✓	
			36. Protective Clothing	✓	

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

D.) Equipment	OK	NOT OK	H.) Other	OK	NOT OK
16. Portable Tools	✓		1. Oil Leaks Noted	✓	
17. Machine Guarding	✓		2. Company Transportation	✓	
17. Pressure Vessels/Lines	✓		3.		
18. Forklift	✓				
19. Electrical	✓				
20. Valves & Controls	✓				

ADDITIONAL COMMENTS/NOTE

- USGS AUX SKID UNIT SIGN RIPPED - E.22

- AMMONIA WIND SOCK TORN - F.26

MEP Employee (Print)	DAN BAKER	Date	06.06.2019
MEP Employee (Sign)			
Reviewer (Printed)		Date	
Reviewer (Sign)	DGC Operations LLC Manager Kevin Kristgie Plant Manager		
Managers Signature		Date	6/10/19

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

Month	July		Year	2019
Inspection Type	GENERAL ☑	TARGETED ☐	Area	Plant wide

Note: For all items listed as "NOT OK", include reference number of Hazardous Condition / Corrective Action Item No. on (2504.02-MEP-TOL)

Category	Check List		Category	Check List	
A.) General Conditions	OK	NOT OK	**E.) Administrative**	OK	NOT OK
1. Passageways/ Surfaces	✓		21. Lock out/Tag out	✓	
2. Platforms/ Scaffolding	✓		22. Signs/Posters	✓	
3. Ladders	✓		23. Safe Work Permits	✓	
4. Stairs/ Exits	✓		24. Confined Space Permits	✓	
5. Housekeeping	✓		25. SDS Book	✓	
6. Road ways	✓				
B.) Facilities	OK	NOT OK	**F.) Emergencies**	OK	NOT OK
7. Lighting	✓		26. Communication	✓	
8. Noise	✓		27. Emergency Response Plan	✓	
9. Sanitation	✓		28. Eye Wash & Showers	✓	
10. Ventilation	✓		29. First Aid Kits	✓	
			30. Fire Extinguishers/Equip.	✓	
C.) Materials	OK	NOT OK	**G.) Protective Equipment**	OK	NOT OK
11. Stacking & Storage	✓		31. Safety Harnesses	✓	
12. Chemicals & Fuels	✓		32. Eye Protection	✓	
13. Compressed Gases	✓		33. Hearing Protection	✓	
14. Hazardous Waste	✓		34. Respirator Protection	✓	
15. Hazardous Materials Container Labeling	✓		35. Head Protection	✓	
			36. Protective Clothing	✓	

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

D.) Equipment	OK	NOT OK	H.) Other	OK	NOT OK
16. Portable Tools	✓		1. Oil Leaks Noted	✓	
17. Machine Guarding	✓		2. Company Transportation	✓	
17. Pressure Vessels/Lines	✓		3.		
18. Forklift	✓				
19. Electrical	✓				
20. Valves & Controls	✓				

ADDITIONAL COMMENTS/NOTE

- 13.8kv to 5kv Transformer oil leak
- Damage to chiller mod #4 found, looks like someone hit the building while in the Boomlift.
- Fire Extinguish covers some are blown off.

MEP Employee (Print)	F. Pham	Date	07/18/19
MEP Employee (Sign)			
Reviewer (Printed)	John Zawisky	Date	7/19/19
Reviewer (Sign)			
Managers Signature		Date	7/22/19

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

Month	AUGUST		Year	2017
Inspection Type	GENERAL ☑	TARGETED ☐	Area	MEP SITE

Note: For all items listed as "NOT OK", include reference number of Hazardous Condition / Corrective Action Item No. on (2504.02-MEP-TOL)

Category	Check List		Category	Check List	
A.) General Conditions	OK	NOT OK	**E.) Administrative**	OK	NOT OK
1. Passageways/ Surfaces	✓		21. Lock out/Tag out	✓	
2. Platforms/ Scaffolding	✓		22. Signs/Posters		✓
3. Ladders	✓		23. Safe Work Permits	✓	
4. Stairs/ Exits	✓		24. Confined Space Permits	✓	
5. Housekeeping	✓		25. SDS Book	✓	
6. Road ways	✓				
B.) Facilities	OK	NOT OK	**F.) Emergencies**	OK	NOT OK
7. Lighting	✓		26. Communication	✓	
8. Noise	✓		27. Emergency Response Plan	✓	
9. Sanitation	✓		28. Eye Wash & Showers	✓	
10. Ventilation	✓		29. First Aid Kits	✓	
			30. Fire Extinguishers/Equip.	✓	
C.) Materials	OK	NOT OK	**G.) Protective Equipment**	OK	NOT OK
11. Stacking & Storage	✓		31. Safety Harnesses	✓	
12. Chemicals & Fuels	✓		32. Eye Protection	✓	
13. Compressed Gases		✓	33. Hearing Protection	✓	
14. Hazardous Waste	✓		34. Respirator Protection	✓	
15. Hazardous Materials Container Labeling	✓		35. Head Protection	✓	
			36. Protective Clothing	✓	

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

D.) Equipment	OK	NOT OK	H.) Other	OK	NOT OK
16. Portable Tools	✓		1. Oil Leaks Noted	✓	
17. Machine Guarding	✓		2. Company Transportation	✓	
17. Pressure Vessels/Lines	✓		3.		
18. Forklift	✓				
19. Electrical	✓				
20. Valves & Controls	✓				

ADDITIONAL COMMENTS/NOTE

U705 HIGH VOLTAGE SIGNAGE FADED
U903 TOWN HIGH VOLTAGE SIGN
NEED NEW STRAP ON H_2 CYLINDER

MEP Employee (Print)	G. PITTS	Date	8.22.19
MEP Employee (Sign)	G Pitts		
Reviewer (Printed)		Date	
Reviewer (Sign)			
Managers Signature		Date	8/23/19

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

Month	September		Year	2019
Inspection Type	GENERAL ☒	TARGETED ☐	Area	PLANT WIDE

Note: For all items listed as "NOT OK", include reference number of Hazardous Condition / Corrective Action Item No. on (2504.02-MEP-TOL)

Category	Check List		Category	Check List	
A.) General Conditions	OK	NOT OK	**E.) Administrative**	OK	NOT OK
1. Passageways/ Surfaces	✓		21. Lock out/Tag out	✓	
2. Platforms/ Scaffolding	✓		22. Signs/Posters		✓
3. Ladders	✓		23. Safe Work Permits	✓	
4. Stairs/ Exits	✓		24. Confined Space Permits	✓	
5. Housekeeping	✓		25. SDS Book	✓	
6. Road ways	✓				
B.) Facilities	OK	NOT OK	**F.) Emergencies**	OK	NOT OK
7. Lighting	✓		26. Communication		✓
8. Noise	✓		27. Emergency Response Plan	✓	
9. Sanitation	✓		28. Eye Wash & Showers	✓	
10. Ventilation	✓		29. First Aid Kits	✓	
			30. Fire Extinguishers/Equip.	✓	
C.) Materials	OK	NOT OK	**G.) Protective Equipment**	OK	NOT OK
11. Stacking & Storage	✓		31. Safety Harnesses	✓	
12. Chemicals & Fuels	✓		32. Eye Protection	✓	
13. Compressed Gases	✓		33. Hearing Protection	✓	
14. Hazardous Waste	✓		34. Respirator Protection	✓	
15. Hazardous Materials Container Labeling	✓		35. Head Protection	✓	
			36. Protective Clothing	✓	

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

D.) Equipment	OK	NOT OK	H.) Other	OK	NOT OK
16. Portable Tools	✓		1. Oil Leaks Noted	✓	
17. Machine Guarding	✓		2. Company Transportation	✓	
17. Pressure Vessels/Lines	✓		3.		
18. Forklift	✓				
19. Electrical	✓				
20. Valves & Controls	✓				

ADDITIONAL COMMENTS/NOTE

- LABEL OILY WATER SUMP W/ CONFINED SPACE SIGN
  WO # 195603
- PLATFORM NEEDED FOR SW - CH4 VALVE
  WO # 195604
- DW TANK CONFINED SPACE SIGN ADDED
  WO # 195605
- FIRE PUMP BUILDING
  - LABEL EACH DOOR WITH "ELECTRIC FIRE PUMP" AND "DIESEL FIRE PUMP"
  - LABEL ~~SIGNS~~ DOORS W/ "THIS EQUIPMENT STARTS AUTOMATICALLY"
  WO # 195606

MEP Employee (Print)	Dan Bavery	Date	9/19/19
MEP Employee (Sign)			
Reviewer (Printed)	Breann Wilkins	Date	9/19/19
Reviewer (Sign)	Breann Wilkins		
Managers Signature		Date	9/19/19

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

Month	October		Year	2019
Inspection Type	GENERAL ☒	TARGETED ☐	Area	Plant wide

Note: For all items listed as "NOT OK", include reference number of Hazardous Condition / Corrective Action Item No. on (2504.02-MEP-TOL)

Category	Check List		Category	Check List	
A.) General Conditions	OK	NOT OK	**E.) Administrative**	OK	NOT OK
1. Passageways/ Surfaces		√	21. Lock out/Tag out	√	
2. Platforms/ Scaffolding	√		22. Signs/Posters		√
3. Ladders	√		23. Safe Work Permits		√
4. Stairs/ Exits	√		24. Confined Space Permits	√	
5. Housekeeping		√	25. SDS Book	√	
6. Road ways	√				
B.) Facilities	OK	NOT OK	**F.) Emergencies**	OK	NOT OK
7. Lighting	√		26. Communication	√	
8. Noise	√		27. Emergency Response Plan	√	
9. Sanitation	√		28. Eye Wash & Showers	√	
10. Ventilation	√		29. First Aid Kits	√	
			30. Fire Extinguishers/Equip.	√	
C.) Materials	OK	NOT OK	**G.) Protective Equipment**	OK	NOT OK
11. Stacking & Storage	√		31. Safety Harnesses	√	
12. Chemicals & Fuels	√		32. Eye Protection	√	
13. Compressed Gases		√	33. Hearing Protection	√	
14. Hazardous Waste	√		34. Respirator Protection	√	
15. Hazardous Materials Container Labeling	√		35. Head Protection	√	
			36. Protective Clothing	√	

D.) Equipment	OK	NOT OK	H.) Other	OK	NOT OK
16. Portable Tools	√		1. Oil Leaks Noted	√	
17. Machine Guarding	√		2. Company Transportation		√
17. Pressure Vessels/Lines	√		3.		
18. Forklift	√				
19. Electrical	√				
20. Valves & Controls		√			

ADDITIONAL COMMENTS/NOTE

MEP Employee (Print)	Robert Robancho	Date	10/23/2019
MEP Employee (Sign)	Robert Robancho		
Reviewer (Printed)	Buck Schultz	Date	10/30/19
Reviewer (Sign)	[signature]		
Managers Signature	[signature]	Date	10/30/19

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

Month	OCTOBER		Year	2019
Inspection Type	GENERAL ☑	TARGETED ☐	Area	PLANT WIDE

Note: For all items listed as "NOT OK", include reference number of Hazardous Condition / Corrective Action Item No. on (2504.02-MEP-TOL)

Category	Check List		Category	Check List	
A.) General Conditions	OK	NOT OK	**E.) Administrative**	OK	NOT OK
1. Passageways/ Surfaces	✓		21. Lock out/Tag out	✓	
2. Platforms/ Scaffolding	✓		22. Signs/Posters		✓
3. Ladders	✓		23. Safe Work Permits	✓	
4. Stairs/ Exits	✓		24. Confined Space Permits	✓	
5. Housekeeping		✓	25. SDS Book	✓	
6. Road ways	✓				
B.) Facilities	OK	NOT OK	**F.) Emergencies**	OK	NOT OK
7. Lighting	✓		26. Communication	✓	
8. Noise	✓		27. Emergency Response Plan	✓	
9. Sanitation	✓		28. Eye Wash & Showers	✓	
10. Ventilation	✓		29. First Aid Kits	✓	
			30. Fire Extinguishers/Equip.	✓	
C.) Materials	OK	NOT OK	**G.) Protective Equipment**	OK	NOT OK
11. Stacking & Storage	✓		31. Safety Harnesses	✓	
12. Chemicals & Fuels	✓		32. Eye Protection	✓	
13. Compressed Gases	✓		33. Hearing Protection	✓	
14. Hazardous Waste	✓		34. Respirator Protection	✓	
15. Hazardous Materials Container Labeling	✓		35. Head Protection	✓	
			36. Protective Clothing	✓	

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

D.) Equipment	OK	NOT OK	H.) Other	OK	NOT OK
16. Portable Tools	✓		1. Oil Leaks Noted		✓
17. Machine Guarding	✓		2. Company Transportation	✓	
17. Pressure Vessels/Lines	✓		3.		
18. Forklift	✓				
19. Electrical	✓				
20. Valves & Controls	✓				

ADDITIONAL COMMENTS/NOTE

- 6000 HEARING PROTECTION SIGN DAMAGED - 196087
- ~~6000~~ XFRMR OIL LEAK FROM PCM XFRMR - 196088 ALL 4
- TRASH THROUGHT SIGHT - 196086

MEP Employee (Print)	D. BAKERY	Date	10/29/19
MEP Employee (Sign)			
Reviewer (Printed)	Bob Schaffer	Date	10/30/19
Reviewer (Sign)			
Managers Signature		Date	10/30/19

DGC Operations, LLC	# *Workplace Safety Inspection*		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

Month	November		Year	2019
Inspection Type	GENERAL ☒	TARGETED ☐	Area	Plant wide

Note: For all items listed as "NOT OK", include reference number of Hazardous Condition / Corrective Action Item No. on (2504.02-MEP-TOL)

Category	Check List		Category	Check List	
A.) General Conditions	OK	NOT OK	**E.) Administrative**	OK	NOT OK
1. Passageways/ Surfaces	√		21. Lock out/Tag out	√	
2. Platforms/ Scaffolding	√		22. Signs/Posters	√	
3. Ladders	√		23. Safe Work Permits	√	
4. Stairs/ Exits	√		24. Confined Space Permits	√	
5. Housekeeping Wind		√	25. SDS Book	√	
6. Road ways	√				
B.) Facilities	OK	NOT OK	**F.) Emergencies**	OK	NOT OK
7. Lighting [illegible]		√	26. Communication [illegible]		√
8. Noise	√		27. Emergency Response Plan	√	
9. Sanitation		√	28. Eye Wash & Showers	√	
10. Ventilation		√	29. First Aid Kits	√	
			30. Fire Extinguishers/Equip.	√	
C.) Materials	OK	NOT OK	**G.) Protective Equipment**	OK	NOT OK
11. Stacking & Storage	√		31. Safety Harnesses	√	
12. Chemicals & Fuels	√		32. Eye Protection	√	
13. Compressed Gases	√		33. Hearing Protection	√	
14. Hazardous Waste	√		34. Respirator Protection	√	
15. Hazardous Materials Container Labeling	√		35. Head Protection	√	
			36. Protective Clothing	√	

OGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

Month	NOVEMBER		Year	2019
Inspection Type	GENERAL ☒	TARGETED ☐	Area	PLANT WIDE

Note: For all items listed as "NOT OK", include reference number of Hazardous Condition / Corrective Action Item No. on (2504.02-MEP-TOL)

Category	Check List		Category	Check List	
A.) General Conditions	OK	NOT OK	**E.) Administrative**	OK	NOT OK
1. Passageways/ Surfaces	✓		21. Lock out/Tag out	✓	
2. Platforms/ Scaffolding	✓		22. Signs/Posters		✓
3. Ladders	✓		23. Safe Work Permits	✓	
4. Stairs/ Exits	✓		24. Confined Space Permits	✓	
5. Housekeeping	✓		25. SDS Book	✓	
6. Road ways	✓				
B.) Facilities	OK	NOT OK	**F.) Emergencies**	OK	NOT OK
7. Lighting	✓		26. Communication	✓	
8. Noise	✓		27. Emergency Response Plan	✓	
9. Sanitation	✓		28. Eye Wash & Showers		✓
10. Ventilation	✓		29. First Aid Kits	✓	
			30. Fire Extinguishers/Equip.	✓	
C.) Materials	OK	NOT OK	**G.) Protective Equipment**	OK	NOT OK
11. Stacking & Storage	✓		31. Safety Harnesses	✓	
12. Chemicals & Fuels	✓		32. Eye Protection	✓	
13. Compressed Gases	✓		33. Hearing Protection	✓	
14. Hazardous Waste	✓		34. Respirator Protection	✓	
15. Hazardous Materials Container Labeling	✓		35. Head Protection	✓	
			36. Protective Clothing	✓	

OGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

D.) Equipment	OK	NOT OK	H.) Other	OK	NOT OK
16. Portable Tools	✓		1. Oil Leaks Noted	✓	
17. Machine Guarding	✓		2. Company Transportation	✓	
17. Pressure Vessels/Lines	✓		3.		
18. Forklift	✓				
19. Electrical	✓				
20. Valves & Controls	✓				

ADDITIONAL COMMENTS/NOTE

- HIGH VOLTAGE SIGNS ~~U800~~ U700 GENERATOR
  WO 196559
- U700 EXHAUST SIGN MISSING
  WO 196560
- U800 AUX SKID SIGN
  WO 196562
- SW TANK SWIVEL GATE
- AMM TANK F/E COVER MISSING

MEP Employee (Print)	Dan Bangert	Date	11/26/19
MEP Employee (Sign)			
Reviewer (Printed)	Burke Schmidt	Date	11/27/19
Reviewer (Sign)			
Managers Signature		Date	11/27/19

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

Month	DEC		Year	~~2018~~ 2019
Inspection Type	GENERAL ☒	TARGETED ☐	Area	PLANT WIDE

Note: For all items listed as "NOT OK", include reference number of Hazardous Condition / Corrective Action Item No. on (2504.02-MEP-TOL)

Category	Check List		Category	Check List	
A.) General Conditions	OK	NOT OK	**E.) Administrative**	OK	NOT OK
1. Passageways/ Surfaces	✓		21. Lock out/Tag out	✓	
2. Platforms/ Scaffolding	✓		22. Signs/Posters	✓	
3. Ladders	✓		23. Safe Work Permits	✓	
4. Stairs/ Exits	✓		24. Confined Space Permits	✓	
5. Housekeeping	✓		25. SDS Book	✓	
6. Road ways	✓				
B.) Facilities	OK	NOT OK	**F.) Emergencies**	OK	NOT OK
7. Lighting	✓		26. Communication	✓	
8. Noise	✓		27. Emergency Response Plan	✓	
9. Sanitation	✓		28. Eye Wash & Showers	✓	
10. Ventilation	✓		29. First Aid Kits	✓	
			30. Fire Extinguishers/Equip.	✓	
C.) Materials	OK	NOT OK	**G.) Protective Equipment**	OK	NOT OK
11. Stacking & Storage	✓		31. Safety Harnesses	✓	
12. Chemicals & Fuels	✓		32. Eye Protection	✓	
13. Compressed Gases	✓		33. Hearing Protection	✓	
14. Hazardous Waste	✓		34. Respirator Protection	✓	
15. Hazardous Materials Container Labeling	✓		35. Head Protection	✓	
			36. Protective Clothing	✓	

DGC Operations, LLC	**Workplace Safety Inspection**		
MARIPOSA ENERGY PROJECT			
Rev: 1	**Date: 8/31/17**	**Safety Inspections, Surveys and Audits**	**2504.01-MEP-TOL**

D.) Equipment	OK	NOT OK	H.) Other	OK	NOT OK
16. Portable Tools	✓		1. Oil Leaks Noted	✓	
17. Machine Guarding	✓		2. Company Transportation	✓	
17. Pressure Vessels/Lines	✓		3.		
18. Forklift	✓				
19. Electrical	✓				
20. Valves & Controls	✓				

ADDITIONAL COMMENTS/NOTE

MEP Employee (Print)	D. Bandy	Date	12/20/19
MEP Employee (Sign)			
Reviewer (Printed)	Brooke Schmollinger	Date	12/23/19
Reviewer (Sign)			
Managers Signature		Date	1/3/20

Exhibit 11
Regulatory On-Site Inspections

INSPECTOR	Corinne Lowe, Sukla De		DATE of INSPECTION	04-16-19
INSPECTION TYPE	Scheduled **		Unannounced ☐	
ID Type and #		REGULATORY AGENCY	Alameda County DEH	

SITE REPRESENTATIVE	Kevin Kringle	AREAS INSPECTED	Mariposa
PLANT AREAS INSPECTED	List all areas the inspector visited: Entire site and buildings inspected		
DOCUMENTATION REVIEWED	List all documentation the inspector reviewed: See attached agenda		
PHOTOGRAPHS	Were photographs taken? If yes, list: Photographs taken of compressed gas area, ammonia tank, gas yard, dumpsters		
SAMPLES	Were samples taken? If yes, list below and request a portion to be kept onsite. No samples taken		

DISCREPANCIES / VIOLATIONS / OTHER ITEMS
NOTE: See attached agenda

Attach any documentation provided by the inspector including photographs, inspector ID copy, other.

Alameda County Dept. Environmental Health (ACDEH)
Triennial Power Plant Inspection
Mariposa Energy Facility
April 16, 2019

Agenda

10:15 am ACDEH arrived and signed in (2 persons)

10:20 am Arrival and Inspection Participants
- ACDEH-Sukla De, Corinne Lowe
- MEP-Wayne Forsyth, Kevin Kringle, Dan Colombo

10:30 am Visit "Purpose and Scope"
- Triennial ACDEH visit
- Review SPCC, HMBP, RMP, HAZWOPER, DOT
  - Training
  - Inspections
  - Tests
  - SDS
  - Manifests

10:40 am Prep for site inspection and required PPE

10:45 am Site Inspection
- Inspected power plant; security perimeter fencing; water treatment, chemical storage, hazardous waste/universal waste streams, waste water discharge streams, product storage, detention basin, storm water management system and fire system.

12:45 pm Lunch break

1:25 pm Reviewed Programs and documents:
- Employee Training; DOT, SPCC, HMBP, RMP, HAZWOPER
- Hazardous/Non-Hazardous/Universal Waste Manifests
- SPCC, HMBP, RMP Inspections/Testing (Weekly, Monthly, Quarterly, etc)
- Weekly Hazardous Waste Inspections
- Spill response plan
- Emergency Action Plan
- CERS HMBP Map

3:10 pm Findings –

- No "Immediate" actions required
- Actions to be taken –
  - Provide copy of 8-14-17 Generator Manifest form
  - Explain 4-10-16 Soil/Jet Oil Manifest
    - Before Stipulation Letter (Reporting)
  - Submit RMP 5-Year Review (Yorke)
    - With updated OCA and revision history log
  - Update HMBP/SPCC/RMP
    - Director
    - Plant Manager
  - Submit Chemical Inventory Letter to Landowner
    - ACDEH to provide rule/template
  - Procure Sodium Bi-Carbonate (PDC Batteries)
    - Add to CERS Inventory/Map
  - Replace NH3 offloading "Tank Fill" label
  - Maintain Sodium Hypochlorite at 110 gals. (remove empties)
  - Add to CERS Map
    - Emergency Fire Pp fuel loading area
    - Compressed Gas Cylinder storage/usage areas
  - Increase CERS Mega-Floc to 250 gals (tote)
  - Add hydrogen cylinders to Flammable gas storage
  - Add DOT Placards to New Product Oil Storage(s)
  - Add spill prevention cable to Universal Waste Shelving
  - Keep Universal Waste containers closed (fluorescent tubes)
  - Maintain SPCC, RMP, HMBP Revision History Logs
  - Add (2) "Mini Air Respirators" at NH3 offloading site
    - ACDEH to send CalOSHA exemption rule (wait)
    - Add to CERS Map

3:15 pm Comments and Observations

- ACDEH says, "We will maintain Program Level 1 as long as topography of "receptors" stays current." – Poly Balls not considered "passive mitigation." (as per Sukla De)
- RMP has drop-box for uploads – DEHCalARP@acgov.org
  - RMP/SPCC/HMBP data requests by ACDEH
- ACDEH says, "If you exceed Small Quantity Generator (SQG) for 1 month, you "default to a Large Quantity Generator (LQG) for remainder of year." Confirm with Yorke (Mike Dudasko)

3:15 pm ACDEH signed out and exited site

DGC Operations, LLC	**Site Regulatory Agency Inspection Report**		
MARIPOSA ENERGY PROJECT			
Rev: 0 | **Date: 12/01/16**	**Outside Agency Site Visit Protocol**		**5402.01-MEP-TOL**

INSPECTOR	John Zhang	**DATE of INSPECTION**	6-7-2019
INSPECTION TYPE	Scheduled ☒	Unannounced ☐	
ID Type and #		**REGULATORY AGENCY**	CARB
SITE REPRESENTATIVE	Kevin Kringle	**AREAS INSPECTED**	Mariposa
PLANT AREAS INSPECTED	List all areas the inspector visited Inspected GT enclosures on all four units		
DOCUMENTATION REVIEWED	List all documentation the inspector reviewed Reviewed CEM data on all four units		
PHOTOGRAPHS	Were photographs taken? If yes, list Fuel flow meters and package numbers on all four units Images taken on the DCS and CEM		
SAMPLES	Were samples taken? If yes, list below and request a portion to be kept onsite No samples were taken		

DISCREPANCIES / VIOLATIONS / OTHER ITEMS

Attach any documentation provided by the inspector including photographs, inspector ID copy, other

Plant Manager: _____ Date 6/7/19

Exhibit 12A
Major Permits Approved or Submitted during report period

January 10, 2020

Mariposa Energy, LLC (09-AFC-3C) revised (updated) 2 major permits in 2019;

- Risk Management Plan (RMP) June 05, 2019
- Spill Prevention, Control, and Countermeasure Plan (SPCC) August 16, 2019

Wayne Forsyth

Wayne Forsyth
Program Manager – EHS & Regulatory
Mariposa Energy, LLC
633 West Fifth Street, Suite 2700
Los Angeles, CA 90071
(213) 473-0093
w.forsyth@dgc-us.com

Procedure Type:	Environmental	To:	All Plant Personnel
Procedure Number:	3551-MEP-PLN	Rev. Requested Date:	
Date:	03/15/2012	Rev. Requested By:	Kevin Kringle
Equip. #		Ref. Procedures	
Revision Date:	8/16/2019	Date last reviewed:	8/16/2019
Author	Yorke Engineering		

TITLE: **SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN**

TABLE OF CONTENTS

FIGURES

ATTACHMENTS

Oil Spill Prevention, Control, and Countermeasure Plan Certification

Management Responsibility

In accordance with Title 40 of the Code of Federal Regulations (CFR), Part 112 (40 CFR 112), the responsibility for oil spill, prevention, control, and countermeasures at the Mariposa Energy Project in unincorporated Alameda County, California, has been assigned to the Plant Manager.

The management of Diamond Generating Corporation and Mariposa Energy, LLC is committed to providing the staff, equipment, facilities, and materials required to establish precautionary measures and to expeditiously control and remove any harmful quantity of oil discharged from the Mariposa Energy Project.

"I certify that I have reviewed and approve this Oil Spill Prevention, Control, and Countermeasure (SPCC) Plan."

Signature: _____

Adam Christodoulou
Director – Operations and Maintenance
DGC Operations, LLC

Date: 9-18-19

Signature: _____

Kevin Kringle
Plant Manager
Mariposa Energy, LLC

Date: September 18 2019

Certification

Through this certification, I hereby attest that (1) I am familiar with the requirements of the SPCC rule; (2) I or my agent has visited and examined the facility; (3) the SPCC Plan has been prepared in accordance with good engineering practices, including consideration of applicable industry standards, and with the requirements of the SPCC rule; (4) procedures for required inspections and testing have been established; and (5) the Plan is adequate for the facility.

Signature: Divya.N

Divya Narasimhan
Registered Professional Engineer, State of California No. 6862
Yorke Engineering, LLC

Certification Date: 9/18/19

P.E. Stamp

1.0 Introduction

This Oil Spill Prevention, Control and Countermeasure (SPCC) Plan has been developed to address the storage and management of oil and oil products at Mariposa Energy, LLC (MEP or facility), owned by Mariposa Energy, LLC (Mariposa Energy) and operated by DGC Operations, LLC, (DGC Ops) in unincorporated Alameda County, California. The facility street address is 4887 Bruns Road, Byron, CA, 94514. MEP is a natural gas-fired, simple cycle peaking facility with a generating capacity of 200 megawatts (MW). A site map is provided as Figure 1 and a facility diagram as Figure 2.

The SPCC Plan is designed to fulfill the requirements of; Code of Federal Regulations (CFR) Title 40, Part 112, U.S. Environmental Protection Agency (EPA) Oil Pollution Prevention Regulations and the California Aboveground Petroleum Storage Act (California Health and Safety Code, Division 20, Section 25270). The SPCC Plan describes the practices, procedures, structures, and equipment used at the facility to prevent spills and to mitigate or preclude adverse impacts to the environment.

A complete, signed copy of the SPCC Plan is maintained on file at MEP and is available to responsible individuals. The SPCC Plan will be reviewed every 5 years or within 6 months of any change in the facility design, construction, operation, or maintenance that affects the potential for an oil discharge.

2.0 General Applicability – Section 112.1

The United States Environmental Protection Agency (EPA), in response to the "Regulations on Oil Pollution Prevention" included in the Federal Water Pollution Control Act (FWPCA), has established rules for the prevention of water pollution by oil discharged from "non-transportation related onshore and offshore facilities." These regulations were originally promulgated on December 11, 1973, and are set forth in Title 40, CFR, Part 112 (40 CFR 112). The current regulations originally became effective on July 17, 2002; however, SPCC implementation requirements were subsequently extended to November 10, 2011. The current regulations are applicable to MEP according to the criteria set forth in paragraphs 112.1(b) and 112.1(d) (2).

2.1 Prevent Discharge of Oil – 112.1(a)

The SPCC Plan was prepared in accordance with the procedures, methods, equipment, and other requirements established in this part to prevent the discharge of oil and oil products from the facility into navigable waters of the United States.

2.2 Plan Applicability – 112.1(b)

Owners or operators of non-transportation-related onshore or offshore facilities engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing, and using or consuming oil and oil products, at which

due to their location, could reasonably be expected to discharge oil in harmful quantities, into or upon the navigable waters of the United States or adjoining shorelines are required to prepare an SPCC Plan, with the exceptions as provided in Section 112.1(d) of the regulations.

Figure 1: Site Map

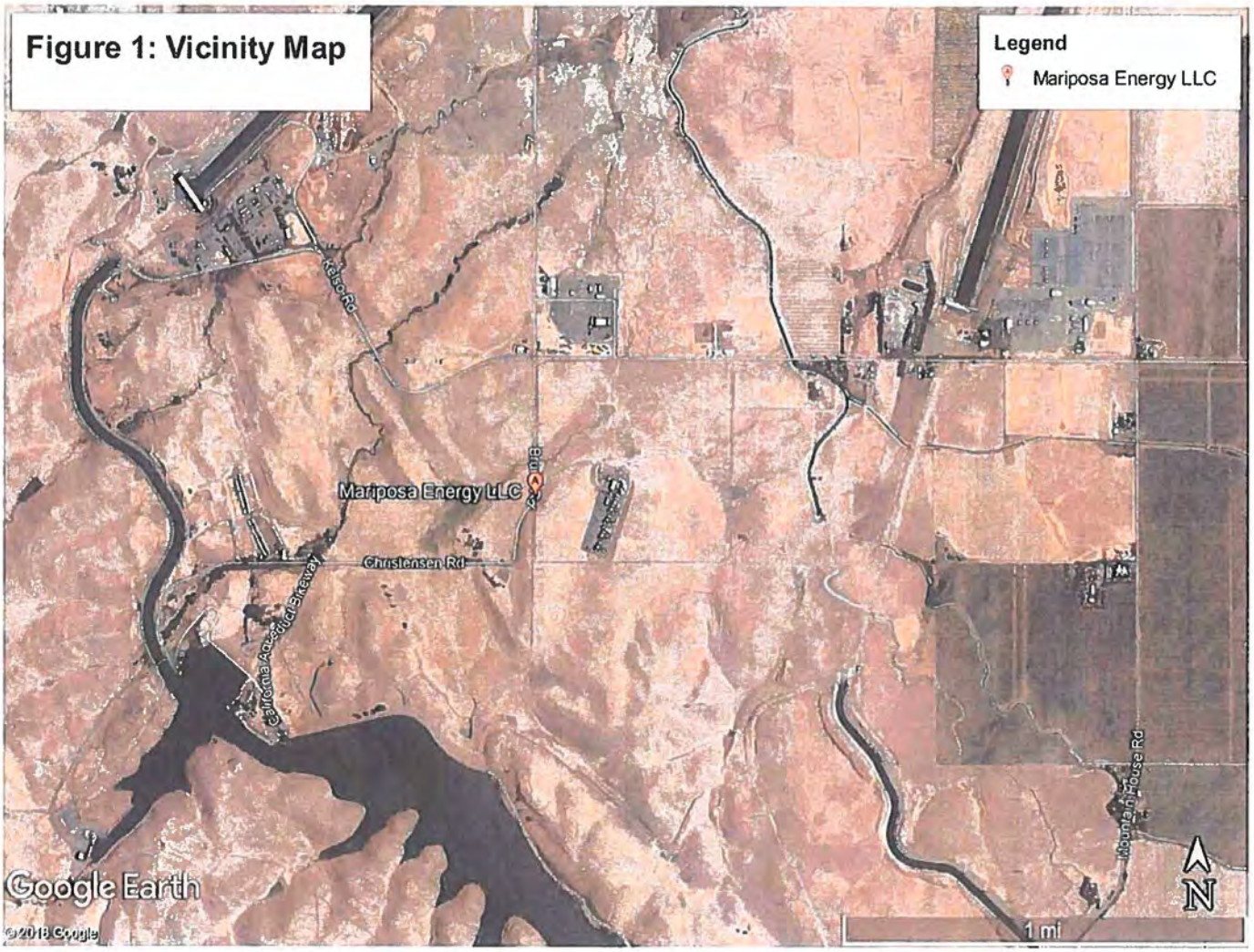
Figure 1: Vicinity Map
Legend
Mariposa Energy LLC
Kelso Rd
Mariposa Energy LLC
Christensen Rd
California Aqueduct Bikeway
Mountain House Rd
Google Earth
© 2018 Google
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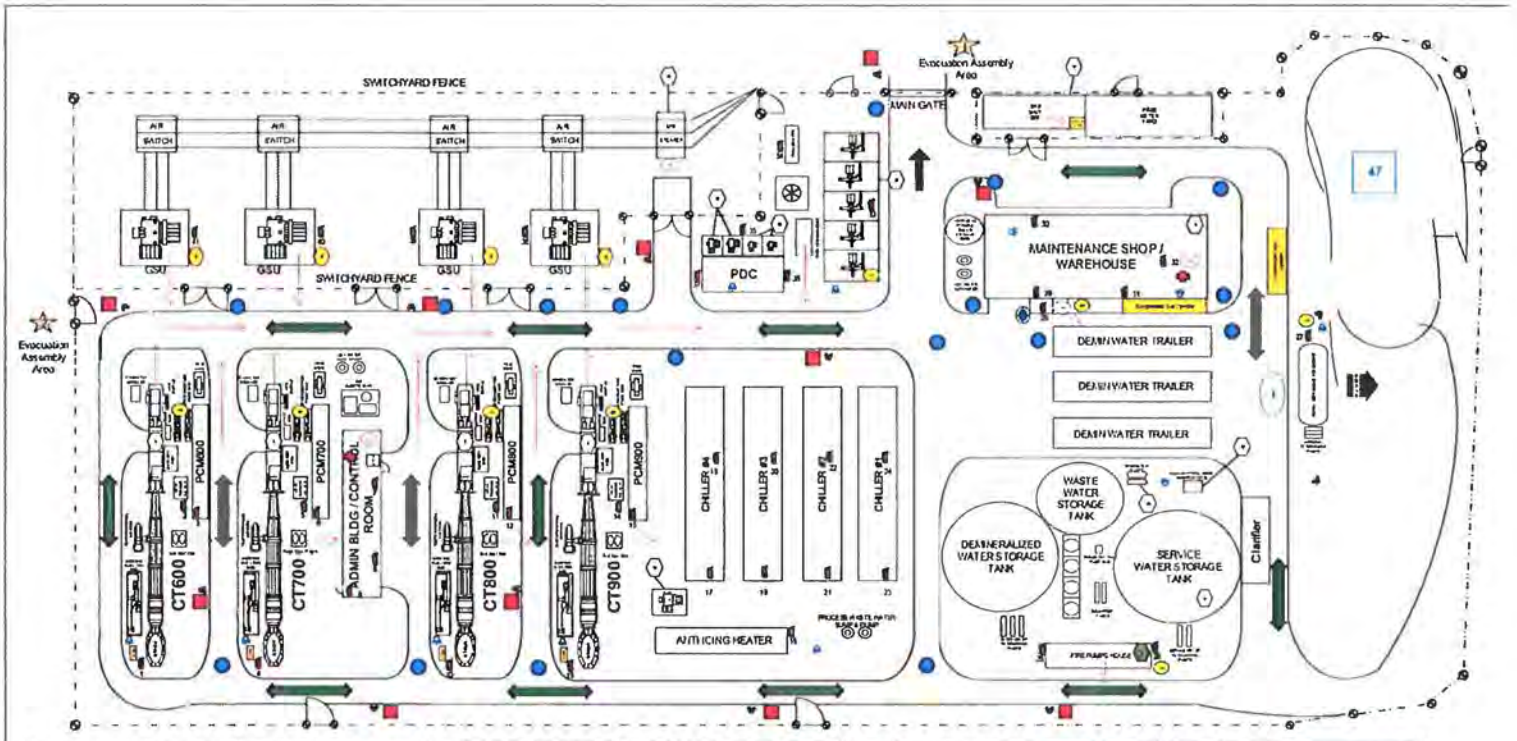
Figure 2: Facility Diagram



	Emergency Equipment
	First Aid/AED
	Safety Shower/Eye Wash
	Safety Data Sheets
	Spill Kit
	Electric Shutoff
	Gas Shutoff
	Fire Extinguisher
	Fire Hydrant
	Fire Hose House
	CTG Fire Protection Skid (CO2 Cylinders) (4)
	Service/Fire Water Storage Tank (45' DIA.)
	Fire Water Pump Skid

	Evacuation
	Evacuation Routes
	Evacuation/Staging Area
	Site Drainage
	Storm Drain Inlet
	Detention Pond
	Safe Drain BMP

Figure 2
Facility Site Map
Mariposa Energy Project

MEP is a non-transportation-related onshore facility that stores, uses, and consumes oil and oil products in excess of 1,320 gallons and, therefore, is required to prepare an SPCC Plan.

2.3 Government Facilities – 112.1(c)

The facility is not a government owned or operated facility.

2.4 Plan Exemption – 112.1(d)

MEP currently has a total capacity of approximately 41,069 gallons of oil and oil products stored in aboveground containers. Because the appropriate aboveground storage capacity of oil and oil products stored at MEP exceeds 1,320 gallons, the facility is not exempt from the regulation and an SPCC Plan is required.

2.5 Plan Requirements – 112.1(e)

MEP understands the following requirements are established for the preparation and implementation of an SPCC Plan:

- The SPCC Plan will comply with existing laws, regulations, rules, standards, policies, and procedures pertaining to safety standards, fire prevention, and pollution prevention rules.
- The SPCC Plan will form a comprehensive federal and state compliant spill prevention program that minimizes the potential for discharges.
- The SPCC Plan will address relevant spill, prevention, control, and countermeasures necessary at the facility.

2.6 Exempted Facilities – 112.1(f)

MEP is not exempt from SPCC Plan requirements.

3.0 Definitions – Section 112.2

The following definitions are applicable to this SPCC Plan.

Alteration – Any work on a container involving cutting, burning, welding, or heating operations that changes the physical dimensions or configuration of the container.

Bulk Storage Container – Any container (55-gallon or greater) used to store oil. These containers are used for purposes including, but not limited to, the storage of oil prior to use, while being used, or prior to further distribution in commerce. Oil-filled electrical, operating, or manufacturing equipment is not a bulk storage container.

Completely Buried Tank – Any container completely below grade and covered with earth, sand gravel, asphalt, or other material. Containers in vaults, bunkered tanks, or partially buried tanks are considered aboveground storage containers.

Discharge – Includes but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping of oil.

Facility – Any mobile or fixed, onshore or offshore building, structure, installation, equipment, pipe, or pipeline (other than a vessel or a public vessel) used in oil well drilling operations, oil production, oil refining, oil storage, oil gathering, oil processing, oil transfer, oil distribution, and waste treatment.

Harmful Quantity or Harmful Discharge (as defined in 40 CFR part 110) – (a) A quantity that violates applicable state water quality standards or (b) causes a film or sheen upon or discoloration of the surface of the water or adjoining shoreline or causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines or (c) a discharge of more than 1,000 U.S. gallons of oil in a single event.

Injury – A measurable adverse change, either long- or short-term, in the chemical or physical quality or the viability of a natural resource resulting either directly or indirectly from exposure to a discharge, or exposure to a product of reactions resulting from a discharge.

Navigable Waters – The waters of the United States, including the territorial seas.

Non-Transportation-Related Facility – Industrial, commercial, agricultural, or public facilities which use or store oil, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

Offshore Facility – Any facility of any kind (other than a vessel or public vessel) located in, on, or under any of the navigable waters of the United States, and any facility of any kind that is subject to the jurisdiction of the United States and is located in, on, or under any waters.

Oil – Any kind or in any form, including, but not limited to: fats, oils, or greases, of animal, fish, or marine mammal origin; vegetable oils, including oils from seeds, nuts, fruits, or kernels; and other oils and greases, including petroleum, fuel oil, sludge, synthetic oils, mineral oils, oil refuse, or oil mixed with wastes other than dredged oil.

Oil Spill Removal Organization – An entity that provides oil spill response resources, and includes in-house response resources that have been established in a geographic area to provide required response resources.

Onshore Facility – Any facility of any kind located in, on, or under any land within the United States, other than submerged lands.

Owner or Operator – Any person owning or operating an onshore or offshore facility. In the case of an abandoned offshore facility, the person who owned, operated, or maintained the facility immediately prior to such abandonment.

Person – An individual, firm, corporation, association, or partnership.

Petroleum Oil – Petroleum in any form, including but not limited to crude oil, fuel oil, mineral oil, sludge, oil, refuse, and refined products.

Regional Administrator – The Regional Administrator of the EPA, in and for the Region in which the subject facility is located.

Repair – Any work necessary to maintain or restore a container to a condition suitable for safe operation, other than that necessary for ordinary, day-to-day maintenance to maintain the functional integrity of the container and that does not weaken the container.

Storage Capacity – The shell capacity of the container.

Technical Amendments – A change in the facility design, construction, operation or maintenance that materially affects its potential for a discharge.

4.0 Requirement to Prepare and Implement a SPCC Plan – Section 112.3

The requirements to prepare and implement an SPCC Plan are outlined in paragraphs (a) through (f) of 40 CFR 112.3.

4.1 Operational Before August 16, 2002 – 112.3(a)

MEP was not in operation prior to August 16, 2002; therefore, this section of the regulation is not applicable.

4.2 Operational After November 10, 2011 – 112.3(b)

MEP began operations in mid-2012. This SPCC Plan was prepared and implemented prior to commencement of operations.

4.3 Mobile Facilities – 112.3(c)

MEP is not an onshore or offshore mobile facility; therefore, this section of the regulation is not applicable.

4.4 Certification – 112.3(d)

This paragraph of the regulations states that the SPCC Plan and subsequent amendments or revisions must be reviewed and certified by a Registered Professional Engineer. The certification for this SPCC Plan is provided on the certification page of this document.

4.5 Plan Availability – 112.3(e)

The signed SPCC Plan is maintained on location at MEP. This Plan is available for review by representatives of the EPA and other jurisdictional agencies during normal working hours. The Plan also is available for access by personnel responsible for administration of the Plan.

4.6 Extension of Time – 112.3(f)

MEP management is not requesting an extension of time; therefore, this requirement or section of the regulation is not applicable.

4.7 Qualified Facility – 112.3(g)

Qualified facilities may self-certify their SPCC Plans if they meet either the Tier I or Tier II facility requirements.

4.7.1 Tier I Facility – 112.3(g)(1)

MEP does not meet the requirements of a Tier I facility because there are aboveground oil storage containers onsite with capacities greater than 5,000 U.S. gallons and total oil storage greater than 10,000 gallons.

4.7.2 Tier II Facility – 112.3(g)(2)

MEP does not meet the requirements for a Tier II facility because its aggregate aboveground oil storage container capacity exceeds 10,000 U.S. gallons.

Therefore, this SPCC Plan has been certified by an independent Registered Professional Engineer who is currently registered in California and is familiar with the facility and its operations.

5.0 Amendments to the SPCC Plan

Technical amendments to this SPCC Plan will be reviewed and certified by a Registered Professional Engineer. Through this certification, the engineer attests that:

1. He or she is familiar with the requirements of the SPCC rule
2. He or his agent has visited and examined the facility
3. The SPCC Plan has been prepared in accordance with good engineering practices, including consideration of applicable industry standards, and with the requirements of the SPCC rule
4. Procedures for required inspections and testing have been established

5. The Plan is adequate for the facility. See Section 1.3 for the Registered Professional Engineer's certification

5.1 Amendments by the EPA Regional Administrator – 112.4

If more than 1,000 gallons of oil and oil products are discharged in a single spill event or more than 42 gallons in two spill events in a 12-month period, the following information will be submitted to the EPA Regional Administrator within 60 days of the release along with a copy of this SPCC Plan:

1. Name of the facility
2. Name of person reporting the incident
3. Location of the facility
4. Maximum storage or handling capacity of the facility and normal daily throughput
5. Corrective action and countermeasures that have been taken, including a description of equipment repairs and replacements
6. Description of the facility including maps, flow diagrams, and topographical maps as necessary
7. The cause of the discharge including a failure analysis of the system or subsystem in which the failure occurred
8. Additional preventative measures taken or contemplated to minimize the possibility of recurrence

If the EPA proposes amendments to this SPCC Plan, MEP will be notified by certified mail or personal delivery. The EPA will specify the terms of the proposed amendment.

Within 30 days from receipt of notice, MEP can submit information, views, and arguments on the proposed amendments. After considering relevant material presented, the EPA Regional Administrator will notify MEP of the EPA's decision. Amendments required by the EPA Regional Administrator shall become part of the plan 30 days after such notice, unless otherwise specified by the EPA Regional Administrator. The amendments shall be implemented as soon as possible but not later than 6 months after the plan is amended unless the EPA Regional Administrator specifies another date.

MEP can appeal the EPA Regional Administrator's decision by submitting a complete appeal in writing within 30 days of receipt of the notice. The EPA

Regional Administrator, or his designee, shall render a decision within 60 days of receiving the appeal and shall notify MEP of the decision.

Required amendments must be implemented as soon as possible, but not later than 6 months after the change occurs. A Registered Professional Engineer must certify all technical amendments. Changes to the SPCC Plan must be documented on the SPCC Plan Changes Form in Attachment 1.

5.2 Amendments by Owners and Operators – 112.5

This SPCC Plan will be amended whenever there is a change in facility design, construction, operation, or maintenance procedure that materially affects the potential for an oil spill. Examples of changes that may require amendment of the Plan include commissioning or decommissioning containers; replacement, reconstruction, or installation of piping systems; construction or demolition that might alter secondary containment structures; changes of product or service; or revision of standard operating or maintenance procedures. This SPCC Plan is to be amended within 6 months of a change and implemented within 6 months following preparation of the amendment.

This SPCC Plan will be reviewed and evaluated at least once every 5 years by the Plant Manager or qualified designee and documented. The SPCC Plan will be amended within 6 months of the review, if required, and changes will be implemented within 6 months of the amendment.

A Professional Engineer must certify all technical amendments to the SPCC Plan. Attachment 1 contains an SPCC Plan Changes Form.

6.0 Qualified Facilities (112.6)

Facilities that meet the criteria for Tier I or Tier II facilities may self-certify their SPCC Plans. MEP does not meet the criteria for a Tier I or Tier II facility.

7.0 General Requirements for SPCC Plans – 112.7(a)

This Plan has been prepared in accordance with good engineering practices and has the approval of MEP. The management of MEP is committed to providing the staff, equipment, facilities, and materials required to establish precautionary measures and to expeditiously control and remove any harmful quantity of oil and oil product discharged from the facility.

General MEP facility information is provided below:

Business Name:	Mariposa Energy, LLC
Facility Name:	Mariposa Energy Project
Facility Street Address:	4887 Bruns Road, Byron, CA 94514
Facility Mailing Address:	4887 Bruns Road, Byron, CA 94514
24-Hour Facility Phone Number:	(209) 833-3878
Nearest Surface Water Body:	Jurisdictional Drainage D-1
Approximate Distance:	Runs across northeastern portion of the 158-acre parcel
Owner Name:	Mariposa Energy, LLC
Owner Address:	633 W. Fifty Street, #2700, Los Angeles, CA 90071

This SPCC Plan is organized in accordance with the sequence presented in 40 CFR 112.7 and meets the applicable requirements specified in the regulations.

7.1 Plan Deviations – 112.7(a)(2)

The SPCC Plan may deviate from the requirements in paragraphs (g), (h)(2) and (3), and (i) of this section and the requirements in subparts B and C of this part, except the secondary containment requirements in paragraphs (c) and (h)(1) of this section, and §§112.8(c)(2), 112.8(c)(11), 112.9(c)(2), 112.9(d)(3), 112.10(c), 112.12(c)(2), and 112.12(c)(11), where applicable to a specific facility, if equivalent environmental protection by some other means of spill prevention, control, or countermeasure is provided.

7.2 Facility Description – 112.7(a)(3)

MEP is located on a 10-acre portion of a 158-acre parcel in northeastern Alameda County, approximately 7 miles northwest of Tracy, 7 miles east of Livermore, and 6 miles south of Byron. MEP is approximately 0.5 miles north of Bethany Reservoir (part of the California Aqueduct system) and approximately 0.5 miles west of the Delta-Mendota Canal. A site map is provided as Figure 1 and a facility diagram showing onsite structures is provided as Figure 2.

MEP is a natural-gas-fired, simple-cycle electrical generating facility consisting of four (4) General Electric LM6000 turbines rated at a nominal aggregate generating

capacity of 200 MW. Oil and petroleum product storage capacity at the facility is approximately 41,069 gallons. Storage consists of used oil, turbine and other oils stored in 55-gallon drums and 5-gallon and 1-gallon containers. Turbine and generator oil is also stored in in-process lubricating oil tanks. There are thirteen non-PCB oil containing transformers. Additionally, there is an additional underground oil/water separator.

7.2.1 Surface Water Drainage

Up gradient stormwater is routed around the facility in drainage swales and does not come in contact with site runoff (see stormwater discussion in the next section). There is no surface water other than stormwater.

7.2.2 Stormwater Drainage

MEP mitigates stormwater runoff with a series of inlets and storm drain pipes which convey runoff to an onsite extended detention basin at the north end of the site. The extended detention basin is designed to release site stormwater runoff from the design storm capture volume over a minimum 48-hour period. It is not designed to hold water for longer periods. The multi-stage discharge structure will discharge to one of two swales routing up gradient stormwater around the site.

Areas of potential oily water contamination are sited within containments to prevent oily water from mixing with stormwater flowing to the extended detention basin. Stormwater from these areas is recycled onsite as described below.

7.2.3 Wastewater Treatment and Disposal System

MEP has been designed as a zero-liquid-discharge (ZLD) facility. The primary wastewater collection system collects process wastewater and stormwater runoff from the plant equipment process areas and routes it to sumps and then to the onsite oil/water separator before treatment by the nutshell activated carbon filtration ZLD system. The treated ZLD reclaim water is recycled to the raw water storage tank for plant process water usage. The secondary wastewater collection system collects sanitary wastewater from sinks, toilets, showers, and other sanitary facilities, and routes it to onsite sanitary waste tanks that are routinely pumped out for offsite treatment.

General plant drainage is routed through an oil/water separator prior to ZLD treatment.

7.3 Oil and Oil Product Storage – 112.7(a)(3)(i)

The oil and oil products at MEP include transformer insulating oil, diesel fuel, hydraulic oil, lubricating oil, and waste oil. Table 7-1 lists the inventory of oil containers that are subject to SPCC regulations and that were stored at MEP on June 20, 2019 the date MEP was inspected.

TABLE 7-1
Inventory of Oil Products and Containers Subject to SPCC Regulations, by Location
Mariposa Energy Project

Product	Container	Quantity	Size (gallons)	Secondary Containment Capacity (gallons)	Spill Prevention Equipment
Aboveground Storage Tanks					
Fuel Gas Condensate	Steel AST	1	54.5	Double-walled	The double wall tank located on a concrete ground.
Diesel Fuel	Fire Pump Tank - Steel AST	1	300	Double-walled	Double walled tank, spill kit in Fire Pump House
Mobile or Portable Containers					
Synthetic Lube Oil	CTG Auxiliary Skid	4	150	1,000	OWS System
Synthetic Lube Oil	DOT Drums	9*	55	75	Secondary Containment Pallet
Hydraulic Oil	CTG Auxiliary Skid	4	40	1,000	OWS System
Hydraulic Oil	DOT Drum	1*	55	75	Secondary containment pallet
Lubrication Oil	Generator Reservoir	4	500	1,000	OWS System
Lubrication Oil	DOT Drum	4*	55	75	Secondary containment pallet
Mobile DTE Extra Heavy Compressor Oil	DOT Drums	2*	55	55	Secondary containment pallet
Used Lubricating Oils	DOT Drums	1	55	55	Secondary containment pallet
Oil Filled Operational Equipment					
Mineral Insulating Oil	Generator Step-up (GSU) Transformers	4	7,872	>7,872 gallons integrated into pad design and not open to atmosphere	Leak detection device

TABLE 7-1
Inventory of Oil Products and Containers Subject to SPCC Regulations, by Location
Mariposa Energy Project

Product	Container	Quantity	Size (gallons)	Secondary Containment Capacity (gallons)	Spill Prevention Equipment
Mineral Insulating Oil	Auxiliary Transformers	2	453	>453 gallons; integrated into pad design and not open to atmosphere	Leak detection device
Mineral Insulating Oil	Station Service Transformers	2	1,317	> 1,317 gallons Integrated into pad design	Leak detection device
Mineral Insulating Oil	PCM Transformers	4	286	> 286 gallons Integrated into pad design	Leak detection device
Mineral Insulating Oil	Anti-icing Transformer	1	863	>863 gallons Integrated into pad design	Concrete berm, leak detection device

*These quantities are based on plant records. The exact number and contents of mobile containers (i.e. drums) may fluctuate but contents, overall quantity, and storage would be similar.

AST - aboveground storage tank
DOT - Department of Transportation

The locations of the oil containers listed in Tables 7-1 are shown in Figure 2. The facility drainage is directed to the north towards the oil water separator that acts as an additional spill protection device.

7.4 Discharge Prevention Measures – 112.7(a)(3)(ii)

The facility has developed procedures and training for employees who use oil-based materials to prevent discharge of oil and oil products. Preventative equipment and secondary containment are discussed in Sections 8.0 and 9.0 of this SPCC Plan. MEP personnel will receive spill response refresher training annually, as described in Section 11.0.

Tank truck loading and unloading procedures meet the minimum requirements of the U.S. Department of Transportation.

The delivery and loading of petroleum products is monitored by the truck driver and an MEP employee, who are required to be present during these activities. Absorbent materials, including absorbent pigs and spill containment equipment,

are available during deliveries and transfers of oil and oil products to contain potential releases. The delivery trucks leave the facility upon completion of filling operations.

Area Drainage

Spills that occur during loading at the ASTs could potentially enter the facility's stormwater system. To meet the requirements of this section, secondary containment is in place. The secondary containment is designed to contain the contents of the largest tank with sufficient freeboard to allow for precipitation. In accordance with the emergency response procedures established in the Emergency Response Plan, any spills that occur during tank filling are immediately surrounded by absorbent pigs and other absorbent materials or are vacuumed into a tanker truck and transported to an appropriate offsite commercial treatment and disposal facility.

Disconnect Warning

Trained operators are responsible for connecting and disconnecting transfer lines from filling ASTs. Operators visually inspect the connections before transfer of oil and oil products and prior to departure of the delivery truck.

Examination of Tank Truck Drains

Prior to departure, the operator of the tank truck examines the lowest drain and other outlets for leakage and, if necessary, tightens or adjusts it to prevent liquid leakage during transit. Vehicles are prevented from departing before completed disconnection of flexible or fixed oil transfer lines by warning signs and wheel chocks.

7.5 Discharge and Drainage Controls – 112.7(a)(3)(iii)

Aboveground storage tanks (ASTs) at MEP are located within secondary containment. The drums are staged on secondary containment pallets or located within buildings or structures that have secondary containment. Section 9.0 of this SPCC Plan describes the containment areas in more detail.

7.6 Countermeasures – 112.7(a)(3)(iv)

The countermeasures for discharge discovery and response are discussed in Section 9.0 of this SPCC Plan.

7.7 Methods of Disposal – 112.7(a)(3)(v)

The disposal methods for oil and oil product releases and spent and/or contaminated materials are in accordance with federal, state and local laws and regulations.

7.8 Emergency Contacts – 112.7(a)(3)(vi)

MEP emergency response contact information is provided in Table 7-2. Also listed in Table 7-2 is the contact information for federal, state, and local agencies that may need to be notified in the event of a reportable discharge. All agency notifications are performed in accordance with MEP Standard Operating Procedure; "5401.01-MEP-TOL, Emergency Notification Matrix".

TABLE 7-2
Emergency Contact Information for MEP

Organization	Primary Phone Number	Alternate Number
First Response Notification		
Primary: Kevin Kringle, Plant Manager	(925) 337-3859	(209) 833-3878
Alternate: Wayne Forsyth, EHS Manager	(213) 473-0093	(213) 503-1145
Agency Notification		
Alameda County Fire Department	911	(510) 881-8181
California Office of Emergency Service	(800) 852-7550	(916) 262-1621
U.S. Coast Guard National Response Center	(800) 424-8802	
Regional Water Quality Control Board, San Francisco Bay Region	(510) 622-2300	
Alameda County Department of Environmental Health	(510) 567-6858	
U.S. Environmental Protection Agency, Region 9	(800) 852-7550	
Spill Response Contractor – Dillard Env Services	(800) 675-1066	(925) 634-6850
Spill Response Contractor – Clean Harbors	(800) 645-8265	

7.9 Spill Reporting Procedures 40 CFR 112.7(a)(4)

For spills to land in excess of 42 gallons, or any amount of oil that causes a sheen on "waters of the state" or that violates an applicable water quality standard, the following agencies listed above must be notified:

- U.S. Coast Guard National Response Center (NRC)
- California Office of Emergency Services
- Alameda County Department of Environmental Health
- Regional Water Quality Control Board, San Francisco Bay Region
- Alameda County Fire Department (for spills requiring emergency response)

Additional spill reporting procedures are found in MEP Standard Operating Procedure; "5401-MEP-PRO Plant Communications", Emergency Notifications.

In the event of a release, the Plant Manager or designee will complete an Environmental Incident Report to facilitate prompt and accurate spill reporting. A copy of this form is provided in Attachment 2.

This form enables the Mariposa Energy employee who is reporting a discharge as described in §112.1(b) to relate information about:

- The exact address or location and phone number of the facility
- The date and time of the discharge
- The type of material discharged
- An estimate of the total quantity discharged
- Estimates of the quantity discharged as described in §112.1(b)
- The source of the discharge
- A description of all affected media
- The cause of the discharge, if known
- Any damages or injuries caused by the discharge
- Actions being used to stop, remove, and mitigate the effects of the discharge

- Whether an evacuation may be needed
- The names of individuals and/or organizations who also have been contacted

It is the responsibility of the Plant Manager to ensure that the report form is completed within 48 hours after the spill and that copies of the report and documentation of all agency communications are maintained in accordance with MEP Standard Operating Procedure; "5503-MEP-PRO Plant Filing System", and is on file at MEP.

7.10 Emergency Response Procedures – 112.7(a)(5)

MEP has an Emergency Response Plan, (2401-MEP-PLN Emergency Action Plan) associated with the Hazardous Materials Business Plan (HMBP) on file at the facility. This document covers spills of oil and oil products in addition to spills of hazardous materials and hazardous waste.

Each employee has the following responsibilities in the event of an oil spill:

1. Locate leak and take appropriate measures to halt the flow of oil. Locate leak and determine from a safe distance if the spill can be addressed in a safe manner. Notify the Plant Manager or designee immediately. Determine if emergency responders or spill contractor should be notified, and do so if necessary. See Section 7.8 of this plan for contact information.
2. Never address a release or spill alone.
3. As necessary, close off all drainage outlets to prevent the spill from leaving the facility and entering a waterway.
4. Assist in immediate cleanup operations, where applicable, provided that the spilled material is not an OSHA (Occupational Safety & Health Administration) hazardous material. Materials to be used include, but are not limited to, sorbent pads and Speedy Dry.

Additional spill response procedures are outlined in DGC Ops Standard Environmental Policy; "POL-03-ENV Environmental Management", for Environmental Incident Response, and is on file at MEP.

MEP has determined that potential discharges of oil and oil products at the facility cannot, because of their location, reasonably be expected to cause significant and substantial harm to the environment by discharging into or upon navigable waters or adjoining shorelines, based on the factors described in 40 CFR 112.20 (f)(1). The basis for this determination is:

1. The facility does not transfer oil over water to or from vessels
2. The total oil storage capacity at the facility is less than 1 million gallons

Certification that MEP will not cause significant and substantial harm to the environment, as required by 40 CFR 112.20(e), is included in Attachment 3 of this SPCC Plan. Based on these determinations, a Facility Response Plan pursuant to Section 112.20 is not required.

8.0 Spill Potential – 112.7(b)

ASTs are enclosed by containment structures designed to prevent uncontrolled releases resulting from tank failures. There is a low potential for tank failure (such as tank overflow, rupture, or leakage) at this facility, attributable to several factors:

- Tanks are well vented and operate at atmospheric pressure.
- Tanks, pumps, valves, and piping are regularly inspected and the results are recorded in the computer maintenance management system (CMMS) program.
- Piping and valves are confined to areas that are not accessible to vehicles under normal operating conditions.
- ASTs are protected from vehicular accidents by concrete berms or bollards.
- The two ASTs on-site are double walled tanks.
- Secondary concrete containments associated with the mobile or portable containers are capable of holding the full content of the container and are not open to the atmosphere.
- In addition, the secondary containment area for the oil filled operational equipment are capable of holding the full content of the oil.
- General site runoff is channeled separately off the facility without any contact with any of the stored chemicals.
- When the tanks are filled, fuel operators observe filling procedures to ensure no overfilling occurs.
- Secondary containment berms and drains are maintained in a condition that are free of debris and stormwater.
- The combustion turbine generators have secondary containment provided by the oil/water separator system, as described below in Section 9.0

. A summary of the potential spills are summarized in Table 7-3.

Product	Container	Quantity	Size (gallons)	Type of Failure (Discharge Scenario)	Potential Flow Rate and Total Discharge Volume	Direction of Flow of Uncontained Discharge	Secondary Containment Method
Aboveground Storage Tank							
Fuel Gas Condensate	Steel AST	1	54.5	Tank Rupture	Gradual to instantaneous up to 54.5 gallons	East, North-east to the drains leading to the oil water separator	Double walled Tank within a secondary containment
Diesel Fuel	Fire Pump Tank - Steel AST	1	300	Tank Rupture	Gradual to instantaneous up to 300 gallons	East, South East	Double walled tank, within the Fire Pump House
Mobile or Portable Containers							
Synthetic Lube Oil	CTG Auxiliary Skid	4	150	Container Rupture	Gradual to instantaneous up to 150 gallons	West, North West	OWS System
Synthetic Lube Oil	DOT Drums	9*	55	Container Rupture	Gradual to Instantaneous up to 55 gallons	East	Secondary Containment Pallet
Hydraulic Oil	CTG Auxiliary Skid	4	40	Container Rupture	Gradual to Instantaneous up to 40 gallons	West, North West	OWS System
Hydraulic Oil	DOT Drum	1*	55	Container Rupture	Gradual to Instantaneous up to 55 gallons	East	Secondary containment pallet
Lubrication Oil	Generator Reservoir	4	500	Container Rupture	Gradual to Instantaneous up to 500 gallons	North East	OWS System

Product	Container	Quantity	Size (gallons)	Type of Failure (Discharge Scenario)	Potential Flow Rate and Total Discharge Volume	Direction of Flow of Uncontained Discharge	Secondary Containment Method
Lubrication Oil	DOT Drum	4*	55	Container Rupture	Gradual to Instantaneous up to 55 gallons	East, North	Secondary containment pallet
Mobile DTE Extra Heavy Compressor Oil	DOT Drums	2*	55	55	Secondary containment pallet	Mobile DTE Extra Heavy Compressor Oil	DOT Drums
Used Lubricating Oils	DOT Drums	1	55	55	Secondary containment pallet	Used Lubricating Oils	DOT Drums
Oil Filled Operational Equipment							
Mineral Insulating Oil	Generator Step up (GSU) Transformers	4	7,872	Container Rupture	Gradual to Instantaneous up to 7,872 gallons	East, North	Leak Detection device; Secondary Containment
Mineral Insulating Oil	Auxiliary Transformers	2	453	Container Rupture	Gradual to Instantaneous up to 7,872 gallons	West, North	Leak Detection device; Secondary Containment
Mineral Insulating Oil	Station Service Transformers	2	1,317	Container Rupture	Gradual to Instantaneous up to 7,872 gallons	West, North	Leak Detection device; Secondary Containment
Mineral Insulating Oil	PCM Transformers	4	286	Container Rupture	Gradual to Instantaneous up to 7,872 gallons	East, North	Leak Detection device; Secondary Containment
Mineral Insulating Oil	Anti-icing Transformer	1	863	Container Rupture	Gradual to Instantaneous up to 7,872 gallons	North	Leak Detection device; Secondary Containment

Figure 2 indicates the flow direction from the oil-filled containers at MEP. The facility is designed such that wastewater will enter the ZLD system. Stormwater is collected in the detention basin.

9.0 Containment and Diversion Structures and Oil Spill Contingency Plan and Manpower – 112.7(c)-112.7(d)

The following preventive systems are used at the site to prevent a discharge of oil and oil products from reaching navigable waters.

9.1 Onshore Facilities – 112.7(c)(1)

Table 7-1 presents the secondary containment features and preventative controls for the ASTs, drums, equipment, transformers, and generators located within MEP. Additionally, mobile spill kits are located throughout the facility to be utilized in the event of a spill.

The oil drums are stored in covered bins to minimize the exposure to rainwater. The oil-filled transformer locations have secondary containment and these areas are uncovered. Some secondary containment basins are equipped with drain valves which are normally in a closed position to contain rainwater and any potential releases of oil or oil products.

No drainage from secondary containment areas is released offsite. Before rain water is removed from a secondary containment, a visual inspection for signs of oil releases, (film, sheen, or discoloration) is conducted. Once visual inspection ensures a significant release has not occurred, rain water from the secondary containments is routed to an oil/water separator prior to being recycled for process use in the ZLD system. If an oil film, sheen, or discoloration is present, but observations confirm a material release has not occurred from the oil-filled equipment, the accumulated rainwater can be released to the oil/water separator and ZLD system to be recycled. However, if a major oil contamination is released into a secondary containment system is observed, the contaminated rain water and/or released oil will not be released to the oil/water separator system. The material would either be pumped into drums or temporary tanks for proper offsite disposal or managed by a spill response contractor.

A secondary containment drainage report form to document all visual inspections prior to drainage releases is included in Attachment 4.

The combustion turbine/generator (package) lube oil reservoirs have separate secondary containment storage areas within each unit. The package oil-filled equipment process drains go directly to the oil/water separator drainage system. These process drains are routed to either (1) oil/water sumps, which are pumped to the oil/water separator, or (2) directly to the oil/water separator. The oil/water separator has an oil-collection volume of 500 gallons. Any potential release from the package would be contained within the package secondary containment or the oil/water separator, and would not drain offsite.

9.2 Offshore Facilities – 112.7(c)(2)

MEP is not an offshore facility.

9.3 Oil Spill Contingency Plan and Manpower – 112.7(d)

The management of MEP is committed to providing sufficient staff, equipment, facilities, and materials required to establish precautionary measures and to expeditiously implement corrective actions, including the containment, control, and removal of oil discharged from MEP.

The Emergency Response Plan for MEP contains a description of the preparedness and prevention requirements in the event of an emergency situation with respect to oil storage and use at MEP. It describes the actions that all personnel, both trained personnel and other personnel, must take if there is a fire, explosion, or spill. The contingency plan describes the arrangements that have been made with local police, fire, hospitals, contractors and local emergency response teams; lists emergency response equipment onsite and their locations and functions; and contains an evacuation plan showing the escape routes and safe gathering areas for portions of the facility.

The current onsite Emergency Coordinator and alternate onsite Emergency Coordinator are listed in Table 7-2 of this SPCC Plan.

Copies of the Emergency Response Plan have been submitted to local police, fire, and state or local emergency response officials.

MEP has determined and an independent Registered Professional Engineer has certified this SPCC Plan such that the installation of the structures or pieces of equipment listed in paragraphs (c) and (h)(1) of this section, and §§112.8(c)(2), 112.8(c)(11), 112.9(c)(2), 112.10(c), 112.12(c)(2), and 112.12(c)(11) to prevent a discharge as described in §112.1(b) from MEP is practicable and has been implemented.

10.0 Inspections, Tests, and Records – 112.7(e)

An inspection program has been implemented to provide a mechanism to prevent and detect system malfunctions, equipment deterioration, and operator errors. The program is designed to provide an early warning of the potential for such events so corrective and preventive actions may be taken in a timely manner.

10.1 General Inspections

MEP personnel inspect for malfunctions, deterioration, operator errors, and discharge that may cause or lead to spills of oil and hazardous substances. Inspections include tanks, transformers, drums, storage areas, pipes, valves, fittings, and other items covered elsewhere in this Plan. The inspection shall be

conducted as outlined in this Plan to identify problems before a spill occurs. The Plant Manager or a qualified designee will perform the inspections at MEP .

Tanks found to be leaking or to have been exposed to fire or other physical damage shall be taken out of service and properly repaired or inspected prior to returning to service. Qualified tank inspectors certified by the Steel Tank Institute (STI) or the American Petroleum Institute (API) should perform and certify tank inspections.

10.2 Routine Inspections

Drums, containers, aboveground in-process tanks, pumps, and connected aboveground piping shall be visually inspected for the following items on a weekly basis (also, see Attachment 5 of this Plan), as follows:

1. All aboveground in-process tank connections checked for leakage and appropriate capping;
2. All aboveground piping, valves, and fittings checked for leakage, damage to supports and pipe; and
3. All pumps checked for evidence of leakage and damage.

10.3 Periodic Inspections

In addition to routine inspections, other periodic inspections are included in other written plans or procedures and be conducted. All aboveground in-process tanks and storage areas containing oil or hazardous substances shall be periodically examined visually for condition and the need for maintenance. Such examination will include aboveground foundation and tank structural supports. The outside of the tanks will be inspected for signs of deterioration, leaks from seams and gaskets, and accumulation of oil or hazardous substances inside secondary containment structures.

All aboveground in-process tanks will be subjected to integrity testing every 10 years, using such techniques as tightness testing or a system of nondestructive shell thickness testing.

All aboveground valves and piping shall be examined on a scheduled periodic basis for general condition of items such as supports, flange joints, expansion joints, valve glands and pipe attachments, and drip pans. Periodic pressure or other nondestructive integrity testing may be warranted for piping where facility drainage is such that a failure might lead to a spill event.

Containment walls and berms shall be inspected at frequent intervals for accumulation of oil or hazardous substances and the source determined. Monthly and annual inspections will be performed to ensure the integrity of containment walls and curbs. No foreign material shall be placed within the containment structure.

Attachment 5 of this Plan contains the forms for the inspections that must be performed. Inspection activities will include:

- Check secondary containment for presence of water or product. Remove any if found after visually verifying that there is no oily sheen.
- Verify the oil/water separator leak detection system is operating properly.
- Inspect all pipe connections, pumps, valves, and fittings for evidence of leakage. Replace flanged gaskets as required.
- Perform a walk-around inspection to identify areas of damage to the tanks or oil-filled equipment and their coating. Repair areas of damage according to manufacturer's directions.
- Inspect tanks or oil-filled equipment supports for damage or deterioration. Repair coating as required and according to manufacturer's instructions.
- Inspect tank and oil-filled equipment foundations for signs of settlement or deterioration. Inspect anchor bolts. Repair and replace items as required according to manufacturer's directions.
- Inspect storage sheds and containment pallets for leaks or signs of damage or deterioration.

10.4 Inspection Records

Inspections will be documented in writing, signed by the operator, and kept on file. Inspection forms are included in Attachment 5. The forms shall be kept on file for a period of a minimum of 5 years.

11.0 Training and Discharge Prevention – 112.7(f)

All personnel responsible for handling or dispensing of petroleum products must participate in the annual spill prevention and control training program. All such employees shall participate in the review and update of spill prevention and control procedures.

11.1 Personnel Training – 112.7(f)(1)

Training sessions are conducted to familiarize personnel with oil spill containment and cleanup equipment and materials. This training familiarizes maintenance and operating personnel with the proper and most efficient spill prevention and control methods. As required by Section 112.7(f)(1), MEP will train oil-handling personnel in the operation and maintenance of equipment to prevent discharges; discharge procedure protocols; applicable pollution control laws, rules, and regulations; general facility operations; and contents of the facility SPCC Plan.

All employees involved in oil handling procedures are annually trained in oil spill prevention procedures. Spill prevention procedures are addressed in initial and annual spill prevention training, as well as Hazard Communications Program training. Safety meetings are conducted weekly and periodically include discussions of spill prevention and response procedures for employees. Annually, discharge prevention briefings for oil-handling personnel are conducted to ensure adequate understanding of this Plan. These briefings highlight and describe known discharges as described in Section 112.1(b) or failures, malfunctioning components, and any recently developed precautionary measures.

Certifications of training are maintained in accordance with Mariposa Energy's Training and Qualification Requirements. See Attachment 6 for the Annual Hazardous Materials and Emergency Response Training Form.

Annual training is documented and maintained in accordance with MEP's Training and Qualification Requirements for a minimum period of 3 years from the date of training. A personnel training record form is included as part of Attachment 6.

11.2 Emergency Coordinator – 112.7(f)(2)

The Plant Manager is responsible for oil spill prevention at MEP and for coordinating spill response and spill prevention programs and activities. Day-to-day responsibilities lie with the Plant Manager or qualified designee. A list of emergency contacts is provided in Table 7-2.

11.3 Spill Prevention Briefings – 112.7(f)(3)

The facility uses routine workplace meetings as a forum to reinforce adequate understanding of spill prevention procedures. These meetings occur several times per year. Additionally, safety communications are issued periodically as part of a continuous training program. Briefings are intended to highlight and describe known spill events or failures, malfunctioning components, and recently developed precautionary measures.

12.0 Security – 112.7(g)

Unauthorized access to MEP is prevented by a permanent 8-foot high chain-link fence with barbed wire surrounding the site. The facility has one primary entrance at the northwest side of the plant, through which employees gain access using access key cards. Visitors are required to call the Control Room to gain entry. MEP is manned 24 hours per day, 365 days a year. Sufficient lighting is provided throughout the facility to allow for safe nighttime operation and spill detection.

ASTs with master flow valves, allowing direct outward flow of the contents of a tank, are maintained in the closed position when not in operation. During operation, plant personnel keep sight of the flow drains and valves. There are no existing pipelines onsite that are not in service or closed permanently. However, if piping were taken out of service or permanently closed, the piping would be blank-flanged and marked as such.

13.0 Tank Alterations – 112.7(i)

MEP does not have any field constructed aboveground containers, thus this section does not apply.

14.0 State and Local Spill Prevention Rules – 112.7(j)

This SPCC Plan is intended to provide appropriate guidance for response to spills of oil and oil products. However, it may not address all compliance issues for spills covered by regulations mandated by laws other than the Clean Water Act (e.g., Resource Conservation and Recovery Act [RCRA]; Comprehensive Environmental Response, Compensation and Liability Act [CERCLA]; or state requirements). These guidelines should be followed to the extent applicable and practical. The MEP Emergency Response Plan does cover spills and spill responses under RCRA and CERCLA, plus all applicable state laws.

14.1 Qualified Oil-Filled Operational Equipment – 112.7(k)

MEP has qualified oil-filled equipment that meets the requirements of Section 112.7(k)(3). The oil-filled operation equipment is listed in Table 7-1.

14.2 Reportable Discharge History – 112.7(k)(1)

MEP has had no discharges from oil-filled operational equipment that meet the requirements under Section 112.7(k)(1).

14.3 Alternative Requirements to Secondary Containment – 112.7(k)(2)

All oil-filled operational equipment that is subject to this SPCC Plan has secondary containment for the most credible release. Mariposa Energy is not requesting any alternative requirements to secondary containment for these pieces of equipment.

15.0 SPCC Plan Requirements for Onshore Facilities – 112.8

Subpart B of 40 CFR 112 provides additional requirements for owners and operators of onshore facilities. 40 CFR 112.8(a) through 112.8(d) are addressed below.

15.1 General SPCC Plan Requirements – 112.8(a)

This SPCC Plan meets the requirements of 40 CFR 112.7, which is supplemented by the discharge prevention and containment procedures of this section.

15.2 Facility Drainage – 112.8(b)

MEP contains no natural ponds, streams, or significant drainage channels. Stormwater at the MEP flows into the detention basin located at the northeast corner of the property. Surface drainage from process and chemical storage areas are controlled by the ZLD system.

15.2.1 Valves and Pumps on Diked Areas – 112.8(b)(1-2)

The diked areas have drain valves associated with them. When rain water must be removed from a diked area, the water is visually inspected for film, sheen, or discoloration due to the presence of oil. Accumulated rain water is drained to the ZLD system once visual inspection ensures compliance with applicable water quality standards and that a harmful discharge defined in 40 CFR Part 110 will not be caused. If a film, sheen, or discoloration is present, the accumulated rain water is tested for oil and fuel and only clean runoff is released to the storm drain.

15.2.2 Plant Drainage from Undiked Areas – 112.8(b)(3)

Plant drainage from undiked process areas flows into the ZLD system. General site stormwater runoff flows into the detention basin at the northeast corner of the property.

15.2.3 Drainage Diversion System – 112.8(b)(4)

MEP has adequate drainage structures from areas where petroleum products are stored outside to prevent stormwater discharges contaminated with petroleum products from migrating off the property. Therefore, this section is not applicable.

15.2.4 Facility Drainage Systems – 112.8(b)(5)

Drainage waters collected from secondary containment systems with an oily sheen are tested for oil and fuel before any runoff is released. If test results are positive for oil and fuel, the drainage water is collected and disposed of in accordance with federal, state, and local requirements.

15.3 Bulk Storage Tanks – 112.8(c)

Oil storage tanks are constructed and used as described below.

15.3.1 Tank Compatibility – 112.8(c)(1)

Tanks are compatible with the materials stored and the environmental conditions to which they can reasonably be expected to be subjected. None of the tanks are used to store material at greater than atmospheric pressure.

15.3.2 Secondary Containment – 112.8(c)(2)

Containment information is provided in Table 7-1 and discussed in Section 9.0, Containment and Diversion Structures, of this SPCC Plan.

15.3.3 Draining Tank Secondary Containment Structures – 112.8(c)(3)

Drainage of secondary containment structures is accomplished by opening drain valves from the bermed area. When rain water must be removed from a diked area, the water is visually inspected for film, sheen, or discoloration due to the presence of oil. Accumulated rain water is pumped or drained once visual inspection has been performed. If a film, sheen, or discoloration is present, the observations are noted and the water is managed as described in Section 9.1. Records of these observations and any test results are documented and retained onsite in accordance with 40 CFR 112.8(c)(3)(iv).

15.3.4 Buried Metallic Storage Tanks – 112.8(c)(4)

There are no buried metallic storage tanks at MEP.

15.3.5 Partially Buried Storage Tanks – 112.8(c)(5)

There are no partially buried storage tanks at MEP.

15.3.6 Periodic Integrity Testing – 112.8(c)(6)

Integrity testing of tanks, supports, foundations, and containment units is performed periodically, taking into account tank design and using such techniques as hydrostatic testing, pressure testing, or a system of non-destructive shell thickness testing. Integrity testing of tanks is performed in accordance with API Standard 653 (December 2001), "Tank Inspection, Repair, Alteration, and Reconstruction." Integrity testing of piping is conducted in accordance with API 570 (December 2001), "Piping Inspection Code." Visual inspection is conducted routinely, as discussed above. Additionally, integrity testing is performed when material repairs are done. Records are maintained in the SPCC files or in MEP maintenance files.

Smaller containers (e.g., 55-gallon drums, totes) used by MEP are expected to have minimal risk of internal corrosion and failure. These containers are inspected at least monthly and stored so all sides are visible (i.e., the container has no contact with the ground). If the container starts to degrade (e.g., begins to rust, or oxidize if a poly drum), the contents of the container will be transferred to a new drum that is constructed of a material that is compatible with the stored material. These controls are expected to provide environmental protection equivalent to integrity testing.

All tanks are visually inspected on a regular basis to assess tank integrity. Inspections are performed as described in Section 9.0.

15.3.7 Internal Heating Coils – 112.8(c)(7)

Internal heating coils are not associated with the ASTs at MEP.

15.3.8 Fail-Safe Engineering – 112.7(c)(8)

The possibility of a significant discharge is reduced by the following equipment/ procedures:

- Manual control (and physical presence by trained plant employees) over all movements of oil products
- Regular inspections of tanks, respective liquid levels, and auxiliary equipment
- All tanks located within close view of the daily operations conducted at MEP
- Secondary containment of storage containers of oil and oil products
- Compatible tank gauges for the respective contents of the tanks

15.3.9 Effluents into Navigable Waters – 112.8(c)(9)

MEP produces no effluents for discharge to navigable waters or tributaries thereof.

15.3.10 Correction of Tank Discharges – 112.8(c)(10)

If it is determined the integrity of the tanks or auxiliary equipment has been compromised, the system will immediately be taken out of service, the problem evaluated, and appropriate steps taken to correct all deficiencies. Any oil accumulation in diked areas will be removed and properly disposed.

15.3.11 Mobile/Portable Oil Tank – 112.8(c)(11)

There are no mobile/portable tanks containing oil products at MEP.

15.4 Transfer Operations, and In-Plant Process – 112.8(d)

15.4.1 Buried Piping Installations – 112.8(d)(1)

There are no buried pipelines containing oil products at MEP.

15.4.2 Out-of-Service Piping – 112.8(d)(2)

There is no out-of-service piping containing oil products at MEP.

15.4.3 Piping-Support Design – 112.8(d)(3)

The piping supports at MEP have been properly designed to minimize abrasion and allow for expansion and contraction.

15.4.4 Inspection of Valves and Piping – 112.8(d)(4)

Valves, fittings, and aboveground pipelines are routinely inspected through the preventive maintenance program as described in Section 9.0.

15.4.5 Aboveground Piping – 112.8(d)(5)

Aboveground piping has been designed and installed such that vehicles cannot endanger its integrity.

16.0 Other Sections

The following sections of the regulation are not applicable to MEP:

- Section 112.9 applies to onshore oil production facilities and is not applicable to the facility.
- Section 112.10 applies to onshore oil drilling and workover facilities and is not applicable to the facility.
- Section 112.11 applies to offshore oil drilling, production, or workover facilities and is not applicable to the facility.
- Section 112.12 applies to onshore facilities storing animal fats, oils and greases, fish and marine mammal oils and vegetable oils and is not applicable to the facility.
- Section 112.20 applies to facilities that need to prepare a Facility Response Plan. MEP has determined that potential discharges of oil and oil products cannot, because of their location, reasonably be expected to cause significant and substantial harm to the environment by discharging into or upon navigable waters or adjoining shorelines, based on the factors described in 40 CFR 112.20 (f) (1). The basis for this determination is:

  1. The facility does not transfer oil over water to or from vessels; and,

2. The total oil storage capacity at facility is less than 1 million gallons.

Certification that MEP will not cause significant and substantial harm to the environment, as required by 40 CFR 112.20(e), is included in Attachment 3. Based on these determinations, a copy of this Plan has not been submitted to the EPA Regional Administrator. Based on this determination, a Facility Response Plan is not required.

Attachment 1
SPCC Plan Changes Form

ATTACHMENT 1

SPCC Plan Changes Form			
Date of Change	Nature of Change	Recertification Necessary?	Date of Recertification
7/30/12	Incorporated data from PE site visit, added materials, clarified secondary containment approach, and finalized SPCC for certification.	Prepared for initial certification	Not Applicable (Initial Certification)
11/17/15	Updated names and signatures for Plant Manager and VP O&M	NO	N/A
1/24/19	Updated names and signatures for Plant Manager, Director O&M, Spill Response Contacts and overall procedure review.	YES	
7/15/19	Five-year update	YES	

Attachment 2
Spill Information/Environmental Incident Report Form

ATTACHMENT 2

ENVIRONMENTAL INCIDENT REPORT

INSTRUCTIONS: An Environmental Incident Report must be completed by all facilities and submitted to the DGC OPS Environmental Office within twenty-four hours for any of the following occurrences:

1. Spills/Releases 2. Fire/Natural Disaster 3. Agency Inspection/News Media Contact 4. Agency Action

FACILITY			PLANT LOCATION/LOCALES (City, State, Country)			
1. DATE	TIME	☐ SPILL/RELEASE TO: ☐AIR ☐WATER ☐SOIL ☐POTW			NAME OF RECEIVING STREAM OR BODY OF WATER	
SPECIFIC LOCATION WHERE INCIDENT OCCURRED						
☐ REPORTED	To Agency ID #	Date Reported	Time Reported ☐ AM ☐ PM	Did Agency respond? ☐ YES ☐ NO	Time of response? ☐AM ☐PM	
☐ UNREPORTED	Explain Why					
EMPLOYEES INVOLVED			OUTSIDE PEOPLE INVOLVED			
LIST OF SUBSTANCES INVOLVED		ESTIMATED AMOUNT	LIST OF SUBSTANCES INVOLVED		ESTIMATED AMOUNT	
DESCRIPTION	Describe events leading to incident					
PREVENTION	What corrective action has been taken to prevent a re-occurrence?					
2. DATE	TIME	TYPE OF FIRE/NATURAL DISASTER			NAME OF AGENCY, IF KNOWN	
Describe events leading to fire/natural disaster and emergency responders						
3. DATE	TIME	NAME OF INSPECTING AGENCY & REPRESENTATIVE OR MEDIA & REPRESENTATIVE			PURPOSE OF INSPECTION/CONTACT	
☐ Federal ☐ State ☐ County ☐ Local		Response to a complaint? ☐ NO ☐ YES → ☐ EMPLOYEE ☐ CITIZEN ☐ OTHER AGENCY				
AREA TO BE INSPECTED		NAME OF EMPLOYEE ACCOMPANYING INSPECTOR				
PICTURES REQUESTED/TAKEN ☐ YES ☐ NO TYPES OF SAMPLES SPLIT SAMPLES ☐ YES ☐ NO		TYPE OF ANALYSIS TO BE PERFORMED			LOCATION OF ANALYSIS	
4. DATE	TIME	Reason				
Received: ☐ Notice of Violation ☐ Notice of Administrative Order ☐ Compliance order ☐ Permit		☐ Summons and/or citizens complaint ☐ Notice of non-compliance ☐ Other enforcement directives		**Submitted:** ☐ Response to agency ☐ Affirmative defense ☐ Report & notification		
ATTACH COPY TO ENVIRONMENTAL REPORT						
COMPLETED BY		DATE COMPLETED	REVIEWED BY		DATE REVIEWED	

Attachment 3
Certification of Substantial Harm Determination Form

ATTACHMENT 3

Certification of Substantial Harm Determination Form

Facility Name: Mariposa Energy Project

Facility Address: 4887 Bruns Road, Byron CA

Substantial Harm Criteria	Yes	No
Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?		X
Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground storage tank area?		X
Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in 40 CFR part 112 Appendix C, Attachment C-III or a comparable formula) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments?		X
Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in 40 CFR part 112 Appendix C, Attachment C-III or a comparable formula) such that a discharge from the facility would shut down a public drinking water intake?		X
Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years?		X

CERTIFICATION:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

_____	Plant Manager
Signature	Title
Kevin Kringle	_____
Name (please print or type)	Date

Attachment 4
Secondary Containment Drainage Report Form

ATTACHMENT 4

Mariposa Energy, LLC

Oil Storage and Oil-Filled Equipment

Secondary Containment Drainage Report

Date	Employee Signature	Oil Sheen Present?	Corrective Action/Notes	Water Removed		Estimated Gallons of Water Removed
				Start Time	End Time	

Attachment 5
Weekly Inspection Forms

ATTACHMENT 5

Mariposa Energy, LLC

Oil Storage and Oil-Filled Equipment

Weekly Inspection Checklist

Gas Turbine Technician performing the inspection: Name: _____
Date: _____

Check all aboveground tank connections for evidence leakage: Yes ____ No ____
If yes, corrective action taken: _____

Inspect all pipe connections, pumps, valves, and fittings for evidence of leakage or damage: Yes ____ No ____
If yes, corrective action taken: _____

Check secondary containment for presence of water or product: Yes ____ No ____
If yes, document and remove in accordance with procedure: _____

Inspect oil/water separator leak detection system. Not operating properly: Yes ____ No ____
If yes, corrective action taken: _____

Inspection for areas of damage to the tanks or oil-filled equipment and their coating: Yes ____ No ____
If yes, corrective action taken: _____

Inspect tanks or oil-filled equipment supports for damage or deterioration: Yes ____ No ____
If yes, corrective action taken: _____

Inspect tank and oil-filled equipment foundations for signs of settlement or deterioration: Yes ____ No ____
If yes, corrective action taken: _____

Inspect storage sheds and containment pallets for leaks or signs of damage or deterioration: Yes ____ No ____
If yes, corrective action taken: _____

Attachment 6
Annual Hazardous Materials and Emergency Response Training Form

ATTACHMENT 6

Annual Hazardous Materials & Emergency Response Training

Date & Time Held	Location	Training Conducted by: _____ Title: _____

Training will cover chemical hazards, emergency response, Hazwoper, spill response, and storm water pollution prevention. Additional training is provided and separately documented on Hazard Communication, Fire Fighting and Fire Prevention, Bloodborne Pathogens, Chemical Hygiene, Tagout/Lockout, Respiratory Protection, and Confined Space Entry.

From the Safety and Environmental Procedures "21XX-MEP-Personal Safety Health Wellness", "24XX-MEP-Emergency-Fire-High Risk", "33XX-MEP-Waste", "33XX-MEP-Hazmat, EPCRA, 35XX-MEP-Oil, Pollution Prevention", training will include the following Site-Specific training:

[ ] 1. "Hazardous Materials Emergency Response"
[ ] 2. "Safety, Isolation, and Notification"
[ ] 3. "Hazardous Waste Identification and Management Requirements"
[ ] 4. "Hazardous Materials Recognition and Hazard Assessment"
[ ] 5. "Exposure Control and Respiratory Equipment"
[ ] 6. "Environmental Protection Programs (SPCC and SWPPP)"

Annual Emergency Response Drill Scenario:

Invite ACDEH/Fire? (>72 hrs in advance)	
Type of Event?	
Time Event Started?	
Time Event Ended?	
Amount of oil/chemical?	
Location at MEP?	
Did event enter soil?	
Did event leave site?	
Injury?	
Agencies notified? (ACDEH/OES/Fire)	
Office of Emergency Services (OES) Event Report Number? (Issued after)	

ATTACHMENT 6

Critique/Comments: _____

Corrective Actions:

Equipment	WO Number	Due Date

Corrective Participants:

Printed Name	Signature

Exhibit 12
Major Permits Approved or Submitted during report period

January 10, 2020

Mariposa Energy, LLC (09-AFC-3C) revised (updated) 2 major permits in 2019;

- Risk Management Plan (RMP) June 05, 2019
- Spill Prevention, Control, and Countermeasure Plan (SPCC) August 16, 2019

Wayne Forsyth

Wayne Forsyth
Program Manager – EHS & Regulatory
Mariposa Energy, LLC
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Procedure Type:	SAFETY	To:	**ALL MARIPOSA PERSONNEL**
Procedure Number:	SMP-16	Rev. Requested Date:	6/05/2019
Date:	3/16/2012	Rev. Requested By:	W.
Equip. #		Forsyth Ref. Procedures	
Revision Date:	06/05/2019	Date last reviewed:	6/05/2019
Author	Yorke Engineering		
TITLE:	**RISK MANAGEMENT PLAN**		

TABLE OF CONTENTS

ATTACHMENTS

Number	Item	No. of Pages	Dated
1	SLAB Model Input and Output	#14	01/03/2012
2	ALOHA Model Output	#4	05/20/2019
3	RMP Amendment Log	#2	06/05/2019
4	Final Compliance Requirements	#2	06/05/2019
5	ACDEH Correspondence	#102	Various
6	Ammonium Hydroxide SDS	#4	08/18/2016
7	Coordination With Fire Department	#1	06/04/2019
8	ACDEH Program Level 1 Approval	#2	02/20/2014
9	Supplemental Information Provided to ACDEH	#9	10/21/2013

California Accidental Release Prevention (CalARP) Program – Registration Information

Date of Submittal: 5/31/2019

Registration

According to the California Code of Regulations (CCR), Title 19, Chapter 4.5, Article 2, Section 2740.1, if an RMP is required under Section 2735.4(a)(2), the owner or operator shall complete the required registration information below [CCR, Section 2740.1 (d)(1) – (20)] and submit it with the RMP.

Stationary Source Name:	Mariposa Energy, LLC.
Facility Address:	4887 Bruns Rd, Byron, CA 94514
Mailing Address:	Same
Dun and Bradstreet Number:	039727181
Primary NAICS Number	221112
Name of Owner/Operator:	Mariposa Energy, LLC
Latitude:	37.790561 N
Longitude:	-121.600978 W
Method of Obtaining Latitude and Longitude:	Google Earth
Description of Location that Latitude and Longitude Represents:	Ammonia Tank
Name and Title of the person or position with the overall responsibility of RMP elements and implementation:	Plant Manager
Name of Emergency Contact:	Kevin Kringle
Title of Emergency Contact:	Plant Manager
Telephone Number of Emergency Contact	(209) 830-1401 x 305
24-Hour Phone	(925) 337-3859
List of Covered Process:	Aqueous Ammonia Storage Process
Name of Regulated Substance (CAS Number):	Aqueous Ammonia—19% (1336-21-6)
Maximum Quantity of regulated substance (lbs):	65,779
Program Level	1
Number of Full Time Employees:	10
Is the stationary Source Subject to Section 5189 of Title 8 of CCR?	No
Is the stationary Source subject to part 355 of Title 40 of the Code of Federal Regulations?	No
Does the Stationary Source have a CAA Title V operating permit (Permit Number)	Yes (B9730)
Date of last safety inspection of the stationary source by a federal, state or local government agency and the identity of the inspecting entity?	4/16/2019; Alameda County Department of Environmental Health (the CUPA)
RMP Preparer Information: **Name, Company, Address, contact information**	Divya Narasimhan Yorke Engineering 1963 University Avenue, Berkeley, CA (510) 780-6828
Reason for Change:	Five Year update

Executive Summary

ES.1 Introduction

The Mariposa Energy (Mariposa) is owned by Mariposa Energy, LLC (Mariposa Energy) and operated by Diamond Generating Corporation (DGC) Operations, LLC, in an unincorporated area in northeastern Alameda County. Mariposa stores and uses aqueous ammonia (19-percent aqueous ammonia solution) in a selective catalytic reduction (SCR) system to control nitrogen oxides (NOx) emissions from natural gas combustion. Using and storing aqueous ammonia can be a hazard if it is not handled properly. Mariposa personnel take their safety obligations very seriously and ensure that operators involved in the use of aqueous ammonia are trained and knowledgeable of the chemical hazards associated with their jobs. The following document describes what could happen if there were to be an accident, some of the steps taken to ensure a safely operating power plant, and how chemical emergencies are handled. This document complies with the California Accidental Release Prevention (CalARP) Program under Title 19 of the California Code of Regulations (CCR), Division 2, Chapter 4.

ES.2 Accidental Release Prevention and Emergency Response Policies

The Mariposa accidental release prevention policy involves a unified approach that integrates proven technology, staff training in operation and maintenance practices, and tested management system practices. Applicable procedures of the State of California are adhered to, including key elements such as training, systems management, and emergency response procedures.

Mariposa recognizes the responsibility to make the environment, community, and employee safety a primary part of daily operations. Mariposa is committed to being a responsible member of the community by giving top priority to operating in a safe and environmentally sound manner. Mariposa is also committed to working closely with community members, environmental groups, and local governmental agencies to meet its obligations to the community and to the environment.

It is the policy of Mariposa that every employee is entitled to a safe and healthful place in which to work and live. Mariposa incorporates the concepts of environmental responsibility and productivity with safety, resulting in efficiency and productivity. As part of Mariposa's obligation to protect the integrity of human, environmental, physical, and financial resources, and to conserve and efficiently utilize those resources, Mariposa strives to:

- Comply fully with laws regulating environmental protection and employee health and safety
- Furnish work places free of recognized hazards likely to cause injury to employees, the public, or the environment
- Train employees in safe and environmentally conscious practices and require compliance with environmental, health, and safety regulations, policies, and procedures

- Provide a professional staff to maintain and support environmental, health, and safety programs

ES.3 General Facility and Regulated Substances Information

Mariposa is a natural gas-fired, simple-cycle peaking facility with a generating capacity of 200 megawatts (MW). Primary equipment for the generating facility includes four General Electric LM6000 PC-Sprint combustion turbine generators and associated equipment. Power is transmitted to the grid at 230 kilovolts (kV) through a new 0.7-mile transmission line connecting to the existing Pacific Gas and Electric (PG&E) Kelso substation. A new 580-foot natural gas pipeline connects Mariposa to PG&E's Line 002, which is an existing high-pressure natural gas pipeline northeast of the Mariposa site.

A 19% aqueous ammonia solution (ammonium hydroxide) is used as the reduction reagent in Mariposa's proposed SCR system for controlling the turbines' NOx emissions. Aqueous ammonia is vaporized and injected into the flue gas stream from the turbines and then passed through a catalyst bed. In the presence of the catalyst, the ammonia and NOx react to form nitrogen and water vapor, thereby reducing NOx emissions. Aqueous ammonia is a regulated toxic substance under the CalARP regulations. This Program Level 1 Risk Management Plan (RMP) addresses the 19-percent aqueous ammonia solution stored and used at Mariposa. A Material Safety Data Sheet is included as Attachment 6.

ES.4 Offsite Consequence Analysis Results

Mariposa had an offsite consequence analysis for aqueous ammonia conducted using the SLAB model. SLAB is a computer-based dispersion model, developed by the Lawrence Livermore Laboratory, which simulates the atmospheric dispersion of denser-than-air and neutrally buoyant releases. Prior to modeling with SLAB, an ammonia evaporation release rate was calculated pursuant to the guidance given in *RMP Offsite Consequence Analysis Guidance, U.S. Environmental Protection Agency (EPA), April 1999*, and using the emission calculation tool for evaporating solutions provided in the Areal Locations of Hazardous Atmospheres (ALOHA) model provided by the EPA. Passive mitigation of 90% was included based on placement of high-density polyethylene (poly) balls in the containment basin to reduce the surface area exposed to evaporation. The resulting worst-case release scenario for aqueous ammonia does not extend offsite.

Using the ACDEH requested ALOHA model, it was determined that the Mariposaworst-case release without passive mitigation exceeded the distance to the nearest and only public receptor in range (the PG&E Byron Bethany Gas Pump Station). However alternate scenarios assuming at least 80% passive mitigation through reduction in exposed surface area from the poly balls resulted in a distance to toxic endpoint less than the distance to the PG&E Byron Bethany Gas Pump Station. Provided two layers of poly balls are installed and maintained, ACDEH has agreed to a Program Level 1 Status for Mariposa(see Attachment 8).

ES.5 Summary of the Five-Year Accident History

Mariposa Energy completed construction of the Mariposa in mid-2012. There have been no accidents involving aqueous ammonia that have resulted in deaths, injuries, or

significant property damage onsite, or known offsite deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage.

ES.6 Summary of the Emergency Response Program

Mariposa Energy has developed an emergency response plan that includes procedures for addressing an accidental release of aqueous ammonia at the Mariposa Energy Byron facility. This emergency response plan details the emergency response procedures, evacuation routes, and a list of telephone numbers of agencies and individuals to contact in the event of an accidental release or other emergency. This includes the PG&E Byron Bethany Gas Pump Station located about 2,050 feet from the aqueous ammonia tank.

In the event of an aqueous ammonia release, the Mariposa Plant Manager will assess whether the release is controllable or uncontrollable and if the Mariposa personnel are able to respond without exceeding their awareness level of training qualification. If the release is controllable, trained Mariposa personnel will perform the tasks necessary to accomplish containment and mitigation of the release. If the release is uncontrollable, Mariposa personnel will notify the Alameda County Fire Department, which will handle spill/release response and mitigation.

As described in Section 4, there is a coordinated effort between Mariposa staff and the Alameda County Fire Department for Accidental Release Responses.

The emergency response plan will be reviewed whenever a deficiency is noted or at least annually. Employees will be trained in the emergency response plan when hired, and all employees will receive annual refresher training in emergency response procedures.

ES.7 Summary of the Accidental Release Prevention Program and Chemical-Specific Prevention Steps

A prevention program is not required for Program Level 1 processes; however, accident prevention at Mariposa is implemented through a set of policies and programs that may include the following:

- Inspection and maintenance program for all system equipment
- Monitoring of employee and contractor use of the system
- Lockout/Tagout Procedures and Program
- Employee Safety Training Program
- Compilation of substance information (material safety data sheet [MSDS])

Mariposa Energy has prepared and implemented the following plans and procedures to promote safety and prevent accidents at Mariposa:

- Hazardous Materials Business Plan
- Spill Prevention, Control, and Countermeasure Plan
- Safety Management Plan for delivery of aqueous ammonia and other hazardous materials

ES.8 Planned Changes to Improve Safety

Mariposa maintains a high level of commitment towards safety preparedness training of its employees and the continuous improvement of facility safety processes. Mariposa ensures that all employees receive the appropriate level of training at the time of hire and receive annual refresher training. System components essential to the covered process are scheduled for inspection, maintenance and/or replacement that meets or exceeds the manufacturers' recommendation. The inspection/maintenance and replacement frequency is scheduled through MAXIMO; a Computerized Maintenance Management System (CMMS). For the covered process. MAXIMO tracks the preventive maintenance of the ammonia system. Specifically the ammonia sensors are on a preventive maintenance schedule to be calibrated every calendar quarter and to be replaced per the manufacturer's specifications. Any new bulletins or recommendations issued by the manufacturer will continue to be reviewed and implemented in a timely manner and applicable maintenance support (if any) will be added into the MAXIMO CMMS.

1.0 Introduction

Mariposa Energy (Mariposa) is a nominal 200-megawatt (MW), simple-cycle generating facility consisting of four natural-gas-fired turbines located in northeastern Alameda County. Mariposa uses 19 percent aqueous ammonia (ammonium hydroxide) as the reduction reagent in the selective catalytic reduction (SCR) system to control emissions of nitrogen oxides (NO_X) from the combustion turbine generators. The maximum quantity of aqueous ammonia stored at a given time is 8,500 gallons or approximately 12,500 pounds of ammonia in solution. Aqueous ammonia is a regulated substance under various programs, as discussed below. As required by California Energy Commission (CEC) Condition of Certification HAZ-2, Mariposa Energy, LLC (Mariposa Energy) prepared and submitted a Risk Management Plan (RMP) to address the potential accidental release of ammonia from the facility. The purpose of this document is to comply with this requirement and the California Accidental Release Prevention (CalARP) Program regulations.

This section includes: (1) a facility description, (2) a discussion of the general regulatory background, (3) additional details of the applicability of the CalARP Program regulations. and (4) the general Program Level 1 facility requirements. The details of the CalARP Program Level 1 major elements (offsite consequence analysis, 5-year accident history, emergency response program, and certification) are provided in Sections 2, 3, 4, and 5, respectively.

1.1 Facility Description

Mariposais owned by Mariposa Energy, operated by DGC Operations, LLC. and located in unincorporated northeastern Alameda County. The site is approximately 7 miles northwest of Tracy. California: 7 miles east of Livermore. California; 6 miles south of Byron. California; and 2.5 miles west of the community of Mountain House in San Joaquin County. Mariposa is southeast of the intersection of Bruns Road and Kelso Road. Figure 1-1 provides a site vicinity map for Mariposa.

Mariposa is a natural gas-fired, simple-cycle peaking facility with a generating capacity of 200 MW. Primary equipment for the generating facility includes four General Electric LM6000 PC-Sprint combustion turbine generators and associated equipment. Power is transmitted to the grid at 230 kilovolts (kV) through a new 0.7-mile transmission line connecting to the existing Pacific Gas and Electric (PG&E) Kelso substation. A new 580-foot natural gas pipeline connects Mariposa to PG&E's Line 002, which is an existing high-pressure natural gas pipeline located northeast of the Mariposa site. Service and process water is treated raw irrigation water provided via a new connection to the Byron-Bethany Irrigation District (BBID) via a new pump station and 1.8-mile pipeline. The Mariposa site layout is shown in Figure 1-2.

A 19% aqueous ammonia solution (ammonium hydroxide) is used as the reduction reagent in Mariposa's SCR system for controlling the turbines' NOx emissions. Aqueous ammonia is vaporized and injected into the flue gas stream from the turbines and then passed through a catalyst bed. In the presence of the

catalyst, the ammonia and NOx react to form nitrogen and water vapor, thereby reducing NOx emissions.

Mariposa has created and maintained an "Ammonia Offloading Procedure" (6480- Mariposa-PRO) and corresponding "Ammonia Truck Unload Checklist" (6480.01- Mariposa -TOL) as required by the California Energy Commission (CEC) "Commission Decision" (Docket 09-AFC-3-May. 2011) HAZ-3 Condition.

HAZ-3 *The project owner shall develop and implement a Safety Management Plan for delivery of aqueous ammonia and other liquid hazardous materials by tanker truck. The plan shall include procedures, protective equipment requirements, training, and a checklist. It shall also include a section describing all measures to be implemented to prevent mixing of incompatible hazardous materials including provisions to maintain lockout control by a power plant employee not involved in the delivery or transfer operation. It must also address handling and use of natural gas. This plan shall be applicable during construction, commissioning, and operation of the power plant.*
Verification: *At least 30 days prior to the delivery of any liquid hazardous material to the facility, the project owner shall provide a Safety Management Plan as described above to the CPM for review and approval.*

Figure 1-1 Project Vicinity

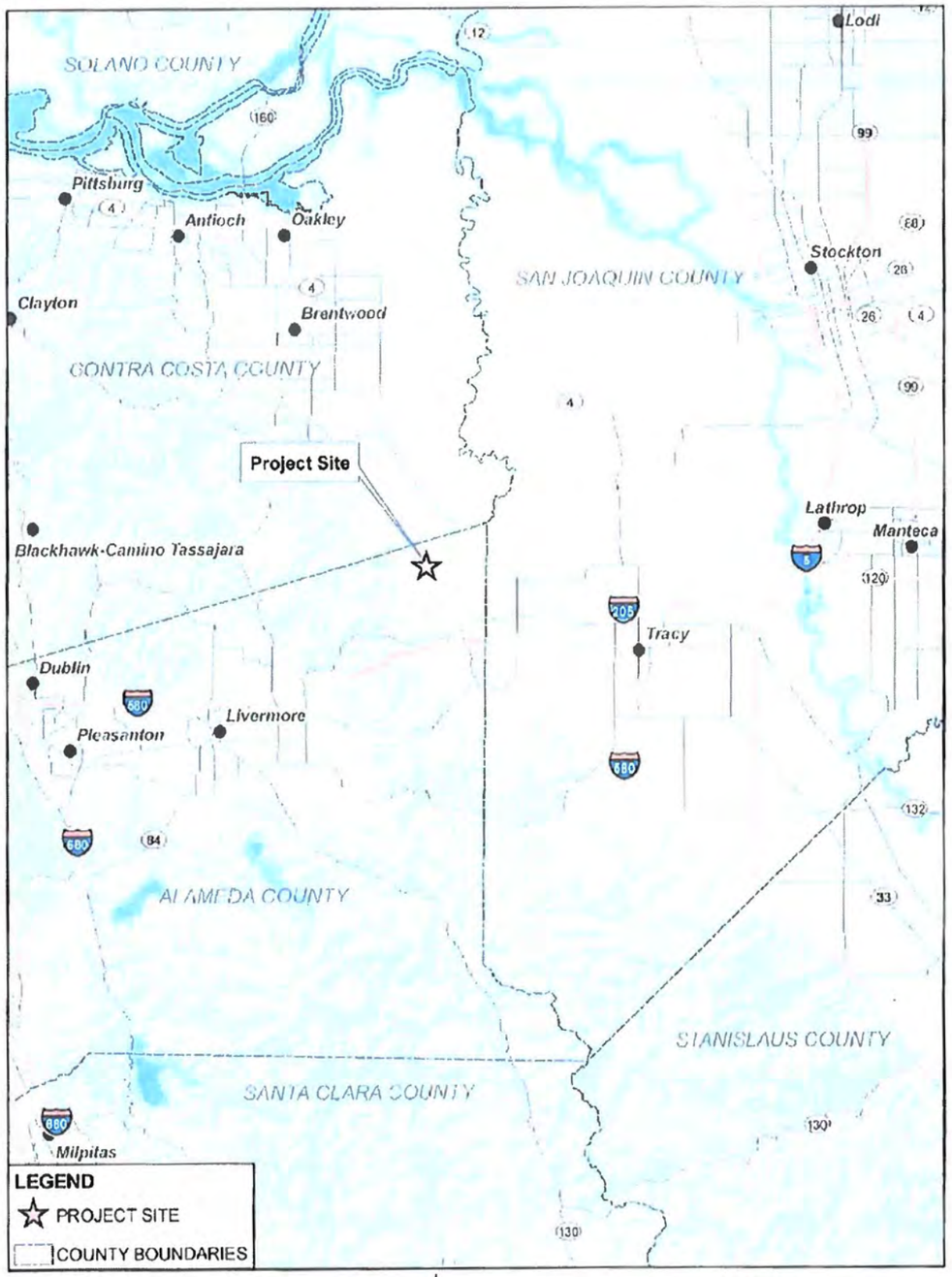

FIGURE 1-1
PROJECT VICINITY
MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA

CH2MHILL

Figure 1-2 Facility Layout

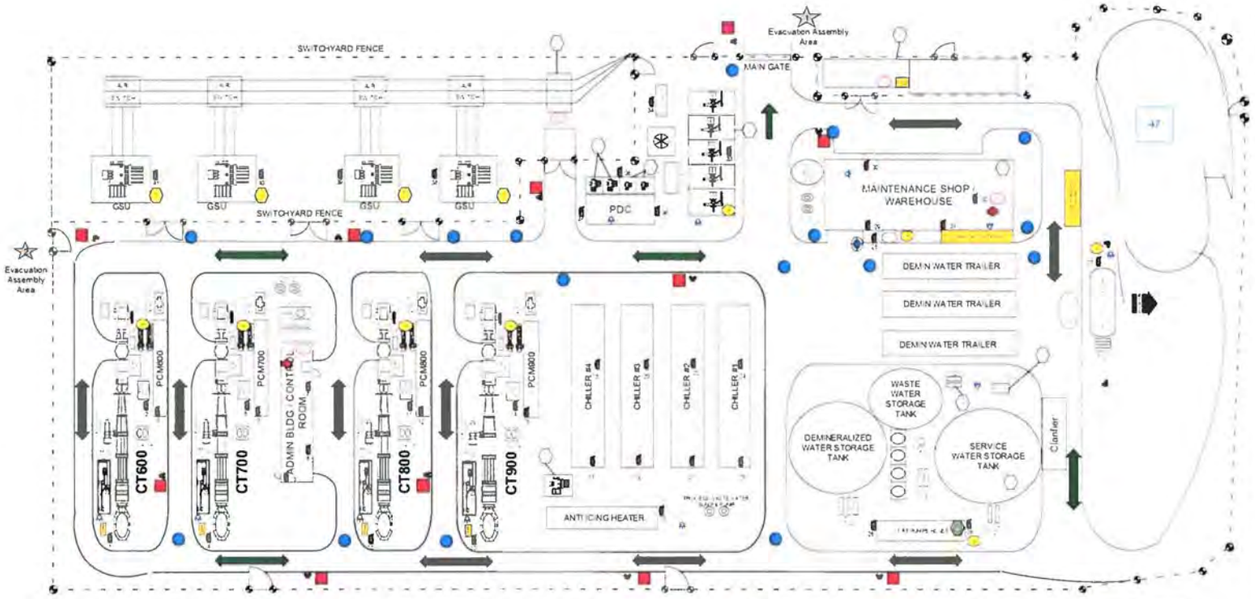

Figure 1-2
Facility Layout
Mariposa Energy Project

Mariposa stores 19-percent aqueous ammonia solution in a single 10,000-gallon above-ground storage tank, filled to a maximum of 8,500 gallons. The tank is surrounded by a 60-foot-long by 20-foot-wide by 3.5-foot-deep secondary containment basin capable of holding the full contents of the tank plus rainwater. Because of the evaporative nature of ammonia, the secondary containment basin is covered with polymer balls reducing exposed liquid surfaces by greater than 90 percent. The secondary containment basin is approximately 20 meters from the eastern and northern property boundaries, 67 meters from the western property boundary, and 244 meters from the southern property boundary.

1.2 Regulatory Background

Section 112(r) of the amended Clean Air Act (CAA), signed into law on November 15, 1990, mandated a new federal focus on the prevention of chemical accidents. The main objective of this section is to prevent serious chemical accidents that have the potential to affect public health and the environment. In response to Section 112(r) requirements, the U.S. Environmental Protection Agency (EPA) established a list of regulated substances and thresholds and issued the final Risk Management Program regulations. The final regulations were issued on June 20, 1996 (61 Federal Register [FR] 31668). They address "Risk Management Programs for Chemical Accidental Release Prevention" and are listed in Title 40 of the Code of Federal Regulations (CFR), Part 68. A facility that has more than the threshold quantity of the regulated substance in a process is required to implement a Risk Management Program and submit a summary of the program to the EPA prior to bringing the regulated substance onsite. Aqueous ammonia is a regulated substance under Risk Management Program regulations: the threshold quantity is 20,000 pounds for concentrations 20 percent or greater.

While Section 112(r) was intended to protect human health and the environment outside facilities (i.e., offsite), it also directed attention to worker safety. Section 304 of the 1990 CAA amendments directed the federal Occupational Safety and Health Administration (OSHA) to promulgate regulations requiring chemical Process Safety Management (PSM) in the workplace. This standard is designed to protect employees from accidental releases. PSM requirements became effective nationwide on May 26, 1992, and apply to all manned facilities handling one or more of 128 chemicals listed, or flammable liquids and gases, when stored in amounts exceeding the threshold quantities. Although the PSM standard and Risk Management Program contain many similar requirements, the PSM standard focuses on worker safety and onsite impacts and the Risk Management Program addresses offsite impacts of chemical releases.

The federal OSHA PSM standard was adopted by the California Occupational Safety and Health Administration (Cal-OSHA) under Title 8 of the California Code of Regulations (CCR), Section 5189, in 1992. Aqueous ammonia at concentrations greater than 44 percent is a regulated substance under PSM regulations; the threshold quantity is 15,000 pounds.

A State of California Risk Management and Prevention Program (RMPP), including most of the elements of the PSM standard and Risk Management Program, has been in effect since 1989. Senate Bill 1889 required California to implement a new Accidental Release Prevention Program. Thus, effective January 1, 1997, the new CalARP Program replaced the California RMPP; it is found in Title 19 of the CCR, Division 2, Chapter 4.5. The CalARP Program is a merging of the federal and state programs for the prevention of accidental release of regulated toxic and flammable substances. The CalARP Program adopts the federal Risk Management Program rule with certain additional requirements specific to California, pursuant to Article 2, Chapter 6.95, of the California Health and Safety Code. Aqueous ammonia is a regulated substance under CalARP; the threshold quantity is 500 pounds.

Based on the maximum quantity of aqueous ammonia used, Mariposa does not exceed the EPA Risk Management Program threshold quantity (20,000 pounds for concentrations greater than 20 percent). Additionally, Mariposa does not meet the Cal-OSHA PSM threshold quantity (15,000 pounds for concentrations greater than 44 percent). However, the aqueous ammonia process at Mariposa does exceed the CalARP Program threshold quantity requirement of 500 pounds of ammonia.

1.3 CalARP Program Applicability

CalARP Program regulations divide covered processes into three categories, thereby reducing the burden of compliance for certain low-risk sources by requiring such sources to implement less prescriptive risk management programs. The eligibility criteria for three program levels are provided below:

- **Program Level 1**: Processes with no public receptors within the distance to the endpoint from a worst-case release and no accidents with specific offsite consequences within the past 5 years are eligible for Program Level 1. The "worst-case release" is defined as the largest quantity of a regulated substance from a vessel or process line failure that results in the greatest distance to an endpoint.
- **Program Level 2**: Processes not eligible for Program Levels 1 or 3 are placed in Program Level 2.
- **Program Level 3**: Processes not eligible for Program Level 1 and either subject to federal or California OSHA PSM standards or in the 10 specified North American Industrial Classification System (NAICS) Codes are placed in Program Level 3.

The aqueous ammonia process at Mariposa qualifies for Program Level 1 because:

- The process of controlling NOx emissions with aqueous ammonia is not part of the NAICS codes listed by the EPA in 40 CFR 68.10(d).
- The concentration of ammonia is below the PSM threshold of 44 percent.

- There have been no accidents with off-site consequences in the last 5 years at this facility.
- The distance to the toxic endpoint does not reach public receptors (see Section 2, "Offsite Consequence Analysis").

Additional requirements for a facility qualifying under Program Level 1 are provided in the next section.

1.4 General Program Level 1 Facility Requirements

General requirements for the CalARP Program are discussed in 19 CCR 2735.5. Because the Mariposa aqueous ammonia process qualifies for Program Level 1, the facility must coordinate with the Alameda County Department of Environmental Health, which is a Certified Unified Program Agency (CUPA), in the preparation of documentation required to comply with Risk Management Program regulations. The CalARP Program regulations require submission of an RMP with the following information:

- RMP Executive Summary (19 CCR 2745.3)
- RMP Offsite Consequence Analysis Component (19 CCR 2745.4)
- RMP Five-year Accident History Component (19 CCR 2745.5)
- RMP Emergency Response Program Component (19 CCR 2745.8)
- RMP Certification (19 CCR 2745.9)
- Registration reflecting all covered processes (19 CCR 2740.1)

The details of compliance with the above requirements are provided in various sections of this RMP. Table 1-1 summarizes instructions for implementing and maintaining the CalARP Program and Risk Management Program. This table can be used by Mariposa to track the implementation of the CalARP Program and Risk Management Program and assist Mariposa personnel in maintaining compliance. Actions that may trigger a change to the CalARP Program and Risk Management Program include a change in the concentration of aqueous ammonia; a change in the amount of aqueous ammonia used and stored onsite; commercial, residential, or industrial development within the toxic endpoint distance; a change in emergency response procedures; or an accidental release of aqueous ammonia.

1.5 Additional Elements

System components essential to the covered process are scheduled for inspection, maintenance and/or replacement that meets or exceeds the manufacturers' recommendation. The inspection/maintenance and replacement frequency is scheduled through MAXIMO; a Computerized Maintenance Management System (CMMS). For the covered process, MAXIMO tracks the preventive maintenance of the ammonia system. Specifically the ammonia sensors are on a preventive maintenance schedule to be calibrated every calendar quarter and to be replaced per the manufacturer's specifications. Any new bulletins or recommendations

issued by the manufacturer are reviewed and implemented in a timely manner and applicable maintenance support (if any) will be added into the MAXIMO CMMS.

TABLE 1-1
CalARP Program and Risk Management Program Summary of Instructions [1]
Mariposa Energy Project

CalARP Program and Risk Management Program Compliance Activity	Date Completed					
	2019	2020	2021	2022	2023	2024
Review and update the offsite consequence analysis at least every 5 years. If a change to the aqueous ammonia process might reasonably be expected to increase or decrease the distance to the endpoint by a factor of 2 or more, prepare a revised assessment report no later than 6 months after the change.	6/5/2019 There are no changes to the aqueous ammonia process.					
Evaluate nearby development annually to ensure receptors are not present within the toxic endpoint. If receptors are present, update the offsite consequence analysis and discuss potential program level changes.	There are no recent developments near the facility. No change in receptors.					
Review Emergency Response Plan when information changes or at least annually.	6/5/2019					
Contact the Alameda County Fire Department annually to coordinate response actions.	6/5/2019					

[1] Supporting documents of the CalARP are maintained on-site

TABLE 1-1
CalARP Program and Risk Management Program Summary of Instructions [1]
Mariposa Energy Project

CalARP Program and Risk Management Program Compliance Activity	Date Completed					
	2019	2020	2021	2022	2023	2024
Perform Hydrodynamic Testing of Poly Balls. Remove any defective balls, replace, and log.	Q1 – Q2 – Q3 – Q4 –	Q1 – Q2 – Q3 – Q4 –	Q1 – Q2 – Q3 – Q4 –	Q1 – Q2 – Q3 – Q4 –	Q1 – Q2 – Q3 – Q4 –	Q1 – Q2 – Q3 – Q4 –
Change Out Poly Balls Every 5 Years	Last Changed (1/30/2018)					
Daily Visual inspection of containment area for netting integrity, debris intrusion, and liquid accumulation	Daily	Daily	Daily	Daily	Daily	Daily
Annual Staff Training on the Mariposa RMP. Review RMP requirements of Table 1-1 (above) and verify emergency contact numbers	6/21/2019					

2.0 Offsite Consequence Analysis

CalARP Program regulations (19 CCR 2750.1 through 2750.9) require that an offsite consequence analysis be performed to assess the effects a potential accidental chemical release of the regulated substance would have on the public and environmental receptors. Under Program Level 1, only one scenario must be assessed: the worst-case release scenario. Required elements of an offsite consequence analysis are an estimate of the possible release quantity during an accident, a determination of downwind effects, and a definition of the potential exposure to affected public and environmental receptors are required. The offsite consequence analysis, combined with the facility accident history for the previous 5 years, comprise the hazard assessment. This section describes the offsite consequence analysis for aqueous ammonia (19-percent aqueous ammonia solution) at Mariposa and was prepared in compliance with CalARP Program regulations (19 CCR 2750.1 through ***2750.3***). The accident history (19 CCR 2750.9) is discussed in Section 3.

2.1 Offsite Consequence Analysis Methods and Parameters

2.1.1 Methods

The offsite consequence analysis for aqueous ammonia (19-percent aqueous ammonia solution) was conducted using the SLAB and ALOHA model.

SLAB is a computer-based dispersion model, developed by the Lawrence Livermore Laboratory, that simulates the atmospheric dispersion of denser-than-air and neutrally buoyant releases. Atmospheric dispersion of the release is calculated by solving the conservation equations of mass, momentum, energy, and species. The mathematical description of the physics of heavy gas dispersion, as well as the description of the normal atmospheric advection and turbulent diffusion processes, is inherently included in SLAB's conservation equations. A complete description of the SLAB model is available in the *User's Manual for SLAB: An Atmospheric Dispersion Model for Denser-Than-Air-Releases, D.E. Ermak, Lawrence Livermore National Laboratory, June 1990.* The SLAB user manual contains a substance database, which includes chemical-specific data for ammonia. These data were used in the modeling run without exception or modification. As discussed later, the surface area input to the SLAB model was reduced 90% because of the poly balls added as a passive mitigation measure.

However, also as discussed, ACDEH requested additional modeling scenarios assuming the poly balls would be less effective and using the Areal Locations of Hazardous Atmospheres (ALOHA) model provided by the EPA. ALOHA results were used to determine the distance to endpoint. As a result of the data submitted and requirements for poly balls and other administrative conditions, ACDEH has agreed that the Mariposa would be a Program Level 1 facility.

Prior to modeling with SLAB or ALOHA, an ammonia evaporation release rate was calculated pursuant to the guidance given in *RMP Offsite Consequence Analysis Guidance, EPA, April 1999.* Within ALOHA, mass transfer of ammonia across the liquid surface was modeled according to principles of heat transfer by natural convection. The release rate estimated by ALOHA assumed a 1-hour release duration.

The parameters used for the offsite consequence analysis are discussed below.

2.1.2 Input Parameters

This section describes the input parameters used in the worst-case release scenario calculations including wind speed, atmospheric stability class, ambient temperature and humidity, height of release, surface roughness, and temperature of the released substance.

Wind Speed and Atmospheric Stability Class

Risk Management Program regulations require the use of a wind speed of 1.5 meters per second (m/s) and an atmospheric stability class of F for performing an offsite consequence analysis for the worst-case release scenario. Stability classes are categorized by the amount of turbulence in the atmosphere and are typically divided into six classes (A to F), with F being the least turbulent and A the most. A typical Class A stability occurs on a sunny day with a high wind speed, Class D on a cloudy day with an active wind speed, and Class F in the evening with a low wind speed. With increased turbulence, a plume is diluted more rapidly and the distance to the toxic endpoint is shorter. Risk Management Program regulations require a stability class of F and a wind speed of 1.5 m/s (approximately 3.4 miles per hour) for the worst-case release scenario to represent the conditions that result in the least amount of regulated substance dilution and farthest distance to the toxic endpoint.

As requested by ACDEH, the dispersion calculation for this offsite consequence analysis was conducted using the ALOHA model. As required, the release rate for ALOHA was calculated using a wind speed of 1.5 m/s and a stability class of F.

Ambient Temperature and Humidity

Risk Management Program regulations require the use of the highest daily maximum temperature in the previous 3 years and the average humidity for the worst-case release scenario. The highest daily temperature recorded near the Mariposa site during the past 3 years was 110 degrees Fahrenheit (°F) or 316 Kelvin (K), measured at the airport located in Stockton, California. A humidity of 50 percent was used for the worst-case release scenario.

Height of Release

Risk Management Program regulations require that, for the worst-case release analysis, the release should be assumed to occur at ground level (0 feet). The dispersion calculation used for the worst-case release scenario at Mariposaassumes the release occurs at ground level.

Surface Roughness

The surface roughness contributes to the amount of air turbulence caused by surface features, which, in turn, affects the dispersion of the regulated substance release. Surface roughness is characterized in terms of either urban or rural topography. The rural condition, defined by Risk Management Program regulations as "no buildings in the immediate area and the terrain is generally flat and unobstructed" (40 CFR 68.22[e] and 19 CCR 2750.2[e]), is characterized by a surface roughness of 0.03 meter, whereas the urban condition is characterized by a surface roughness of 1.0 meter (Section D.4.2 of the *EPA Offsite Consequence Analysis Guidance, May 1996*). Urban terrain is characterized by numerous obstacles, such as buildings and trees. In general, a regulated substance plume travels a longer distance if it does not encounter many surface features to create air turbulence.

Located in an unincorporated portion of Alameda County, the area surrounding Mariposa is primarily undeveloped grazing land. As such, the Mariposa location is characterized as a rural area with a surface roughness of 0.03 meter.

Dense or Neutrally Buoyant Gases

Risk Management Program regulations require that the models used for dispersion analysis appropriately account for the density of the released gas. The ALOHA model accounts for the fact that ammonia is a neutrally buoyant gas.

Temperature of Released Substance

Risk Management Program regulations require that, for the worst-case release analysis, liquids shall be considered to be released at the highest daily maximum temperature. The highest daily maximum temperature used in this analysis was 110°F (316 K).

2.2 Worst-Case Release Scenario Analysis

Risk Management Program regulations require an offsite consequence analysis for one worst-case release scenario estimated to create the greatest distance in any direction to a toxic endpoint resulting from an accidental release of regulated toxic substances from regulated processes. The worst-case release scenario assumes that the entire contents of the largest single container are released, regardless of the high improbability of that occurring. Only "passive" mitigation methods can be considered. According to the California Accidental Release Prevention (CalARP)

Program Administering Agency Guidance manual, passive mitigation consists of equipment, devices, or technology that function without human, mechanical or other energy input. Regulations require that the worst-case release scenario assumes atmospheric conditions that result in large impact areas, even though they may not be representative of typical atmospheric conditions around Mariposa. The passive mitigation provided by the poly-sphere covered secondary containment basin was used in the analysis.

The worst-case release scenario assumes the complete failure of the 10,000 gallon storage tank, the immediate release of the contents of the tank (8.500 gallons), and the formation of an evaporating pool of aqueous ammonia (19-percent aqueous ammonia solution) within the secondary containment basin. Evaporative emissions of ammonia would be subsequently released into the atmosphere through the secondary containment basin's cover.

As discussed above, ALOHA and SLAB was used to model the release of ammonia vapor from an evaporating pool of aqueous ammonia caused by the complete failure of a single 10,000 gallon tank. The distance to the toxic endpoint predicted by SLAB and ALOHA was determined according to the meteorological data listed in Table 2-1, an evaporation release rate 6.57 and 32.7 pounds per minute (lbs/min). respectively, and the surface area of the secondary containment basin (938.5 square feet).

In addition, ALOHA results from reduced surface area are also summarized in Table 2-1. The evaporation release rate was determined using ALOHA and was based on a surface area of 234.625 square feet and 187.7 square feet to account for a 75 percent and 80 percent reduction in evaporative surface provided by the secondary containment basin's cover, respectively.

The parameters selected for the dispersion modeling for 8,500 gallons of 19% aqueous ammonia released from the 10.000 gallon storage tank and drained to the secondary containment basin are presented in Table 2-1.

TABLE 2-1
Aqueous Ammonia Worst-Case Release Scenario Summary

Parameter	Aqueous Ammonia Release			
	SLAB Output	ALOHA Output	ALOHA Ouput 80% Reduction[2]	ALOHA Ouput 75% Reduction[2]
Release Quantity (gallons)	8,500	8,500	8,500	8,500
Release Duration (seconds)	3,600	3,600	3,600	3,600
Physical State	Vapor	Vapor	Vapor	Vapor
Release Height	Ground	Ground	Ground	Ground
Release Rate (lbs/min)	6.57	32.7	7.93	9.68
Release Temperature (°F)	110	105	105	105
Release Pressure (atmospheres [atm])	1	1	1	1
Surface Roughness (meter)	0.03	Open Country	Open Country	Open Country
Stability Class	F	F	F	F
Relative Humidity (%)	50	50	50	50
Wind Speed (m/s)	1.5	1.5	1.5	1.5
EPA Toxic Endpoint (parts per million [ppm])	198	200	200	200
Distance to Toxic Endpoint[1]. (meters)	5.54	1,166.8	538.6	600.8
Distance to Toxic Endpoint[1] (yards)	6.06	1,276	589	657
Distance to Toxic Endpoint[1] (feet)	18.2	3,828	1,767	1,971

Notes: 1. Nearest public receptor is PG&E Byron Bethany Gas Pump Station which is 624.8 meters, 683.3 yards, or 2.050 feet.

2. Passive mitigation reduction in exposed surface area from two layers of poly balls.

ACDEH requested in 2013 that the ALOHA model be used for determining the distance to endpoint and wanted other scenarios considered with the poly balls providing less than 90% reduction in evaporation rate due to the reduced surface area exposed. The results were presented to ACDEH on October 21, 2013 (see Attachment 9). The current ALOHA output is provided in Attachment 2 and is summarized above in Table 2-1 for two different assumptions on the effective reduction in exposed surface area form use of the two layers of poly balls. The distance to toxic endpoint using the ALOHA model is 3,828 feet based on the unmitigated 938.5 square feet surface area exposed and is 1,767 feet with an 80% reduction and 1,971 feet with a 75% reduction from passive mitigation of two layers of poly balls.

Results of the worst-case dispersion modeling analysis by SLAB, within the scenario guidelines imposed by the regulations, indicate that an aqueous ammonia concentration of 198 ppm (toxic endpoint) could extend up to a distance of 5.54 meters (18.2 feet) for the aqueous ammonia process at Mariposa. Figure 2-1 shows the distance to the toxic endpoint for the worst-case release scenario for the aqueous ammonia process. As indicated by the figure, the distance to the toxic

endpoint does not extend beyond the Mariposa property boundary. The SLAB and ALOHA modeling files are included in Attachments 1 and 2, respectively.

2.3 Potential Offsite Impacts

Risk Management Program regulations require the determination of the potentially affected residential population within the toxic endpoint distance, estimated to two significant digits, for the worst-case release scenario. The RMP must also note the presence of institutions (schools, hospitals, long-term health-care facilities, child day-care facilities, and prisons); parks and recreational areas; and major commercial, office, and industrial buildings within the toxic endpoint distance. Because the worst-case release scenario distance for aqueous ammonia at Mariposa using SLAB does not extend beyond the Mariposa property boundary, there would be no residential, recreational, or industrial receptors impacted by a potential release.

However based on use of the ACDEH requested ALOHA model, the distance to the specified endpoint for the worst-case accidental release scenario for the aqueous ammonia process without mitigation is 3,828 feet based on the unmitigated 938.5 square feet surface area exposed and this exceeds the distance to the nearest public receptor (the PG&E Byron Bethany Gas Pump Station is the only facility) which is approximately 2,050 feet from the aqueous ammonia process. This is the only receptor within the distance to toxic endpoint. However, Mariposa uses a double layer of poly balls to reduce the evaporative emissions. Per February 20, 2014 ACDEH letter (see Attachment 8 which relevant technical information submitted on October 21, 2013 in Attachment 9), ACDEH has agreed to a Program Level 1 Status considering mitigations from the double layer of poly balls and other administrative conditions.

Figure 2-1

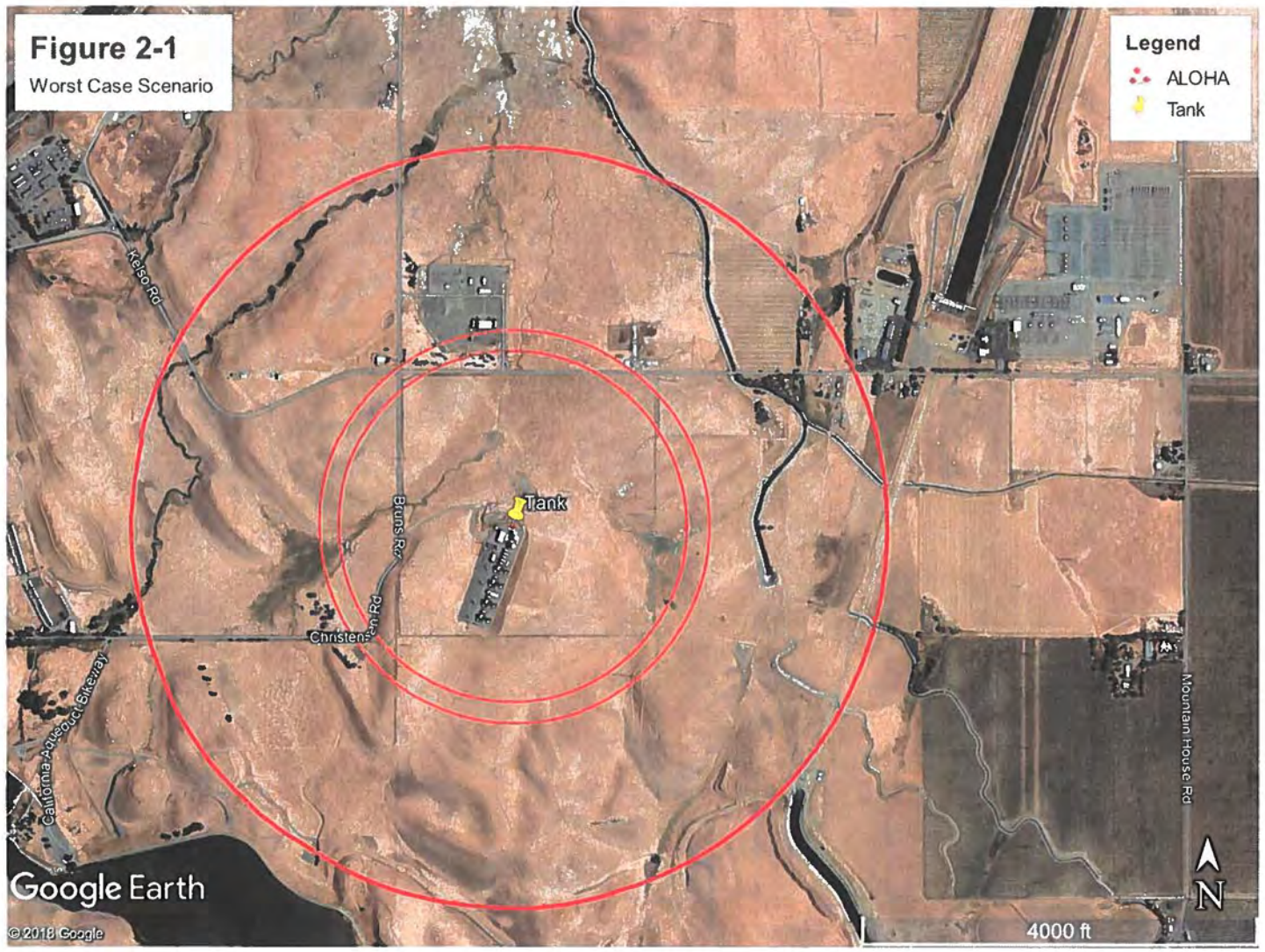
Figure 2-1
Worst Case Scenario
Legend
ALOHA
Tank
Kasso Rd
Bruns Rd
Tank
Christensen Rd
Corral Hollow Rd
Mountain House Rd
Google Earth
© 2018 Google
4000 ft
N

2.4 Offsite Consequence Analysis Review and Update

Mariposa should review and update the offsite consequence analysis at least once every 5 years. If changes in the aqueous ammonia process, quantity of aqueous ammonia stored or handled, or any other aspect of Mariposa might reasonably be expected to increase or decrease the distance to the endpoint by a factor of two or more, Mariposa should complete a revised analysis within 6 months of the change and submit a revised RMP. The required records for the offsite consequence analysis are provided in Sections 2.1 through 2.3.

3.0 Five-Year Accident History

Mariposa Energy completed construction of the Mariposa in mid-2012. There have been no accidents involving aqueous ammonia that have resulted in deaths, injuries, or significant property damage onsite, or known offsite deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage at the time this report was prepared.

4.0 Emergency Response

Mariposa is not a responding facility; staff will not act in a first response role. Employees will be trained to at least an awareness level, and will rely on local emergency responders and spill cleanup contactors for spill response and clean up. Mariposa has developed an emergency response plan following the Alameda County Department of Environmental Health Hazardous Materials Business Plan (HMBP) format. This emergency response plan details the emergency response procedures, spill containment and prevention systems, personnel training, regulatory notification requirements, and post-incident investigation procedures. The emergency response plan also identifies emergency assembly areas and evacuation routes and includes a list of telephone numbers of agencies and individuals to contact in the event of an accidental release or other emergency. The agencies and individuals represent local emergency responders, regulatory agencies, health care providers, etc. Notifications will include the PG&E Byron Bethany Gas Pump Station.

Should tank level alarms or other spill indicator systems be activated, the Mariposa Control Room operator will immediately page the Mariposa Plant Manager. The Mariposa Plant Manager, or his/her designee, will take the role of the Incident Chain Commander (ICC) and will direct the activities conducted by Mariposa personnel. The ICC will first assess whether the incident is considered to be a "controllable" release. A controllable release is one where Mariposa personnel are confident they have the resources, training, and ability to assess, stop, and contain the release. In the event of a controllable release, Mariposa personnel will perform the tasks necessary to contain and mitigate the release.

In the event of an uncontrollable release, the ICC will notify the Alameda County Fire Department by calling 911. The Alameda County Fire Department has a Hazardous Materials (HazMat) Response Team capable of handling any hazardous materials-related incident at Mariposa and responding within approximately 30 minutes. The HazMat Response Team will handle spill/release response and mitigation while Mariposapersonnel remain in the evacuation assembly area, available to provide relevant

technical, site-specific details and other necessary information to the HazMat Response Team.

There is a coordinated effort between Mariposa staff and the Alameda County Fire Department for Accidental Release Responses. Captain Randy Carter of the Alameda County Fire Department visited Mariposa on November 21, 2014 and addressed emergency response situations. (See Attachment 7).

Mariposa will work closely with the Alameda County Fire Department to prevent fires from occurring and to quickly mitigate fires. Periodic fire safety inspections conducted by the Alameda County Fire Department, providing information exchange between Mariposa and Alameda County Fire Department personnel, are encouraged. Mariposa has also provided the HMBP to the Alameda County Fire Department.

The emergency response plan should be reviewed whenever a deficiency is noted or at least annually. Employees are trained on the emergency response plan when hired, and all employees receive annual refresher training in emergency response procedures.

5.0 Statement of Certification

The Mariposa electrical generating facility located in Byron, CA is a CalARP Program Level 1 status facility, as determined by the offsite distance to the toxic endpoint using ALOHA modeling, as requested by the ACDEH. The Mariposa facility employs passive mitigation through the use of a double layer of poly balls held within the diked containment berm. The ACDEH has agreed to a CalARP Program Level 1 Status with conditions for Mariposa, with the addition of administrative controls to prevent potential offsite impacts, in its letter dated February 20, 2014.

In accordance with Section 2735.5 of Title 19 of CCR, this RMP is certified to the following:

> "Based on the criteria in Section 2735.4 of Title 19 of CCR, the distance to the specified endpoint for the worst-case accidental release scenario for the following process is less than the distance to the nearest public receptor: Aqueous ammonia. Within the past five years, the process has had no accidental release that caused offsite impacts provided in the risk management program Section 2735.4 (c)(1). No additional measures are necessary to prevent offsite impacts from accidental releases. In the event of fire, explosion, or a release of a regulated substance from the process, entry within the distance to the specified endpoints may pose a danger to public emergency responders. Therefore, public emergency responders should not enter this area except as arranged with the emergency contact indicated in the RMP. The undersigned certifies that, to the best of my knowledge, information, and belief, formed after reasonable inquiry, the information submitted is true, accurate, and complete."

FACILITY OPERATOR:

Kevin Kringle
Plant Manager, Mariposa

June 28, 2019
Date Signed

QUALIFIED PERSON:

Michael Dudasko, CPEA ;
Yorke Engineering, LLC

June 6, 2019
Date Signed

Attachment 1
SLAB Model Input and Output

problem input

```
  idspl =         1
  ncalc =         1
  wms   =   .017031
  cps   =   2170.00
  tbp   =    239.72
  cmed0 =       .00
  dhe   =  1370840.
  cpsl  =   4294.00
  rhosl =    682.80
  spb   =   2132.52
  spc   =    -32.98
  ts    =    239.72
  qs    =       .05
  as    =     11.15
  tsd   =    3600.
  qtis  =       .00
  hs    =       .00
  tav   =   3600.00
  xffm  =   1000.00
  zp(1) =       .00
  zp(2) =      1.60
  zp(3) =      5.00
  zp(4) =     10.00
  z0    =   .030000
  za    =     10.00
  ua    =      1.50
  ta    =    316.48
  rh    =     50.00
  stab  =      6.00
```

release gas properties

molecular weight of source gas (kg)	- wms =	1.7031E-02
vapor heat capacity, const. p. (j/kg-k)	- cps =	2.1700E+03
temperature of source gas (k)	- ts =	2.3972E+02
density of source gas (kg/m3)	- rhos =	8.6582E-01
boiling point temperature	- tbp =	2.3972E+02
liquid mass fraction	- cmed0=	0.0000E+00
liquid heat capacity (j/kg-k)	- cpsl =	4.2940E+03
heat of vaporization (j/kg)	- dhe =	1.3708E+06
liquid source density (kg/m3)	- rhosl=	6.8280E+02
saturation pressure constant	- spa =	1.0315E+01
saturation pressure constant (k)	- spb =	2.1325E+03
saturation pressure constant (k)	- spc =	-3.2980E+01

spill characteristics

spill type	- idspl=	1
mass source rate (kg/s)	- qs =	4.9800E-02
continuous source duration (s)	- tsd =	3.6000E+03
continuous source mass (kg)	- qtcs =	1.7928E+02
instantaneous source mass (kg)	- qtis =	0.0000E+00
source area (m2)	- as =	1.1150E+01
vertical vapor velocity (m/s)	- ws =	5.1586E-03
source half width (m)	- bs =	1.6696E+00
source height (m)	- hs =	0.0000E+00
horizontal vapor velocity (m/s)	- us =	0.0000E+00

field parameters

concentration averaging time (s)	- tav =	3.6000E+03
mixing layer height (m)	- hmx =	2.6000E+02
maximum downwind distrace (m)	- xffm =	1.0000E+03
concentration measurement height (m)	- zp(1)=	0.0000E+00
	- zp(2)=	1.6000E+00
	- zp(3)=	5.0000E+00
	- zp(4)=	1.0000E+01

ambient meteorological properties

```
 molecular weight of ambient air (kg)                - wmae  =  2.8435E-02
 heat capacity of ambient air at const p. (j/kg-k)- cpaa  =  1.0314E+03
 density of ambient air (kg/m3)                      - rhoa  =  1.0949E+00
 ambient measurement height (m)                      - za    =  1.0000E+01
 ambient atmospheric pressure (pa=n/m2=j/m3)         - pa    =  1.0133E+05
 ambient wind speed (m/s)                            - ua    =  1.5000E+00
 ambient temperature (k)                             - ta    =  3.1648E+02
 relative humidity (percent)                         - rh    =  5.0000E+01
 ambient friction velocity (m/s)                     - uastr =  4.8794E-02
 atmospheric stability class value                   - stab  =  6.0000E+00
 inverse monin-obukhov length (1/m)                  - ala   =  7.0248E-02
 surface roughness height (m)                        - z0    =  3.0000E-02


additional parameters

 sub-step multiplier                                 - ncalc =          1
 number of calculational sub-steps                   - nssm  =          3
 acceleration of gravity (m/s2)                      - grav  =  9.8067E+00
 gas constant (j/mol- k)                             - rr    =  8.3143E+00
 von karman constant                                 - xk    =  4.1000E-01
1

instantaneous spatially averaged cloud parameters

      x         zc         h         bb         b         bbx       bx        cv        rho       t
u         ua
 -1.67E+00  0.00E+00  0.00E+00  1.67E+00  1.50E+00  1.67E+00  1.67E+00  0.00E+00  1.09E+00  3.16E+02
0.00E+00  0.00E+00
 -1.34E+00  0.00E+00  3.93E-01  1.68E+00  1.50E+00  1.84E+00  1.84E+00  2.53E-02  1.09E+00  3.14E+02
2.25E-01  2.34E-01
 -1.00E+00  0.00E+00  5.15E-01  1.70E+00  1.50E+00  2.00E+00  2.00E+00  3.45E-02  1.09E+00  3.13E+02
2.49E-01  2.74E-01
 -6.68E-01  0.00E+00  6.30E-01  1.71E+00  1.50E+00  2.17E+00  2.17E+00  4.07E-02  1.09E+00  3.13E+02
2.56E-01  3.06E-01
 -3.34E-01  0.00E+00  7.52E-01  1.74E+00  1.50E+00  2.34E+00  2.34E+00  4.55E-02  1.09E+00  3.12E+02
2.52E-01  3.36E-01
 -2.24E-07  0.00E+00  9.00E-01  1.76E+00  1.50E+00  2.50E+00  2.50E+00  4.96E-02  1.09E+00  3.12E+02
2.37E-01  3.68E-01
  3.34E-01  0.00E+00  1.11E+00  1.81E+00  1.50E+00  2.67E+00  2.67E+00  5.29E-02  1.09E+00  3.12E+02
2.11E-01  4.09E-01
  6.68E-01  0.00E+00  1.48E+00  1.89E+00  1.50E+00  2.84E+00  2.84E+00  5.47E-02  1.09E+00  3.11E+02
1.71E-01  4.70E-01
  1.00E+00  0.00E+00  1.81E+00  2.54E+00  1.50E+00  3.01E+00  3.00E+00  4.31E-02  1.09E+00  3.12E+02
1.51E-01  5.17E-01
  1.34E+00  0.00E+00  2.16E+00  3.24E+00  1.50E+00  3.17E+00  3.17E+00  3.54E-02  1.09E+00  3.13E+02
1.36E-01  5.61E-01
  1.67E+00  0.00E+00  1.22E+00  6.56E+00  1.50E+00  3.34E+00  3.34E+00  1.86E-02  1.09E+00  3.15E+02
2.53E-01  4.29E-01
  1.70E+00  1.58E-04  1.26E+00  6.56E+00  1.50E+00  3.37E+00  3.37E+00  1.85E-02  1.09E+00  3.15E+02
2.48E-01  4.34E-01
  1.74E+00  7.55E-04  1.26E+00  6.56E+00  1.50E+00  3.41E+00  3.41E+00  1.84E-02  1.09E+00  3.15E+02
2.49E-01  4.34E-01
  1.78E+00  2.03E-03  1.26E+00  6.57E+00  1.50E+00  3.45E+00  3.45E+00  1.83E-02  1.09E+00  3.15E+02
2.50E-01  4.34E-01
  1.84E+00  4.32E-03  1.26E+00  6.58E+00  1.50E+00  3.51E+00  3.51E+00  1.82E-02  1.09E+00  3.15E+02
2.52E-01  4.34E-01
  1.90E+00  8.11E-03  1.26E+00  6.58E+00  1.50E+00  3.57E+00  3.57E+00  1.80E-02  1.09E+00  3.15E+02
2.54E-01  4.34E-01
  1.98E+00  1.41E-02  1.26E+00  6.59E+00  1.50E+00  3.65E+00  3.65E+00  1.78E-02  1.09E+00  3.15E+02
2.56E-01  4.34E-01
  2.07E+00  2.31E-02  1.26E+00  6.60E+00  1.50E+00  3.74E+00  3.74E+00  1.76E-02  1.09E+00  3.15E+02
2.59E-01  4.34E-01
  2.17E+00  3.65E-02  1.26E+00  6.62E+00  1.50E+00  3.84E+00  3.84E+00  1.74E-02  1.09E+00  3.15E+02
2.62E-01  4.34E-01
  2.30E+00  5.59E-02  1.26E+00  6.63E+00  1.50E+00  3.97E+00  3.97E+00  1.71E-02  1.09E+00  3.15E+02
2.65E-01  4.34E-01
  2.45E+00  8.37E-02  1.26E+00  6.65E+00  1.50E+00  4.12E+00  4.12E+00  1.68E-02  1.09E+00  3.15E+02
2.70E-01  4.34E-01
  2.63E+00  1.23E-01  1.26E+00  6.67E+00  1.50E+00  4.30E+00  4.30E+00  1.64E-02  1.09E+00  3.15E+02
2.74E-01  4.35E-01
  2.85E+00  1.77E-01  1.26E+00  6.69E+00  1.50E+00  4.52E+00  4.52E+00  1.60E-02  1.09E+00  3.15E+02
2.80E-01  4.35E-01
  3.10E+00  2.51E-01  1.26E+00  6.71E+00  1.50E+00  4.77E+00  4.77E+00  1.56E-02  1.09E+00  3.15E+02
2.86E-01  4.35E-01
  3.41E+00  3.53E-01  1.27E+00  6.74E+00  1.50E+00  5.08E+00  5.08E+00  1.51E-02  1.09E+00  3.15E+02
2.93E-01  4.36E-01
  3.77E+00  4.88E-01  1.27E+00  6.77E+00  1.50E+00  5.44E+00  5.44E+00  1.46E-02  1.09E+00  3.15E+02
```

```
3.01E-01  4.37E-01
  4.20E+00  6.68E-01  1.27E+00  6.81E+00  1.50E+00  5.87E+00  5.87E+00  1.39E-02  1.09E+00  3.15E+02
3.13E-01  4.42E-01
  4.71E+00  8.81E-01  1.23E+00  6.84E+00  1.50E+00  6.38E+00  6.38E+00  1.25E-02  1.09E+00  3.15E+02
3.57E-01  4.73E-01
  5.32E+00  1.12E+00  1.22E+00  6.88E+00  1.50E+00  6.99E+00  6.99E+00  1.13E-02  1.09E+00  3.15E+02
4.02E-01  5.05E-01
  6.05E+00  1.37E+00  1.21E+00  6.92E+00  1.50E+00  7.72E+00  7.72E+00  1.01E-02  1.09E+00  3.16E+02
4.46E-01  5.38E-01
  6.91E+00  1.66E+00  1.21E+00  6.96E+00  1.50E+00  8.58E+00  8.58E+00  9.15E-03  1.09E+00  3.16E+02
4.90E-01  5.73E-01
  7.94E+00  1.97E+00  1.22E+00  7.01E+00  1.50E+00  9.61E+00  9.61E+00  8.29E-03  1.09E+00  3.16E+02
5.33E-01  6.09E-01
  9.17E+00  2.33E+00  1.23E+00  7.06E+00  1.50E+00  1.08E+01  1.08E+01  7.53E-03  1.09E+00  3.16E+02
5.77E-01  6.46E-01
  1.06E+01  2.73E+00  1.25E+00  7.12E+00  1.50E+00  1.23E+01  1.23E+01  6.87E-03  1.09E+00  3.16E+02
6.21E-01  6.84E-01
  1.24E+01  3.18E+00  1.26E+00  7.19E+00  1.50E+00  1.40E+01  1.40E+01  6.27E-03  1.09E+00  3.16E+02
6.67E-01  7.24E-01
  1.44E+01  3.70E+00  1.28E+00  7.27E+00  1.50E+00  1.61E+01  1.61E+01  5.73E-03  1.09E+00  3.16E+02
7.13E-01  7.66E-01
  1.69E+01  4.28E+00  1.29E+00  7.36E+00  1.50E+00  1.85E+01  1.85E+01  5.24E-03  1.09E+00  3.16E+02
7.61E-01  8.09E-01
  1.98E+01  4.95E+00  1.31E+00  7.47E+00  1.50E+00  2.15E+01  2.15E+01  4.78E-03  1.09E+00  3.16E+02
8.10E-01  8.54E-01
  2.33E+01  5.71E+00  1.33E+00  7.60E+00  1.50E+00  2.49E+01  2.49E+01  4.36E-03  1.09E+00  3.16E+02
8.61E-01  9.02E-01
  2.74E+01  6.58E+00  1.35E+00  7.75E+00  1.50E+00  2.91E+01  2.91E+01  3.96E-03  1.09E+00  3.16E+02
9.14E-01  9.51E-01
  3.23E+01  7.57E+00  1.38E+00  7.92E+00  1.50E+00  3.40E+01  3.40E+01  3.58E-03  1.09E+00  3.16E+02
9.68E-01  1.00E+00
  3.82E+01  8.69E+00  1.41E+00  8.13E+00  1.50E+00  3.98E+01  3.98E+01  3.23E-03  1.09E+00  3.16E+02
1.02E+00  1.05E+00
  4.51E+01  9.96E+00  1.45E+00  8.37E+00  1.50E+00  4.68E+01  4.68E+01  2.90E-03  1.09E+00  3.16E+02
1.08E+00  1.11E+00
  5.34E+01  1.14E+01  1.49E+00  8.66E+00  1.50E+00  5.51E+01  5.51E+01  2.59E-03  1.09E+00  3.16E+02
1.14E+00  1.16E+00
  6.33E+01  1.30E+01  1.54E+00  9.00E+00  1.50E+00  6.49E+01  6.49E+01  2.30E-03  1.09E+00  3.16E+02
1.20E+00  1.22E+00
  7.50E+01  1.48E+01  1.59E+00  9.40E+00  1.50E+00  7.67E+01  7.67E+01  2.02E-03  1.09E+00  3.16E+02
1.26E+00  1.28E+00
  8.90E+01  1.69E+01  1.65E+00  9.88E+00  1.50E+00  9.06E+01  9.06E+01  1.77E-03  1.09E+00  3.16E+02
1.31E+00  1.33E+00
  1.06E+02  1.91E+01  1.73E+00  1.04E+01  1.50E+00  1.07E+02  1.07E+02  1.53E-03  1.09E+00  3.16E+02
1.37E+00  1.39E+00
  1.25E+02  2.16E+01  1.81E+00  1.11E+01  1.50E+00  1.27E+02  1.27E+02  1.32E-03  1.09E+00  3.16E+02
1.43E+00  1.45E+00
  1.49E+02  2.44E+01  1.91E+00  1.19E+01  1.50E+00  1.51E+02  1.51E+02  1.12E-03  1.09E+00  3.16E+02
1.49E+00  1.51E+00
  1.77E+02  2.74E+01  2.02E+00  1.28E+01  1.50E+00  1.79E+02  1.79E+02  9.45E-04  1.09E+00  3.16E+02
1.55E+00  1.56E+00
  2.10E+02  3.06E+01  2.15E+00  1.39E+01  1.50E+00  2.12E+02  2.12E+02  7.89E-04  1.09E+00  3.16E+02
1.60E+00  1.62E+00
  2.50E+02  3.42E+01  2.30E+00  1.52E+01  1.50E+00  2.52E+02  2.52E+02  6.53E-04  1.09E+00  3.16E+02
1.66E+00  1.67E+00
  2.97E+02  3.80E+01  2.47E+00  1.68E+01  1.50E+00  2.99E+02  2.99E+02  5.36E-04  1.09E+00  3.16E+02
1.71E+00  1.72E+00
  3.53E+02  4.21E+01  2.66E+00  1.86E+01  1.50E+00  3.55E+02  3.55E+02  4.36E-04  1.09E+00  3.16E+02
1.76E+00  1.78E+00
  4.20E+02  4.64E+01  2.87E+00  2.07E+01  1.50E+00  4.22E+02  4.22E+02  3.51E-04  1.09E+00  3.16E+02
1.81E+00  1.82E+00
  4.99E+02  5.11E+01  3.12E+00  2.33E+01  1.50E+00  5.01E+02  5.01E+02  2.81E-04  1.09E+00  3.16E+02
1.86E+00  1.87E+00
  5.94E+02  5.60E+01  3.40E+00  2.62E+01  1.50E+00  5.96E+02  5.96E+02  2.23E-04  1.09E+00  3.16E+02
1.91E+00  1.92E+00
  7.07E+02  6.11E+01  3.71E+00  2.97E+01  1.50E+00  7.08E+02  7.08E+02  1.76E-04  1.09E+00  3.16E+02
1.95E+00  1.96E+00
  8.41E+02  6.66E+01  4.07E+00  3.37E+01  1.50E+00  8.42E+02  8.42E+02  1.39E-04  1.09E+00  3.16E+02
2.00E+00  2.01E+00
  1.00E+03  7.23E+01  4.48E+00  3.84E+01  1.50E+00  1.00E+03  1.00E+03  1.08E-04  1.09E+00  3.16E+02
2.04E+00  2.05E+00
1

     x         cm         cmv        cmda       cmw        cmwv       wc         vg         ug         w
v         vx
 -1.67E+00  0.00E+00  0.00E+00  9.70E-01  3.04E-02  3.04E-02  0.00E+00  0.00E+00  0.00E+00  1.03E+00
3.06E-02  0.00E+00
 -1.34E+00  1.53E-02  1.53E-02  9.55E-01  3.00E-02  3.00E-02  0.00E+00  0.00E+00  0.00E+00  7.33E-02
4.78E-03  6.70E-02
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-1.00E+00	2.10E-02	2.10E-02	9.49E-01	2.98E-02	2.98E-02	0.00E+00	0.00E+00	0.00E+00	6.09E-02
5.94E-03	7.38E-02								
-6.68E-01	2.48E-02	2.48E-02	9.46E-01	2.97E-02	2.97E-02	0.00E+00	0.00E+00	0.00E+00	5.14E-02
7.54E-03	7.92E-02								
-3.34E-01	2.78E-02	2.78E-02	9.43E-01	2.96E-02	2.96E-02	0.00E+00	0.00E+00	0.00E+00	4.34E-02
9.96E-03	8.44E-02								
-2.24E-07	3.03E-02	3.03E-02	9.40E-01	2.95E-02	2.95E-02	0.00E+00	0.00E+00	0.00E+00	3.66E-02
1.36E-02	9.00E-02								
3.34E-01	3.23E-02	3.23E-02	9.38E-01	2.95E-02	2.95E-02	0.00E+00	0.00E+00	0.00E+00	3.17E-02
1.91E-02	9.72E-02								
6.68E-01	3.35E-02	3.35E-02	9.37E-01	2.94E-02	2.94E-02	0.00E+00	0.00E+00	0.00E+00	2.99E-02
2.79E-02	1.09E-01								
1.00E+00	2.62E-02	2.62E-02	9.44E-01	2.96E-02	2.96E-02	0.00E+00	0.00E+00	0.00E+00	2.91E-02
3.36E-02	1.18E-01								
1.34E+00	2.15E-02	2.15E-02	9.49E-01	2.98E-02	2.98E-02	0.00E+00	0.00E+00	0.00E+00	2.97E-02
3.87E-02	1.27E-01								
1.67E+00	1.12E-02	1.12E-02	9.59E-01	3.01E-02	3.01E-02	0.00E+00	0.00E+00	0.00E+00	2.24E-02
1.75E-02	1.01E-01								
1.70E+00	1.12E-02	1.12E-02	9.59E-01	3.01E-02	3.01E-02	2.47E-03	0.00E+00	0.00E+00	2.27E-02
1.84E-02	1.02E-01								
1.74E+00	1.11E-02	1.11E-02	9.59E-01	3.01E-02	3.01E-02	5.37E-03	0.00E+00	0.00E+00	2.25E-02
1.83E-02	1.02E-01								
1.78E+00	1.10E-02	1.10E-02	9.59E-01	3.01E-02	3.01E-02	8.77E-03	0.00E+00	0.00E+00	2.24E-02
1.82E-02	1.02E-01								
1.84E+00	1.10E-02	1.10E-02	9.59E-01	3.01E-02	3.01E-02	1.27E-02	0.00E+00	0.00E+00	2.22E-02
1.80E-02	1.02E-01								
1.90E+00	1.09E-02	1.09E-02	9.59E-01	3.01E-02	3.01E-02	1.74E-02	0.00E+00	0.00E+00	2.19E-02
1.79E-02	1.03E-01								
1.98E+00	1.07E-02	1.07E-02	9.59E-01	3.01E-02	3.01E-02	2.27E-02	0.00E+00	0.00E+00	2.17E-02
1.77E-02	1.03E-01								
2.07E+00	1.06E-02	1.06E-02	9.59E-01	3.01E-02	3.01E-02	2.89E-02	0.00E+00	0.00E+00	2.14E-02
1.75E-02	1.04E-01								
2.17E+00	1.05E-02	1.05E-02	9.59E-01	3.01E-02	3.01E-02	3.61E-02	0.00E+00	0.00E+00	2.10E-02
1.73E-02	1.05E-01								
2.30E+00	1.03E-02	1.03E-02	9.60E-01	3.01E-02	3.01E-02	4.42E-02	0.00E+00	0.00E+00	2.07E-02
1.70E-02	1.06E-01								
2.45E+00	1.01E-02	1.01E-02	9.60E-01	3.01E-02	3.01E-02	5.35E-02	0.00E+00	0.00E+00	2.03E-02
1.67E-02	1.08E-01								
2.63E+00	9.90E-03	9.90E-03	9.60E-01	3.01E-02	3.01E-02	6.40E-02	0.00E+00	0.00E+00	1.99E-02
1.64E-02	1.11E-01								
2.85E+00	9.66E-03	9.66E-03	9.60E-01	3.01E-02	3.01E-02	7.58E-02	0.00E+00	0.00E+00	1.96E-02
1.60E-02	1.15E-01								
3.10E+00	9.40E-03	9.40E-03	9.60E-01	3.01E-02	3.01E-02	8.89E-02	0.00E+00	0.00E+00	1.92E-02
1.56E-02	1.20E-01								
3.41E+00	9.10E-03	9.10E-03	9.61E-01	3.02E-02	3.02E-02	1.03E-01	0.00E+00	0.00E+00	1.90E-02
1.51E-02	1.26E-01								
3.77E+00	8.78E-03	8.78E-03	9.61E-01	3.02E-02	3.02E-02	1.19E-01	0.00E+00	0.00E+00	1.88E-02
1.47E-02	1.34E-01								
4.20E+00	8.40E-03	8.40E-03	9.61E-01	3.02E-02	3.02E-02	1.35E-01	0.00E+00	0.00E+00	4.94E-02
1.42E-02	1.44E-01								
4.71E+00	7.54E-03	7.54E-03	9.62E-01	3.02E-02	3.02E-02	1.43E-01	0.00E+00	0.00E+00	4.55E-02
1.37E-02	1.58E-01								
5.32E+00	6.77E-03	6.77E-03	9.63E-01	3.02E-02	3.02E-02	1.48E-01	0.00E+00	0.00E+00	4.23E-02
1.34E-02	1.72E-01								
6.05E+00	6.09E-03	6.09E-03	9.64E-01	3.02E-02	3.02E-02	1.52E-01	0.00E+00	0.00E+00	3.85E-02
1.33E-02	1.85E-01								
6.91E+00	5.50E-03	5.50E-03	9.64E-01	3.03E-02	3.03E-02	1.56E-01	0.00E+00	0.00E+00	3.43E-02
1.34E-02	1.98E-01								
7.94E+00	4.98E-03	4.98E-03	9.65E-01	3.03E-02	3.03E-02	1.59E-01	0.00E+00	0.00E+00	3.03E-02
1.36E-02	2.10E-01								
9.17E+00	4.53E-03	4.53E-03	9.65E-01	3.03E-02	3.03E-02	1.63E-01	0.00E+00	0.00E+00	2.65E-02
1.40E-02	2.22E-01								
1.06E+01	4.12E-03	4.12E-03	9.66E-01	3.03E-02	3.03E-02	1.67E-01	0.00E+00	0.00E+00	2.33E-02
1.45E-02	2.34E-01								
1.24E+01	3.77E-03	3.77E-03	9.66E-01	3.03E-02	3.03E-02	1.70E-01	0.00E+00	0.00E+00	2.06E-02
1.50E-02	2.45E-01								
1.44E+01	3.44E-03	3.44E-03	9.66E-01	3.03E-02	3.03E-02	1.74E-01	0.00E+00	0.00E+00	1.83E-02
1.57E-02	2.55E-01								
1.69E+01	3.14E-03	3.14E-03	9.67E-01	3.03E-02	3.03E-02	1.78E-01	0.00E+00	0.00E+00	1.64E-02
1.64E-02	2.65E-01								
1.98E+01	2.87E-03	2.87E-03	9.67E-01	3.03E-02	3.03E-02	1.82E-01	0.00E+00	0.00E+00	1.48E-02
1.72E-02	2.75E-01								
2.33E+01	2.61E-03	2.61E-03	9.67E-01	3.04E-02	3.04E-02	1.85E-01	0.00E+00	0.00E+00	1.34E-02
1.80E-02	2.83E-01								
2.74E+01	2.37E-03	2.37E-03	9.67E-01	3.04E-02	3.04E-02	1.88E-01	0.00E+00	0.00E+00	1.22E-02
1.89E-02	2.91E-01								
3.23E+01	2.15E-03	2.15E-03	9.67E-01	3.04E-02	3.04E-02	1.90E-01	0.00E+00	0.00E+00	1.11E-02
1.98E-02	2.98E-01								
3.82E+01	1.94E-03	1.94E-03	9.68E-01	3.04E-02	3.04E-02	1.92E-01	0.00E+00	0.00E+00	1.02E-02

2.07E-02	3.05E-01								
4.51E+01	1.74E-03	1.74E-03	9.68E-01	3.04E-02	3.04E-02	1.92E-01	0.00E+00	0.00E+00	9.44E-03
2.17E-02	3.10E-01								
5.34E+01	1.55E-03	1.55E-03	9.68E-01	3.04E-02	3.04E-02	1.92E-01	0.00E+00	0.00E+00	8.76E-03
2.27E-02	3.15E-01								
6.33E+01	1.38E-03	1.38E-03	9.68E-01	3.04E-02	3.04E-02	1.91E-01	0.00E+00	0.00E+00	8.15E-03
2.38E-02	3.19E-01								
7.50E+01	1.21E-03	1.21E-03	9.68E-01	3.04E-02	3.04E-02	1.88E-01	0.00E+00	0.00E+00	7.61E-03
2.48E-02	3.22E-01								
8.90E+01	1.06E-03	1.06E-03	9.69E-01	3.04E-02	3.04E-02	1.85E-01	0.00E+00	0.00E+00	7.14E-03
2.58E-02	3.24E-01								
1.06E+02	9.17E-04	9.17E-04	9.69E-01	3.04E-02	3.04E-02	1.80E-01	0.00E+00	0.00E+00	6.71E-03
2.68E-02	3.25E-01								
1.25E+02	7.88E-04	7.88E-04	9.69E-01	3.04E-02	3.04E-02	1.74E-01	0.00E+00	0.00E+00	6.33E-03
2.78E-02	3.25E-01								
1.49E+02	6.71E-04	6.71E-04	9.69E-01	3.04E-02	3.04E-02	1.67E-01	0.00E+00	0.00E+00	5.99E-03
2.88E-02	3.24E-01								
1.77E+02	5.66E-04	5.66E-04	9.69E-01	3.04E-02	3.04E-02	1.59E-01	0.00E+00	0.00E+00	5.68E-03
2.97E-02	3.23E-01								
2.10E+02	4.73E-04	4.73E-04	9.69E-01	3.04E-02	3.04E-02	1.50E-01	0.00E+00	0.00E+00	5.39E-03
3.06E-02	3.21E-01								
2.50E+02	3.91E-04	3.91E-04	9.69E-01	3.04E-02	3.04E-02	1.41E-01	0.00E+00	0.00E+00	5.13E-03
3.14E-02	3.18E-01								
2.97E+02	3.21E-04	3.21E-04	9.69E-01	3.04E-02	3.04E-02	1.32E-01	0.00E+00	0.00E+00	4.89E-03
3.21E-02	3.15E-01								
3.53E+02	2.61E-04	2.61E-04	9.69E-01	3.04E-02	3.04E-02	1.22E-01	0.00E+00	0.00E+00	4.66E-03
3.28E-02	3.11E-01								
4.20E+02	2.10E-04	2.10E-04	9.69E-01	3.04E-02	3.04E-02	1.12E-01	0.00E+00	0.00E+00	4.45E-03
3.33E-02	3.06E-01								
4.99E+02	1.68E-04	1.68E-04	9.69E-01	3.04E-02	3.04E-02	1.02E-01	0.00E+00	0.00E+00	4.24E-03
3.38E-02	3.01E-01								
5.94E+02	1.34E-04	1.34E-04	9.69E-01	3.04E-02	3.04E-02	9.33E-02	0.00E+00	0.00E+00	4.05E-03
3.41E-02	2.95E-01								
7.07E+02	1.06E-04	1.06E-04	9.69E-01	3.04E-02	3.04E-02	8.46E-02	0.00E+00	0.00E+00	3.87E-03
3.43E-02	2.88E-01								
8.41E+02	8.30E-05	8.30E-05	9.69E-01	3.04E-02	3.04E-02	7.65E-02	0.00E+00	0.00E+00	3.69E-03
3.44E-02	2.81E-01								
1.00E+03	6.49E-05	6.49E-05	9.70E-01	3.04E-02	3.04E-02	6.91E-02	0.00E+00	0.00E+00	3.52E-03
3.43E-02	2.74E-01								

1

time averaged (tav = 3600. s) volume concentration: concentration contour parameters

c(x,y,z,t) = cc(x) * (erf(xa)-erf(xb)) * (erf(ya)-erf(yb)) * (exp(-za*za)+exp(-zb*zb))

c(x,y,z,t) = concentration (volume fraction) at (x,y,z,t)
x = downwind distance (m)
y = crosswind horizontal distance (m)
z = height (m)
t = time (s)

erf = error functon
xa = (x-xc+bx)/(sr2*betax)
xb = (x-xc-bx)/(sr2*betax)
ya = (y+b)/(sr2*betac)
yb = (y-b)/(sr2*betac)
exp = exponential function
za = (z-zc)/(sr2*sig)
zb = (z+zc)/(sr2*sig)
sr2 = sqrt(2.0)

x	cc(x)	b(x)	betac(x)	zc(x)	sig(x)	t	xc(t)	bx(t)	betax(t)
-1.67E+00	0.00E+00	1.50E+00	4.20E-01	0.00E+00	0.00E+00	3.43E+00	0.00E+00	1.67E+00	1.36E-02
-1.34E+00	4.89E-03	1.50E+00	4.40E-01	0.00E+00	2.27E-01	4.27E+00	1.67E-01	1.84E+00	1.50E-02
-1.00E+00	6.75E-03	1.50E+00	4.58E-01	0.00E+00	2.98E-01	5.10E+00	3.34E-01	2.00E+00	1.64E-02
-6.68E-01	8.03E-03	1.50E+00	4.80E-01	0.00E+00	3.64E-01	6.29E+00	5.01E-01	2.17E+00	1.77E-02
-3.34E-01	9.11E-03	1.50E+00	5.07E-01	0.00E+00	4.34E-01	7.47E+00	6.68E-01	2.34E+00	1.91E-02
-2.24E-07	1.01E-02	1.50E+00	5.44E-01	0.00E+00	5.20E-01	1.11E+01	8.35E-01	2.50E+00	2.05E-02
3.34E-01	1.11E-02	1.50E+00	5.95E-01	0.00E+00	6.41E-01	1.48E+01	1.00E+00	2.67E+00	2.18E-02
6.68E-01	1.20E-02	1.50E+00	6.75E-01	0.00E+00	8.56E-01	1.90E+01	1.17E+00	2.84E+00	2.32E-02

1.00E+00	1.27E-02	1.50E+00	1.20E+00	0.00E+00	1.05E+00	2.33E+01	1.34E+00	3.00E+00
2.45E-02								
1.34E+00	1.33E-02	1.50E+00	1.67E+00	0.00E+00	1.25E+00	3.46E+01	1.50E+00	3.17E+00
2.59E-02								
1.67E+00	1.40E-02	1.50E+00	3.69E+00	0.00E+00	7.07E-01	4.60E+01	1.67E+00	3.34E+00
2.73E-02								
1.70E+00	1.40E-02	1.50E+00	3.69E+00	1.58E-04	7.25E-01	4.62E+01	1.70E+00	3.37E+00
2.75E-02								
1.74E+00	1.39E-02	1.50E+00	3.70E+00	7.55E-04	7.24E-01	4.65E+01	1.74E+00	3.41E+00
2.78E-02								
1.78E+00	1.39E-02	1.50E+00	3.70E+00	2.03E-03	7.24E-01	4.69E+01	1.78E+00	3.45E+00
2.82E-02								
1.84E+00	1.38E-02	1.50E+00	3.70E+00	4.32E-03	7.22E-01	4.73E+01	1.84E+00	3.51E+00
2.86E-02								
1.90E+00	1.37E-02	1.50E+00	3.71E+00	8.11E-03	7.20E-01	4.78E+01	1.90E+00	3.57E+00
2.92E-02								
1.98E+00	1.37E-02	1.50E+00	3.71E+00	1.41E-02	7.17E-01	4.84E+01	1.98E+00	3.65E+00
2.98E-02								
2.07E+00	1.36E-02	1.50E+00	3.72E+00	2.31E-02	7.12E-01	4.91E+01	2.07E+00	3.74E+00
3.05E-02								
2.17E+00	1.36E-02	1.50E+00	3.73E+00	3.65E-02	7.04E-01	5.00E+01	2.17E+00	3.84E+00
3.14E-02								
2.30E+00	1.37E-02	1.50E+00	3.74E+00	5.59E-02	6.93E-01	5.09E+01	2.30E+00	3.97E+00
3.24E-02								
2.45E+00	1.38E-02	1.50E+00	3.75E+00	8.37E-02	6.77E-01	5.21E+01	2.45E+00	4.12E+00
3.37E-02								
2.63E+00	1.40E-02	1.50E+00	3.76E+00	1.23E-01	6.55E-01	5.34E+01	2.63E+00	4.30E+00
3.51E-02								
2.85E+00	1.44E-02	1.50E+00	3.77E+00	1.77E-01	6.25E-01	5.49E+01	2.85E+00	4.52E+00
3.69E-02								
3.10E+00	1.51E-02	1.50E+00	3.79E+00	2.51E-01	5.84E-01	5.67E+01	3.10E+00	4.77E+00
3.90E-02								
3.41E+00	1.63E-02	1.50E+00	3.81E+00	3.53E-01	5.28E-01	5.88E+01	3.41E+00	5.08E+00
4.15E-02								
3.77E+00	1.85E-02	1.50E+00	3.83E+00	4.88E-01	4.54E-01	6.13E+01	3.77E+00	5.44E+00
4.44E-02								
4.20E+00	2.19E-02	1.50E+00	3.85E+00	6.68E-01	3.67E-01	6.41E+01	4.20E+00	5.87E+00
4.79E-02								
4.71E+00	1.98E-02	1.50E+00	3.88E+00	8.81E-01	3.56E-01	6.72E+01	4.71E+00	6.38E+00
5.21E-02								
5.32E+00	1.79E-02	1.50E+00	3.90E+00	1.12E+00	3.51E-01	7.04E+01	5.32E+00	6.99E+00
5.71E-02								
6.05E+00	1.62E-02	1.50E+00	3.93E+00	1.37E+00	3.49E-01	7.38E+01	6.05E+00	7.72E+00
6.30E-02								
6.91E+00	1.48E-02	1.50E+00	3.96E+00	1.66E+00	3.50E-01	7.75E+01	6.91E+00	8.58E+00
7.01E-02								
7.94E+00	1.35E-02	1.50E+00	4.00E+00	1.97E+00	3.53E-01	8.15E+01	7.94E+00	9.61E+00
7.85E-02								
9.17E+00	1.24E-02	1.50E+00	4.04E+00	2.33E+00	3.56E-01	8.59E+01	9.17E+00	1.08E+01
8.85E-02								
1.06E+01	1.14E-02	1.50E+00	4.09E+00	2.73E+00	3.60E-01	9.08E+01	1.06E+01	1.23E+01
1.00E-01								
1.24E+01	1.06E-02	1.50E+00	4.16E+00	3.18E+00	3.64E-01	9.62E+01	1.24E+01	1.40E+01
1.15E-01								
1.44E+01	9.86E-03	1.50E+00	4.23E+00	3.70E+00	3.68E-01	1.02E+02	1.44E+01	1.61E+01
1.31E-01								
1.69E+01	9.20E-03	1.50E+00	4.32E+00	4.28E+00	3.73E-01	1.09E+02	1.69E+01	1.85E+01
1.51E-01								
1.98E+01	8.61E-03	1.50E+00	4.44E+00	4.95E+00	3.78E-01	1.16E+02	1.98E+01	2.15E+01
1.75E-01								
2.33E+01	8.08E-03	1.50E+00	4.58E+00	5.71E+00	3.84E-01	1.25E+02	2.33E+01	2.49E+01
2.04E-01								
2.74E+01	7.62E-03	1.50E+00	4.75E+00	6.58E+00	3.91E-01	1.34E+02	2.74E+01	2.91E+01
2.37E-01								
3.23E+01	7.21E-03	1.50E+00	4.97E+00	7.57E+00	3.98E-01	1.44E+02	3.23E+01	3.40E+01
2.77E-01								
3.82E+01	6.85E-03	1.50E+00	5.25E+00	8.69E+00	4.07E-01	1.56E+02	3.82E+01	3.98E+01
3.25E-01								
4.51E+01	6.53E-03	1.50E+00	5.59E+00	9.96E+00	4.18E-01	1.69E+02	4.51E+01	4.68E+01
3.82E-01								
5.34E+01	6.26E-03	1.50E+00	6.01E+00	1.14E+01	4.29E-01	1.84E+02	5.34E+01	5.51E+01
4.50E-01								
6.33E+01	6.03E-03	1.50E+00	6.54E+00	1.30E+01	4.43E-01	2.01E+02	6.33E+01	6.49E+01
5.30E-01								
7.50E+01	5.83E-03	1.50E+00	7.19E+00	1.48E+01	4.59E-01	2.20E+02	7.50E+01	7.67E+01
6.26E-01								
8.90E+01	5.65E-03	1.50E+00	7.99E+00	1.69E+01	4.77E-01	2.42E+02	8.90E+01	9.06E+01
7.40E-01								
1.06E+02	5.49E-03	1.50E+00	8.96E+00	1.91E+01	4.99E-01	2.67E+02	1.06E+02	1.07E+02

8.76E-01
1.25E+02 5.33E-03 1.50E+00 1.01E+01 2.16E+01 5.23E-01 2.95E+02 1.25E+02 1.27E+02
1.04E+00
1.49E+02 5.17E-03 1.50E+00 1.16E+01 2.44E+01 5.52E-01 3.27E+02 1.49E+02 1.51E+02
1.23E+00
1.77E+02 5.01E-03 1.50E+00 1.33E+01 2.74E+01 5.84E-01 3.64E+02 1.77E+02 1.79E+02
1.46E+00
2.10E+02 4.83E-03 1.50E+00 1.53E+01 3.06E+01 6.21E-01 4.06E+02 2.10E+02 2.12E+02
1.73E+00
2.50E+02 4.63E-03 1.50E+00 1.78E+01 3.42E+01 6.64E-01 4.55E+02 2.50E+02 2.52E+02
2.05E+00
2.97E+02 4.42E-03 1.50E+00 2.07E+01 3.80E+01 7.12E-01 5.11E+02 2.97E+02 2.99E+02
2.44E+00
3.53E+02 4.19E-03 1.50E+00 2.41E+01 4.21E+01 7.67E-01 5.75E+02 3.53E+02 3.55E+02
2.90E+00
4.20E+02 3.95E-03 1.50E+00 2.82E+01 4.64E+01 8.29E-01 6.50E+02 4.20E+02 4.22E+02
3.44E+00
4.99E+02 3.69E-03 1.50E+00 3.30E+01 5.11E+01 9.00E-01 7.37E+02 4.99E+02 5.01E+02
4.09E+00
5.94E+02 3.43E-03 1.50E+00 3.86E+01 5.60E+01 9.81E-01 8.37E+02 5.94E+02 5.96E+02
4.86E+00
7.07E+02 3.18E-03 1.50E+00 4.52E+01 6.11E+01 1.07E+00 9.53E+02 7.07E+02 7.08E+02
5.78E+00
8.41E+02 2.92E-03 1.50E+00 5.29E+01 6.66E+01 1.18E+00 1.09E+03 8.41E+02 8.42E+02
6.88E+00
1.00E+03 2.67E-03 1.50E+00 6.19E+01 7.23E+01 1.29E+00 1.25E+03 1.00E+03 1.00E+03
8.18E+00
1

time averaged (tav = 3600. s) volume concentration: concentration in the z = .00 plane.

downwind distance x (m)	time of max conc (s)	cloud duration (s)	effective half width bbc (m)	average concentration (volume fraction) at (x,y,z) y/bbc= 0.0	y/bbc= 0.5	y/bbc= 1.0	y/bbc= 1.5	y/bbc= 2.0	y/bbc= 2.5
-1.67E+00	1.80E+03	3.60E+03	1.67E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
-1.34E+00	1.80E+03	3.60E+03	1.68E+00	3.91E-02	3.65E-02	1.33E-02	3.88E-04	4.27E-07	0.00E+00
-1.00E+00	1.80E+03	3.60E+03	1.70E+00	5.39E-02	4.98E-02	1.80E-02	6.02E-04	9.35E-07	0.00E+00
-6.68E-01	1.80E+03	3.60E+03	1.72E+00	6.40E-02	5.83E-02	2.10E-02	8.09E-04	1.80E-06	0.00E+00
-3.34E-01	1.80E+03	3.60E+03	1.74E+00	7.24E-02	6.49E-02	2.32E-02	1.05E-03	3.45E-06	0.00E+00
-2.24E-07	1.80E+03	3.60E+03	1.77E+00	8.00E-02	7.01E-02	2.49E-02	1.34E-03	6.80E-06	2.40E-09
3.34E-01	1.80E+03	3.60E+03	1.82E+00	8.69E-02	7.39E-02	2.60E-02	1.70E-03	1.40E-05	1.31E-08
6.68E-01	1.80E+03	3.60E+03	1.91E+00	9.24E-02	7.52E-02	2.62E-02	2.13E-03	3.02E-05	6.50E-08
1.00E+00	1.80E+03	3.60E+03	2.56E+00	7.96E-02	5.68E-02	1.89E-02	2.56E-03	1.26E-04	2.14E-06
1.34E+00	1.80E+03	3.60E+03	3.26E+00	6.68E-02	4.64E-02	1.52E-02	2.24E-03	1.41E-04	3.64E-06
1.67E+00	1.80E+03	3.60E+03	6.57E+00	3.54E-02	2.44E-02	7.92E-03	1.21E-03	8.70E-05	2.92E-06
1.70E+00	1.80E+03	3.60E+03	6.57E+00	3.53E-02	2.43E-02	7.88E-03	1.21E-03	8.66E-05	2.91E-06
1.74E+00	1.80E+03	3.60E+03	6.57E+00	3.51E-02	2.41E-02	7.84E-03	1.20E-03	8.62E-05	2.89E-06
1.78E+00	1.80E+03	3.60E+03	6.58E+00	3.49E-02	2.40E-02	7.80E-03	1.19E-03	8.57E-05	2.87E-06
1.84E+00	1.80E+03	3.60E+03	6.59E+00	3.47E-02	2.39E-02	7.76E-03	1.19E-03	8.52E-05	2.86E-06
1.90E+00	1.80E+03	3.60E+03	6.60E+00	3.45E-02	2.37E-02	7.71E-03	1.18E-03	8.47E-05	2.84E-06
1.98E+00	1.80E+03	3.60E+03	6.61E+00	3.43E-02	2.36E-02	7.67E-03	1.17E-03	8.43E-05	2.83E-06
2.07E+00	1.80E+03	3.60E+03	6.62E+00	3.42E-02	2.35E-02	7.63E-03	1.17E-03	8.39E-05	2.81E-06
2.17E+00	1.80E+03	3.60E+03	6.63E+00	3.40E-02	2.34E-02	7.60E-03	1.16E-03	8.35E-05	2.80E-06
2.30E+00	1.80E+03	3.60E+03	6.65E+00	3.40E-02	2.33E-02	7.58E-03	1.16E-03	8.34E-05	2.80E-06
2.45E+00	1.80E+03	3.60E+03	6.66E+00	3.40E-02	2.34E-02	7.59E-03	1.16E-03		

8.34E-05	2.80E-06						
2.63E+00	1.80E+03	3.60E+03	6.68E+00	3.41E-02	2.34E-02	7.61E-03	1.16E-03
8.36E-05	2.81E-06						
2.85E+00	1.80E+03	3.60E+03	6.71E+00	3.41E-02	2.35E-02	7.62E-03	1.17E-03
8.38E-05	2.81E-06						
3.10E+00	1.80E+03	3.60E+03	6.73E+00	3.38E-02	2.32E-02	7.54E-03	1.15E-03
8.30E-05	2.79E-06						
3.41E+00	1.80E+03	3.60E+03	6.76E+00	3.19E-02	2.19E-02	7.12E-03	1.09E-03
7.83E-05	2.63E-06						
3.77E+00	1.80E+03	3.60E+03	6.80E+00	2.52E-02	1.73E-02	5.62E-03	8.61E-04
6.19E-05	2.08E-06						
4.20E+00	1.80E+03	3.60E+03	6.84E+00	1.01E-02	6.95E-03	2.26E-03	3.45E-04
2.48E-05	8.35E-07						
4.71E+00	1.80E+03	3.60E+03	6.88E+00	2.24E-03	1.54E-03	5.00E-04	7.66E-05
5.51E-06	1.85E-07						
5.32E+00	1.80E+03	3.60E+03	6.92E+00	2.75E-04	1.89E-04	6.14E-05	9.39E-06
6.76E-07	2.27E-08						
6.05E+00	1.80E+03	3.60E+03	6.97E+00	1.72E-05	1.18E-05	3.83E-06	5.87E-07
4.22E-08	1.42E-09						
6.91E+00	1.80E+03	3.60E+03	7.03E+00	4.82E-07	3.32E-07	1.08E-07	1.65E-08
1.19E-09	4.00E-11						
7.94E+00	1.80E+03	3.60E+03	7.09E+00	5.03E-09	3.46E-09	1.12E-09	1.72E-10
1.24E-11	4.17E-13						
9.17E+00	1.81E+03	3.60E+03	7.16E+00	1.47E-11	1.01E-11	3.29E-12	5.04E-13
3.63E-14	1.22E-15						
1.06E+01	1.81E+03	3.60E+03	7.25E+00	8.38E-15	5.76E-15	1.87E-15	2.87E-16
2.06E-17	6.96E-19						
1.24E+01	1.81E+03	3.60E+03	7.35E+00	5.81E-19	4.00E-19	1.30E-19	1.99E-20
1.43E-21	4.84E-23						
1.44E+01	1.81E+03	3.60E+03	7.48E+00	2.76E-24	1.90E-24	6.17E-25	9.45E-26
6.81E-27	2.30E-28						
1.69E+01	1.81E+03	3.60E+03	7.64E+00	4.49E-31	3.09E-31	1.00E-31	1.54E-32
1.11E-33	3.75E-35						
1.98E+01	1.81E+03	3.60E+03	7.83E+00	1.09E-39	7.50E-40	2.44E-40	3.73E-41
2.69E-42	9.11E-44						
2.33E+01	1.81E+03	3.60E+03	8.07E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
2.74E+01	1.82E+03	3.60E+03	8.37E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
3.23E+01	1.82E+03	3.60E+03	8.74E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
3.82E+01	1.82E+03	3.60E+03	9.21E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
4.51E+01	1.83E+03	3.60E+03	9.79E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
5.34E+01	1.83E+03	3.60E+03	1.05E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
6.33E+01	1.84E+03	3.60E+03	1.14E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
7.50E+01	1.85E+03	3.60E+03	1.25E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
8.90E+01	1.86E+03	3.60E+03	1.39E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.06E+02	1.87E+03	3.60E+03	1.56E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.25E+02	1.88E+03	3.60E+03	1.76E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.49E+02	1.89E+03	3.60E+03	2.01E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.77E+02	1.91E+03	3.60E+03	2.30E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
2.10E+02	1.93E+03	3.60E+03	2.66E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
2.50E+02	1.96E+03	3.60E+03	3.08E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
2.97E+02	1.99E+03	3.60E+03	3.58E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
3.53E+02	2.02E+03	3.60E+03	4.18E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
4.20E+02	2.06E+03	3.60E+03	4.88E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
4.99E+02	2.11E+03	3.60E+03	5.71E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
5.94E+02	2.17E+03	3.60E+03	6.69E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
7.07E+02	2.24E+03	3.60E+03	7.83E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
8.41E+02	2.32E+03	3.60E+03	9.16E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						

1.00E+03	2.42E+03	3.60E+03	1.07E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						

1

time averaged (tav = 3600. s) volume concentration: concentration in the z = 1.60 plane.

downwind distance x (m)	time of max conc (s)	cloud duration (s)	effective half width bbc (m)	average concentration (volume fraction) at (x,y,z) y/bbc= 0.0	y/bbc= 0.5	y/bbc= 1.0	y/bbc= 1.5
y/bbc= 2.0	y/bbc= 2.5						
-1.67E+00	1.80E+03	3.60E+03	1.67E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
-1.34E+00	1.80E+03	3.60E+03	1.68E+00	6.01E-13	5.62E-13	2.04E-13	5.97E-15
6.56E-18	0.00E+00						
-1.00E+00	1.80E+03	3.60E+03	1.70E+00	2.85E-08	2.63E-08	9.52E-09	3.18E-10
4.94E-13	0.00E+00						
-6.68E-01	1.80E+03	3.60E+03	1.72E+00	4.08E-06	3.72E-06	1.34E-06	5.16E-08
1.15E-10	0.00E+00						
-3.34E-01	1.80E+03	3.60E+03	1.74E+00	8.21E-05	7.36E-05	2.63E-05	1.19E-06
3.91E-09	0.00E+00						
-2.24E-07	1.80E+03	3.60E+03	1.77E+00	6.99E-04	6.13E-04	2.18E-04	1.17E-05
5.95E-08	2.10E-11						
3.34E-01	1.80E+03	3.60E+03	1.82E+00	3.85E-03	3.27E-03	1.15E-03	7.52E-05
6.20E-07	5.80E-10						
6.68E-01	1.80E+03	3.60E+03	1.91E+00	1.61E-02	1.31E-02	4.57E-03	3.73E-04
5.28E-06	1.14E-08						
1.00E+00	1.80E+03	3.60E+03	2.56E+00	2.48E-02	1.77E-02	5.90E-03	7.96E-04
3.92E-05	6.66E-07						
1.34E+00	1.80E+03	3.60E+03	3.26E+00	2.93E-02	2.03E-02	6.68E-03	9.83E-04
6.17E-05	1.60E-06						
1.67E+00	1.80E+03	3.60E+03	6.57E+00	2.73E-03	1.88E-03	6.10E-04	9.34E-05
6.71E-06	2.25E-07						
1.70E+00	1.80E+03	3.60E+03	6.57E+00	3.09E-03	2.12E-03	6.89E-04	1.06E-04
7.57E-06	2.54E-07						
1.74E+00	1.80E+03	3.60E+03	6.57E+00	3.06E-03	2.11E-03	6.84E-04	1.05E-04
7.52E-06	2.52E-07						
1.78E+00	1.80E+03	3.60E+03	6.58E+00	3.03E-03	2.08E-03	6.77E-04	1.04E-04
7.44E-06	2.49E-07						
1.84E+00	1.80E+03	3.60E+03	6.59E+00	2.99E-03	2.05E-03	6.67E-04	1.02E-04
7.33E-06	2.46E-07						
1.90E+00	1.80E+03	3.60E+03	6.60E+00	2.93E-03	2.01E-03	6.54E-04	1.00E-04
7.19E-06	2.41E-07						
1.98E+00	1.80E+03	3.60E+03	6.61E+00	2.85E-03	1.96E-03	6.36E-04	9.73E-05
6.99E-06	2.34E-07						
2.07E+00	1.80E+03	3.60E+03	6.62E+00	2.74E-03	1.88E-03	6.12E-04	9.36E-05
6.72E-06	2.25E-07						
2.17E+00	1.80E+03	3.60E+03	6.63E+00	2.60E-03	1.79E-03	5.80E-04	8.88E-05
6.37E-06	2.14E-07						
2.30E+00	1.80E+03	3.60E+03	6.65E+00	2.41E-03	1.66E-03	5.38E-04	8.23E-05
5.91E-06	1.98E-07						
2.45E+00	1.80E+03	3.60E+03	6.66E+00	2.18E-03	1.50E-03	4.86E-04	7.45E-05
5.35E-06	1.80E-07						
2.63E+00	1.80E+03	3.60E+03	6.68E+00	1.92E-03	1.32E-03	4.28E-04	6.55E-05
4.70E-06	1.58E-07						
2.85E+00	1.80E+03	3.60E+03	6.71E+00	1.64E-03	1.13E-03	3.67E-04	5.62E-05
4.04E-06	1.36E-07						
3.10E+00	1.80E+03	3.60E+03	6.73E+00	1.41E-03	9.69E-04	3.15E-04	4.82E-05
3.46E-06	1.16E-07						
3.41E+00	1.80E+03	3.60E+03	6.76E+00	1.25E-03	8.56E-04	2.78E-04	4.26E-05
3.06E-06	1.03E-07						
3.77E+00	1.80E+03	3.60E+03	6.80E+00	1.11E-03	7.66E-04	2.49E-04	3.81E-05
2.74E-06	9.20E-08						
4.20E+00	1.80E+03	3.60E+03	6.84E+00	1.06E-03	7.27E-04	2.36E-04	3.62E-05
2.60E-06	8.74E-08						
4.71E+00	1.80E+03	3.60E+03	6.88E+00	3.12E-03	2.14E-03	6.96E-04	1.07E-04
7.66E-06	2.58E-07						
5.32E+00	1.80E+03	3.60E+03	6.92E+00	8.23E-03	5.66E-03	1.84E-03	2.81E-04
2.02E-05	6.81E-07						
6.05E+00	1.80E+03	3.60E+03	6.97E+00	1.55E-02	1.07E-02	3.47E-03	5.31E-04
3.82E-05	1.29E-06						
6.91E+00	1.80E+03	3.60E+03	7.03E+00	1.71E-02	1.17E-02	3.82E-03	5.84E-04
4.20E-05	1.41E-06						
7.94E+00	1.80E+03	3.60E+03	7.09E+00	8.94E-03	6.14E-03	2.00E-03	3.06E-04
2.20E-05	7.41E-07						
9.17E+00	1.81E+03	3.60E+03	7.16E+00	1.75E-03	1.20E-03	3.91E-04	5.99E-05
4.31E-06	1.45E-07						

1.06E+01	1.81E+03	3.60E+03	7.25E+00	9.44E-05	6.49E-05	2.11E-05	3.23E-06
2.32E-07	7.84E-09						
1.24E+01	1.81E+03	3.60E+03	7.35E+00	9.27E-07	6.37E-07	2.07E-07	3.17E-08
2.28E-09	7.71E-11						
1.44E+01	1.81E+03	3.60E+03	7.48E+00	9.76E-10	6.71E-10	2.18E-10	3.34E-11
2.41E-12	8.13E-14						
1.69E+01	1.81E+03	3.60E+03	7.64E+00	5.66E-14	3.89E-14	1.26E-14	1.94E-15
1.40E-16	4.72E-18						
1.98E+01	1.81E+03	3.60E+03	7.83E+00	7.99E-20	5.49E-20	1.78E-20	2.73E-21
1.97E-22	6.67E-24						
2.33E+01	1.81E+03	3.60E+03	8.07E+00	1.03E-27	7.11E-28	2.31E-28	3.54E-29
2.55E-30	8.65E-32						
2.74E+01	1.82E+03	3.60E+03	8.37E+00	3.99E-38	2.74E-38	8.91E-39	1.37E-39
9.86E-41	3.35E-42						
3.23E+01	1.82E+03	3.60E+03	8.74E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
3.82E+01	1.82E+03	3.60E+03	9.21E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
4.51E+01	1.83E+03	3.60E+03	9.79E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
5.34E+01	1.83E+03	3.60E+03	1.05E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
6.33E+01	1.84E+03	3.60E+03	1.14E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
7.50E+01	1.85E+03	3.60E+03	1.25E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
8.90E+01	1.86E+03	3.60E+03	1.39E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.06E+02	1.87E+03	3.60E+03	1.56E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.25E+02	1.88E+03	3.60E+03	1.76E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.49E+02	1.89E+03	3.60E+03	2.01E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.77E+02	1.91E+03	3.60E+03	2.30E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
2.10E+02	1.93E+03	3.60E+03	2.66E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
2.50E+02	1.96E+03	3.60E+03	3.08E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
2.97E+02	1.99E+03	3.60E+03	3.58E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
3.53E+02	2.02E+03	3.60E+03	4.18E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
4.20E+02	2.06E+03	3.60E+03	4.88E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
4.99E+02	2.11E+03	3.60E+03	5.71E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
5.94E+02	2.17E+03	3.60E+03	6.69E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
7.07E+02	2.24E+03	3.60E+03	7.83E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
8.41E+02	2.32E+03	3.60E+03	9.16E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.00E+03	2.42E+03	3.60E+03	1.07E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						

1

time averaged (tav = 3600. s) volume concentration: concentration in the z = 5.00 plane.

downwind distance x (m)	time of max conc (s)	cloud duration (s)	effective half width bbc (m)	average concentration (volume fraction) at y/bbc= 0.0	y/bbc= 0.5	y/bbc= 1.0	y/bbc= 1.5	(x,y,z) y/bbc= 2.0	y/bbc= 2.5
-1.67E+00	1.80E+03	3.60E+03	1.67E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
-1.34E+00	1.80E+03	3.60E+03	1.68E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
-1.00E+00	1.80E+03	3.60E+03	1.70E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
-6.68E-01	1.80E+03	3.60E+03	1.72E+00	6.88E-43	6.28E-43	2.26E-43	8.41E-45	0.00E+00	0.00E+00
-3.34E-01	1.80E+03	3.60E+03	1.74E+00	1.25E-30	1.12E-30	4.00E-31	1.80E-32	5.94E-35	0.00E+00
-2.24E-07	1.80E+03	3.60E+03	1.77E+00	6.36E-22	5.57E-22	1.98E-22	1.06E-23	5.40E-26	1.90E-29

3.34E-01	1.80E+03	3.60E+03	1.82E+00	5.25E-15	4.46E-15	1.57E-15	1.02E-16
8.45E-19	7.91E-22						
6.68E-01	1.80E+03	3.60E+03	1.91E+00	3.67E-09	2.98E-09	1.04E-09	8.47E-11
1.20E-12	2.58E-15						
1.00E+00	1.80E+03	3.60E+03	2.56E+00	8.94E-07	6.37E-07	2.13E-07	2.87E-08
1.41E-09	2.40E-11						
1.34E+00	1.80E+03	3.60E+03	3.26E+00	2.12E-05	1.47E-05	4.83E-06	7.10E-07
4.46E-08	1.15E-09						
1.67E+00	1.80E+03	3.60E+03	6.57E+00	4.77E-13	3.28E-13	1.07E-13	1.63E-14
1.17E-15	3.93E-17						
1.70E+00	1.80E+03	3.60E+03	6.57E+00	1.63E-12	1.12E-12	3.65E-13	5.58E-14
4.01E-15	1.34E-16						
1.74E+00	1.80E+03	3.60E+03	6.57E+00	1.58E-12	1.09E-12	3.54E-13	5.42E-14
3.89E-15	1.30E-16						
1.78E+00	1.80E+03	3.60E+03	6.58E+00	1.50E-12	1.03E-12	3.35E-13	5.13E-14
3.68E-15	1.23E-16						
1.84E+00	1.80E+03	3.60E+03	6.59E+00	1.37E-12	9.41E-13	3.06E-13	4.68E-14
3.36E-15	1.13E-16						
1.90E+00	1.80E+03	3.60E+03	6.60E+00	1.18E-12	8.13E-13	2.64E-13	4.04E-14
2.90E-15	9.74E-17						
1.98E+00	1.80E+03	3.60E+03	6.61E+00	9.44E-13	6.49E-13	2.11E-13	3.23E-14
2.32E-15	7.77E-17						
2.07E+00	1.80E+03	3.60E+03	6.62E+00	6.76E-13	4.65E-13	1.51E-13	2.31E-14
1.66E-15	5.57E-17						
2.17E+00	1.80E+03	3.60E+03	6.63E+00	4.16E-13	2.86E-13	9.28E-14	1.42E-14
1.02E-15	3.42E-17						
2.30E+00	1.80E+03	3.60E+03	6.65E+00	2.01E-13	1.38E-13	4.48E-14	6.86E-15
4.93E-16	1.65E-17						
2.45E+00	1.80E+03	3.60E+03	6.66E+00	7.27E-14	5.00E-14	1.62E-14	2.49E-15
1.79E-16	5.99E-18						
2.63E+00	1.80E+03	3.60E+03	6.68E+00	1.74E-14	1.20E-14	3.89E-15	5.96E-16
4.28E-17	1.44E-18						
2.85E+00	1.80E+03	3.60E+03	6.71E+00	2.15E-15	1.48E-15	4.81E-16	7.37E-17
5.29E-18	1.78E-19						
3.10E+00	1.80E+03	3.60E+03	6.73E+00	8.13E-17	5.59E-17	1.82E-17	2.78E-18
2.00E-19	6.71E-21						
3.41E+00	1.80E+03	3.60E+03	6.76E+00	3.07E-19	2.11E-19	6.86E-20	1.05E-20
7.55E-22	2.54E-23						
3.77E+00	1.80E+03	3.60E+03	6.80E+00	7.31E-24	5.03E-24	1.63E-24	2.50E-25
1.80E-26	6.04E-28						
4.20E+00	1.80E+03	3.60E+03	6.84E+00	1.52E-32	1.05E-32	3.40E-33	5.20E-34
3.74E-35	1.26E-36						
4.71E+00	1.80E+03	3.60E+03	6.88E+00	2.45E-31	1.68E-31	5.46E-32	8.36E-33
6.01E-34	2.02E-35						
5.32E+00	1.80E+03	3.60E+03	6.92E+00	5.36E-29	3.69E-29	1.20E-29	1.83E-30
1.32E-31	4.43E-33						
6.05E+00	1.80E+03	3.60E+03	6.97E+00	7.58E-26	5.21E-26	1.69E-26	2.59E-27
1.86E-28	6.27E-30						
6.91E+00	1.80E+03	3.60E+03	7.03E+00	2.94E-22	2.02E-22	6.57E-23	1.01E-23
7.24E-25	2.44E-26						
7.94E+00	1.80E+03	3.60E+03	7.09E+00	1.64E-18	1.13E-18	3.66E-19	5.61E-20
4.03E-21	1.36E-22						
9.17E+00	1.81E+03	3.60E+03	7.16E+00	8.40E-15	5.77E-15	1.87E-15	2.87E-16
2.07E-17	6.97E-19						
1.06E+01	1.81E+03	3.60E+03	7.25E+00	2.81E-11	1.93E-11	6.28E-12	9.62E-13
6.92E-14	2.34E-15						
1.24E+01	1.81E+03	3.60E+03	7.35E+00	4.35E-08	2.99E-08	9.71E-09	1.49E-09
1.07E-10	3.62E-12						
1.44E+01	1.81E+03	3.60E+03	7.48E+00	2.00E-05	1.37E-05	4.46E-06	6.83E-07
4.92E-08	1.66E-09						
1.69E+01	1.81E+03	3.60E+03	7.64E+00	1.51E-03	1.04E-03	3.36E-04	5.15E-05
3.71E-06	1.26E-07						
1.98E+01	1.81E+03	3.60E+03	7.83E+00	8.64E-03	5.94E-03	1.93E-03	2.95E-04
2.13E-05	7.21E-07						
2.33E+01	1.81E+03	3.60E+03	8.07E+00	1.41E-03	9.71E-04	3.15E-04	4.83E-05
3.49E-06	1.18E-07						
2.74E+01	1.82E+03	3.60E+03	8.37E+00	2.00E-06	1.38E-06	4.47E-07	6.85E-08
4.95E-09	1.68E-10						
3.23E+01	1.82E+03	3.60E+03	8.74E+00	6.14E-12	4.22E-12	1.37E-12	2.10E-13
1.52E-14	5.15E-16						
3.82E+01	1.82E+03	3.60E+03	9.21E+00	8.69E-21	5.97E-21	1.94E-21	2.97E-22
2.15E-23	7.31E-25						
4.51E+01	1.83E+03	3.60E+03	9.79E+00	1.13E-33	7.73E-34	2.51E-34	3.85E-35
2.78E-36	9.49E-38						
5.34E+01	1.83E+03	3.60E+03	1.05E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
6.33E+01	1.84E+03	3.60E+03	1.14E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
7.50E+01	1.85E+03	3.60E+03	1.25E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00

0.00E+00 0.00E+00
8.90E+01 1.86E+03 3.60E+03 1.39E+01 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00
1.06E+02 1.87E+03 3.60E+03 1.56E+01 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00
1.25E+02 1.88E+03 3.60E+03 1.76E+01 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00
1.49E+02 1.89E+03 3.60E+03 2.01E+01 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00
1.77E+02 1.91E+03 3.60E+03 2.30E+01 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00
2.10E+02 1.93E+03 3.60E+03 2.66E+01 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00
2.50E+02 1.96E+03 3.60E+03 3.08E+01 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00
2.97E+02 1.99E+03 3.60E+03 3.58E+01 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00
3.53E+02 2.02E+03 3.60E+03 4.18E+01 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00
4.20E+02 2.06E+03 3.60E+03 4.88E+01 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00
4.99E+02 2.11E+03 3.60E+03 5.71E+01 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00
5.94E+02 2.17E+03 3.60E+03 6.69E+01 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00
7.07E+02 2.24E+03 3.60E+03 7.83E+01 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00
8.41E+02 2.32E+03 3.60E+03 9.16E+01 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00
1.00E+03 2.42E+03 3.60E+03 1.07E+02 0.00E+00 0.00E+00 0.00E+00 0.00E+00
0.00E+00 0.00E+00
1

time averaged (tav = 3600. s) volume concentration: concentration in the z = 10.00 plane.

downwind distance x (m)	time of max conc (s)	cloud duration (s)	effective half width bbc (m)	average concentration (volume fraction) at (x,y,z) y/bbc= 0.0	y/bbc= 0.5	y/bbc= 1.0	y/bbc= 1.5	y/bbc= 2.0	y/bbc= 2.5
-1.67E+00	1.80E+03	3.60E+03	1.67E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
-1.34E+00	1.80E+03	3.60E+03	1.68E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
-1.00E+00	1.80E+03	3.60E+03	1.70E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
-6.68E-01	1.80E+03	3.60E+03	1.72E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
-3.34E-01	1.80E+03	3.60E+03	1.74E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
-2.24E-07	1.80E+03	3.60E+03	1.77E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.34E-01	1.80E+03	3.60E+03	1.82E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.68E-01	1.80E+03	3.60E+03	1.91E+00	2.29E-31	1.87E-31	6.50E-32	5.30E-33	7.51E-35	1.61E-37
1.00E+00	1.80E+03	3.60E+03	2.56E+00	1.26E-21	9.02E-22	3.01E-22	4.06E-23	2.00E-24	3.40E-26
1.34E+00	1.80E+03	3.60E+03	3.26E+00	6.73E-16	4.68E-16	1.54E-16	2.26E-17	1.42E-18	3.67E-20
1.67E+00	1.80E+03	3.60E+03	6.57E+00	1.40E-45	1.40E-45	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.70E+00	1.80E+03	3.60E+03	6.57E+00	1.61E-43	1.11E-43	3.64E-44	5.61E-45	0.00E+00	0.00E+00
1.74E+00	1.80E+03	3.60E+03	6.57E+00	1.46E-43	1.01E-43	3.22E-44	5.61E-45	0.00E+00	0.00E+00
1.78E+00	1.80E+03	3.60E+03	6.58E+00	1.19E-43	8.13E-44	2.66E-44	4.20E-45	0.00E+00	0.00E+00
1.84E+00	1.80E+03	3.60E+03	6.59E+00	8.41E-44	5.75E-44	1.82E-44	2.80E-45	0.00E+00	0.00E+00
1.90E+00	1.80E+03	3.60E+03	6.60E+00	4.76E-44	3.22E-44	1.12E-44	1.40E-45	0.00E+00	0.00E+00
1.98E+00	1.80E+03	3.60E+03	6.61E+00	1.96E-44	1.40E-44	4.20E-45	0.00E+00	0.00E+00	0.00E+00
2.07E+00	1.80E+03	3.60E+03	6.62E+00	5.61E-45	4.20E-45	1.40E-45	0.00E+00	0.00E+00	0.00E+00
2.17E+00	1.80E+03	3.60E+03	6.63E+00	1.40E-45	0.00E+00	0.00E+00	0.00E+00		

0.00E+00	0.00E+00						
2.30E+00	1.80E+03	3.60E+03	6.65E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
2.45E+00	1.80E+03	3.60E+03	6.66E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
2.63E+00	1.80E+03	3.60E+03	6.68E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
2.85E+00	1.80E+03	3.60E+03	6.71E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
3.10E+00	1.80E+03	3.60E+03	6.73E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
3.41E+00	1.80E+03	3.60E+03	6.76E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
3.77E+00	1.80E+03	3.60E+03	6.80E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
4.20E+00	1.80E+03	3.60E+03	6.84E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
4.71E+00	1.80E+03	3.60E+03	6.88E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
5.32E+00	1.80E+03	3.60E+03	6.92E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
6.05E+00	1.80E+03	3.60E+03	6.97E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
6.91E+00	1.80E+03	3.60E+03	7.03E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
7.94E+00	1.80E+03	3.60E+03	7.09E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
9.17E+00	1.81E+03	3.60E+03	7.16E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.06E+01	1.81E+03	3.60E+03	7.25E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.24E+01	1.81E+03	3.60E+03	7.35E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.44E+01	1.81E+03	3.60E+03	7.48E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.69E+01	1.81E+03	3.60E+03	7.64E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.98E+01	1.81E+03	3.60E+03	7.83E+00	1.59E-41	1.09E-41	3.55E-42	5.44E-43
3.92E-44	1.40E-45						
2.33E+01	1.81E+03	3.60E+03	8.07E+00	6.48E-30	4.45E-30	1.45E-30	2.22E-31
1.60E-32	5.42E-34						
2.74E+01	1.82E+03	3.60E+03	8.37E+00	1.59E-19	1.09E-19	3.54E-20	5.42E-21
3.92E-22	1.33E-23						
3.23E+01	1.82E+03	3.60E+03	8.74E+00	4.92E-11	3.39E-11	1.10E-11	1.68E-12
1.22E-13	4.13E-15						
3.82E+01	1.82E+03	3.60E+03	9.21E+00	3.05E-05	2.10E-05	6.80E-06	1.04E-06
7.54E-08	2.57E-09						
4.51E+01	1.83E+03	3.60E+03	9.79E+00	4.71E-03	3.24E-03	1.05E-03	1.61E-04
1.17E-05	3.98E-07						
5.34E+01	1.83E+03	3.60E+03	1.05E+01	2.06E-05	1.41E-05	4.59E-06	7.04E-07
5.09E-08	1.74E-09						
6.33E+01	1.84E+03	3.60E+03	1.14E+01	3.09E-13	2.13E-13	6.91E-14	1.06E-14
7.66E-16	2.61E-17						
7.50E+01	1.85E+03	3.60E+03	1.25E+01	2.64E-27	1.82E-27	5.90E-28	9.04E-29
6.54E-30	2.24E-31						
8.90E+01	1.86E+03	3.60E+03	1.39E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.06E+02	1.87E+03	3.60E+03	1.56E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.25E+02	1.88E+03	3.60E+03	1.76E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.49E+02	1.89E+03	3.60E+03	2.01E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.77E+02	1.91E+03	3.60E+03	2.30E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
2.10E+02	1.93E+03	3.60E+03	2.66E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
2.50E+02	1.96E+03	3.60E+03	3.08E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
2.97E+02	1.99E+03	3.60E+03	3.58E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
3.53E+02	2.02E+03	3.60E+03	4.18E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
4.20E+02	2.06E+03	3.60E+03	4.88E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
4.99E+02	2.11E+03	3.60E+03	5.71E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
5.94E+02	2.17E+03	3.60E+03	6.69E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						

7.07E+02	2.24E+03	3.60E+03	7.83E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
8.41E+02	2.32E+03	3.60E+03	9.16E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						
1.00E+03	2.42E+03	3.60E+03	1.07E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00						

1

time averaged (tav = 3600. s) volume concentration: maximum concentration (volume fraction) along centerline.

downwind distance x (m)	height z (m)	maximum concentration c(x,0,z)	time of max conc (s)	cloud duration (s)
-1.67E+00	0.00E+00	0.00E+00	1.80E+03	3.60E+03
-1.34E+00	0.00E+00	3.91E-02	1.80E+03	3.60E+03
-1.00E+00	0.00E+00	5.39E-02	1.80E+03	3.60E+03
-6.68E-01	0.00E+00	6.40E-02	1.80E+03	3.60E+03
-3.34E-01	0.00E+00	7.24E-02	1.80E+03	3.60E+03
-2.24E-07	0.00E+00	8.00E-02	1.80E+03	3.60E+03
3.34E-01	0.00E+00	8.69E-02	1.80E+03	3.60E+03
6.68E-01	0.00E+00	9.24E-02	1.80E+03	3.60E+03
1.00E+00	0.00E+00	7.96E-02	1.80E+03	3.60E+03
1.34E+00	0.00E+00	6.68E-02	1.80E+03	3.60E+03
1.67E+00	0.00E+00	3.54E-02	1.80E+03	3.60E+03
1.70E+00	0.00E+00	3.53E-02	1.80E+03	3.60E+03
1.74E+00	0.00E+00	3.51E-02	1.80E+03	3.60E+03
1.78E+00	0.00E+00	3.49E-02	1.80E+03	3.60E+03
1.84E+00	0.00E+00	3.47E-02	1.80E+03	3.60E+03
1.90E+00	0.00E+00	3.45E-02	1.80E+03	3.60E+03
1.98E+00	0.00E+00	3.43E-02	1.80E+03	3.60E+03
2.07E+00	0.00E+00	3.42E-02	1.80E+03	3.60E+03
2.17E+00	0.00E+00	3.40E-02	1.80E+03	3.60E+03
2.30E+00	0.00E+00	3.40E-02	1.80E+03	3.60E+03
2.45E+00	0.00E+00	3.40E-02	1.80E+03	3.60E+03
2.63E+00	0.00E+00	3.41E-02	1.80E+03	3.60E+03
2.85E+00	0.00E+00	3.41E-02	1.80E+03	3.60E+03
3.10E+00	0.00E+00	3.38E-02	1.80E+03	3.60E+03
3.41E+00	0.00E+00	3.19E-02	1.80E+03	3.60E+03
3.77E+00	2.95E-01	2.56E-02	1.80E+03	3.60E+03
4.20E+00	6.67E-01	2.65E-02	1.80E+03	3.60E+03
4.71E+00	8.81E-01	2.38E-02	1.80E+03	3.60E+03
5.32E+00	1.12E+00	2.14E-02	1.80E+03	3.60E+03
6.05E+00	1.37E+00	1.92E-02	1.80E+03	3.60E+03
6.91E+00	1.66E+00	1.73E-02	1.80E+03	3.60E+03
7.94E+00	1.97E+00	1.56E-02	1.80E+03	3.60E+03
9.17E+00	2.33E+00	1.42E-02	1.81E+03	3.60E+03
1.06E+01	2.73E+00	1.29E-02	1.81E+03	3.60E+03
1.24E+01	3.18E+00	1.17E-02	1.81E+03	3.60E+03
1.44E+01	3.70E+00	1.06E-02	1.81E+03	3.60E+03
1.69E+01	4.28E+00	9.65E-03	1.81E+03	3.60E+03
1.98E+01	4.95E+00	8.71E-03	1.81E+03	3.60E+03
2.33E+01	5.71E+00	7.83E-03	1.81E+03	3.60E+03
2.74E+01	6.58E+00	7.00E-03	1.82E+03	3.60E+03
3.23E+01	7.57E+00	6.20E-03	1.82E+03	3.60E+03
3.82E+01	8.69E+00	5.45E-03	1.82E+03	3.60E+03
4.51E+01	9.96E+00	4.74E-03	1.83E+03	3.60E+03
5.34E+01	1.14E+01	4.07E-03	1.83E+03	3.60E+03
6.33E+01	1.30E+01	3.45E-03	1.84E+03	3.60E+03
7.50E+01	1.48E+01	2.89E-03	1.85E+03	3.60E+03
8.90E+01	1.69E+01	2.39E-03	1.86E+03	3.60E+03
1.06E+02	1.91E+01	1.96E-03	1.87E+03	3.60E+03
1.25E+02	2.16E+01	1.58E-03	1.88E+03	3.60E+03
1.49E+02	2.44E+01	1.27E-03	1.89E+03	3.60E+03
1.77E+02	2.74E+01	1.00E-03	1.91E+03	3.60E+03
2.10E+02	3.06E+01	7.90E-04	1.93E+03	3.60E+03
2.50E+02	3.42E+01	6.17E-04	1.96E+03	3.60E+03
2.97E+02	3.80E+01	4.79E-04	1.99E+03	3.60E+03
3.53E+02	4.21E+01	3.70E-04	2.02E+03	3.60E+03
4.20E+02	4.64E+01	2.85E-04	2.06E+03	3.60E+03
4.99E+02	5.11E+01	2.19E-04	2.11E+03	3.60E+03
5.94E+02	5.60E+01	1.67E-04	2.17E+03	3.60E+03
7.07E+02	6.11E+01	1.28E-04	2.24E+03	3.60E+03
8.41E+02	6.66E+01	9.73E-05	2.32E+03	3.60E+03
1.00E+03	7.23E+01	7.41E-05	2.42E+03	3.60E+03

Attachment 2
ALOHA Model Output

Text Summary

ALOHA® 5.4.7

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SITE DATA:
  Location: BYRON, CALIFORNIA
  Building Air Exchanges Per Hour: 0.50 (unsheltered single storied)
  Time: May 20, 2019  1520 hours PDT (using computer's clock)

CHEMICAL DATA:
  Chemical Name: AQUEOUS AMMONIA
  Solution Strength: 19% (by weight)
  Ambient Boiling Point: 121.3° F
  Partial Pressure at Ambient Temperature: 0.65 atm
  Ambient Saturation Concentration: 645,917 ppm or 64.6%
  Hazardous Component: AMMONIA
  CAS Number: 7664-41-7                 Molecular Weight: 17.03 g/mol
  AEGL-1 (60 min): 30 ppm   AEGL-2 (60 min): 160 ppm   AEGL-3 (60 min): 1100 ppm
  IDLH: 300 ppm      LEL: 150000 ppm     UEL: 280000 ppm

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)
  Wind: 1.5 meters/second from W at 10 meters
  Ground Roughness: open country        Cloud Cover: 5 tenths
  Air Temperature: 105° F
  Stability Class: F (user override)
  No Inversion Height                   Relative Humidity: 50%

SOURCE STRENGTH:
  Evaporating Puddle (Note: chemical is flammable)
  Puddle Area: 938.5 square feet        Puddle Volume: 8,500 gallons
  Ground Type: Concrete                 Ground Temperature: 105° F
  Initial Puddle Temperature: Ground temperature
  Release Duration: ALOHA limited the duration to 1 hour
  Max Average Sustained Release Rate: 32.7 pounds/min
     (averaged over a minute or more)
  Total Amount Hazardous Component Released: 1,402 pounds

THREAT ZONE:
  Model Run: Gaussian
  Red    : 499 yards --- (1100 ppm = AEGL-3 [60 min])
  Orange: 1276 yards --- (200 ppm)
  Yellow: 2.2 miles --- (30 ppm = AEGL-1 [60 min])
```

Assumption: No Reduction in Exposed Area

Text Summary

ALOHA® 5.4.7

```
SITE DATA:
  Location: BYRON, CALIFORNIA
  Building Air Exchanges Per Hour: 0.50 (unsheltered single storied)
  Time: May 20, 2019  1520 hours PDT (using computer's clock)

CHEMICAL DATA:
  Chemical Name: AQUEOUS AMMONIA
  Solution Strength: 19% (by weight)
  Ambient Boiling Point: 121.3° F
  Partial Pressure at Ambient Temperature: 0.65 atm
  Ambient Saturation Concentration: 645,917 ppm or 64.6%
  Hazardous Component: AMMONIA
  CAS Number: 7664-41-7                  Molecular Weight: 17.03 g/mol
  AEGL-1 (60 min): 30 ppm   AEGL-2 (60 min): 160 ppm   AEGL-3 (60 min): 1100 ppm
  IDLH: 300 ppm      LEL: 150000 ppm     UEL: 280000 ppm

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)
  Wind: 1.5 meters/second from W at 10 meters
  Ground Roughness: open country         Cloud Cover: 5 tenths
  Air Temperature: 105° F
  Stability Class: F (user override)
  No Inversion Height                    Relative Humidity: 50%

SOURCE STRENGTH:
  Evaporating Puddle (Note: chemical is flammable)
  Puddle Area: 187.7 square feet         Puddle Volume: 8,500 gallons
  Ground Type: Concrete                  Ground Temperature: 105° F
  Initial Puddle Temperature: Ground temperature
  Release Duration: ALOHA limited the duration to 1 hour
  Max Average Sustained Release Rate: 7.93 pounds/min
     (averaged over a minute or more)
  Total Amount Hazardous Component Released: 423 pounds

THREAT ZONE:
  Model Run: Gaussian
  Red    : 237 yards --- (1100 ppm = AEGL-3 [60 min])
  Orange: 589 yards --- (200 ppm)
  Yellow: 1731 yards --- (30 ppm = AEGL-1 [60 min])
```

Assumption: 80% Reduction in Exposed Area

Text Summary

ALOHA® 5.4.7

```
SITE DATA:
  Location: BYRON, CALIFORNIA
  Building Air Exchanges Per Hour: 0.50 (unsheltered single storied)
  Time: May 20, 2019  1520 hours PDT (using computer's clock)

CHEMICAL DATA:
  Chemical Name: AQUEOUS AMMONIA
  Solution Strength: 19% (by weight)
  Ambient Boiling Point: 121.3° F
  Partial Pressure at Ambient Temperature: 0.65 atm
  Ambient Saturation Concentration: 645,917 ppm or 64.6%
  Hazardous Component: AMMONIA
  CAS Number: 7664-41-7                  Molecular Weight: 17.03 g/mol
  AEGL-1 (60 min): 30 ppm   AEGL-2 (60 min): 160 ppm   AEGL-3 (60 min): 1100 ppm
  IDLH: 300 ppm      LEL: 150000 ppm     UEL: 280000 ppm

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)
  Wind: 1.5 meters/second from W at 10 meters
  Ground Roughness: open country         Cloud Cover: 5 tenths
  Air Temperature: 105° F
  Stability Class: F (user override)
  No Inversion Height                    Relative Humidity: 50%

SOURCE STRENGTH:
  Evaporating Puddle (Note: chemical is flammable)
  Puddle Area: 234.625 square feet       Puddle Volume: 8,500 gallons
  Ground Type: Concrete                  Ground Temperature: 105° F
  Initial Puddle Temperature: Ground temperature
  Release Duration: ALOHA limited the duration to 1 hour
  Max Average Sustained Release Rate: 9.68 pounds/min
     (averaged over a minute or more)
  Total Amount Hazardous Component Released: 506 pounds

THREAT ZONE:
  Model Run: Gaussian
  Red    : 263 yards --- (1100 ppm = AEGL-3 [60 min])
  Orange: 657 yards --- (200 ppm)
  Yellow: 1.1 miles --- (30 ppm = AEGL-1 [60 min])
```

Assumption: 75% Reduction in Exposed Area

Attachment 3
RMP Amendment Log

ATTACHMENT 4

RMP AMENDMENT LOG

Review Date	Description of Amendment	Section	By
12/2014	Changed DGC to MARIPOSA throughout where appropriate. Other minor changes reflecting facility has been constructed and operating	Various	Yorke Engineering, LLC
12/2014	Described ACDEH conditional approval of Program Level 1 with conditions	Various	Yorke Engineering, LLC
12/2014	Made introduction sections into Executive Summary (Sections ES.1 through ES.8)	ES.1 through ES.5, ES.7	Yorke Engineering, LLC
12/2014	Insert statement regarding coordination efforts with Alameda Fire Department	ES.6	Yorke Engineering, LLC
12/2014	Add "Planned Changes to Improve Safety" section to Executive Summary	ES.8	Yorke Engineering, LLC
12/2014	Removed "new facility" language and added off-site consequences language to 3rd bullet point under MARIPOSA qualifications for Program Level 1.	1.3	Yorke Engineering, LLC
12/2014	Added Section titled "Additional Elements" to describe Maximo Computer Maintenance Management System	1.5	Yorke Engineering, LLC
12/2014	Changed range of applicable 19 CCR sections cited for a Program Level 1 process for the Worst Case Release Scenario Analysis	2.0	Yorke Engineering, LLC
12/2014	Removed future tense language in referring to the construction of the facility	3.0	Yorke Engineering, LLC
12/2014	Insert statement regarding coordination efforts with Alameda Fire Department in Emergency Response Section	4.0	Yorke Engineering, LLC
12/2014	Added Qualified Person signature space to Certification Statement	5.0	Yorke Engineering, LLC
12/2014	Attached a copy of the SDS for Aqueous Ammonia (19%)	Attachment 6	Yorke Engineering, LLC
12/2014	Attached Proof of Coordination with Fire Department	Attachment 7	Yorke Engineering, LLC
09/2017	Added Reference to Ammonia Offloading Procedure and Ammonia Truck Unload Checklist	1.1	DGC Operations, LLC
05/2019	Five Year Renewal and OCA	1.2	Yorke Engineering, LLC

Attachment 4
Final Compliance Requirements

ATTACHMENT 4

TABLE A4-1
CalARP Program and ACDEH Summary of Compliance Requirements
Mariposa Energy Project

CalARP Program Compliance Activity	Source	Date Completed					
		2019	2020	2021	2022	2023	2024
Review and update the offsite consequence analysis at least every 5 years or after a significant change to the aqueous ammonia process (OCA modeling was updated using ALOHA in 2013 per ACDEH request, see letter from MARIPOSA to ACDEH dated 10/21/2013)	2012 RMP	(5 years from revised OCA)					(5 years from revised OCA)
Evaluate nearby development annually to ensure new receptors are not present	2012 RMP						
Review Emergency Response Plan when information changes or at least annually	2012 RMP						
Contact the Alameda County Fire Department annually to coordinate response actions	2012 RMP						
Inspect HDPE balls and netting quarterly	Letter from ACDEH dated 2/20/2014	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly
Maintain 2 layers of HDPE balls within the aqueous ammonia secondary containment	Letter from ACDEH dated 2/20/2014	NA	NA	NA	NA	NA	NA
Quarterly hydrodynamic testing of the floating HDPE balls		Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly
Change-out of the HDPE balls every 5 years					5 years from replacement of HDPE balls		
Daily visual inspections of the containment area for netting integrity, debris intrusion, and liquid accumulation		daily	daily	daily	daily	daily	daily

ATTACHMENT 4

TABLE A4-1
CalARP Program and ACDEH Summary of Compliance Requirements
Manposa Energy Project

CalARP Program Compliance Activity	Source	Date Completed					
		2019	2020	2021	2022	2023	2024
Annual staff training on the MARIPOSA RMP including RMP review, emergency contacts, RMP location, daily inspections, quarterly hydrodynamic testing, and 5-year replacement plan	ACDEH MARIPOSA Program Level 1 Approval Letter dated 2/20/2014						
Implement preventative maintenance		Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
Monitor the ammonia process area		Continuous	Continuous	Continuous	Continuous	Continuous	Continuous
Provide employee training and training with the identified potential receptor (PG&E employees) for emergency action							

Note: Table A4-1 supersedes Table 1-1 in the RMP document.

Attachment 5
ACDEH Correspondence

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Agency Director

DEPARTMENT OF ENVIRONMENTAL HEALTH
Certified Unified Program Agency (CUPA)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

May 18, 2012

Mr. Bo Buchynsky
Mariposa Energy, LLC
333. S Grand Avenue, Suite 1570
Los Angeles, CA 90071

RE: California Accidental Release Program (Cal ARP) / Risk Management Plan (RMP) for Mariposa Energy Power Plant located at 4887 Bruns Road, Byron, CA 94514

Dear Mr. Buchynsky;

Alameda County Department of Environmental Health (ACDEH) received the California Accidental Release Response Plan (Cal ARP)/ RMP submitted via e-mail for the referenced site on March 29, 2012. ACDEH conducted a scheduled site visit on May 8, 2012.

Mariposa Energy Power Plant will store and use 19% aqueous ammonia in a selective catalytic reduction system to control nitrogen oxide emission from the natural gas combustion process for generation of electricity. About 8500 gallons of aqueous ammonia will be in the process. The quantity of ammonia exceeds the Cal ARP threshold of 500 pounds. Therefore, the facility is required to prepare and submit a California Accidental Release Response Plan prior to the date on which a regulated chemical is first present on site in a process above the listed threshold quantity (CCR Title 19, Division 2, Chapter 4.5 Section 2745.1(d)).

Cal ARP/RMP submitted for Mariposa Energy Power Plant calculated the distance to the specified end point for the worst-case accidental release scenario for the aqueous ammonia process is less than the distance to the nearest public receptor and that the process therefore qualifies for program level 1.

The distance to the end point was determined using a reduced release rate (pounds of ammonia/minute) due to passive mitigation. As stated in the document, "passive mitigation provided by the covered secondary containment basin" was used in the analysis. Details of the "cover" of the secondary containment were not provided. During the site visit, we found that the 91% reduction of the vaporization of the 8500 gallon of liquid spilled as in the worst case scenario is based on polystyrene balls that will be used to cover the secondary containment. The manufacturer's claimed reduction of vapor by 91% using such balls was used in the calculation.

The use of poly styrene balls for vapor reduction does not meet the definition of "passive mitigation". Passive mitigation systems may be considered for the analysis of

worst case provided that the mitigation system is capable of withstanding the release event triggering the scenario and would still function as intended (Section 2750.3(h)). Only "passive" mitigation methods such as buildings or dikes can be considered. Passive mitigation consists of no mechanical, electrical or human input. The balls will be considered a "mechanical" means of mitigation and cannot be considered as "passive mitigation".

Please resubmit the worst-case release scenario and the end point distance for program level determination.

The following deficiencies identified / found regarding the ammonia system shall be corrected and information provided:

1. Piping, tubing, valves and fittings conveying hazardous materials shall be designed and installed in accordance with approved standards and CFC 2703.2.2.1 and 2703.2.2.2.

2. Piping, tubing, valves, fittings and related component shall be designed and fabricated of materials that are compatible with the materials to be contained and shall be of adequate strength and durability to withstand the pressure, structural and seismic stress and exposure to which they are subject (CFC 2703.2.2.1(1)).

3. Piping and tubing shall be identified in accordance with ASME A13.1 to indicate the material conveyed and with the direction of flow every twenty linear feet (CFC 2703.2.2.1(2)).

4. Readily accessible manual valves or automatic remotely activated fail-safe emergency shut-off valves shall be installed on supply piping and tubing at the following locations:
    a. At the point of use;
    b. The tank, cylinder or bulk source (CFC 2703.2.2.1(3)).

5. Manual emergency shutoff valves and controls for remotely activated emergency shutoff valves shall be identified and the location shall be clearly visible, accessible and indicated by means of a sign (CFC 2703.2.2.1(4)).

6. Smoking shall be prohibited and a "No Smoking" sign provided within 25 feet of outdoor storage, dispensing and open use areas (CFC 2703.7.1).

7. Where gases or liquids with health hazard ranking of 3 or 4 in accordance with NFPA 704 (aqueous ammonia 19% has a health hazard rating 3) are carried in pressurized piping, above 15 psi, an approved method of leak detection and

"The surface area of the pool shall be determined by assuming that the liquid spreads to 1 centimeter deep unless passive mitigation systems are in place that serve to contain the spill and limit the surface area. Where passive mitigation is in place, the surface area of the contained liquid shall be used to calculate the volatilization rate"."

The regulatory section cited refers to surface area reduction due to diking/containment. The evaporative rate reduction is effective with the reduced surface area used (983.5 square feet - available surface due to containment) and one hour release duration. Without passive mitigation the release time will be 10 minutes with 8500 gallon spread over area of 1cm deep. **EPA has not agreed with the additional 90% area reduction claim due to balls.**

Based on the plume data submitted without the poly balls, the worst case release will go offsite and there is public receptor, the PG&E building. The facility therefore qualifies for program level 2. However, allowing for some mitigation (no quantification) with the poly balls and with the additional administrative controls in place (double layers of poly balls, more frequent inspection and ball replacement, open land area), ACDEH will assign the facility **Program Level 1 Status with conditions**.

Please be advised that this program level status will remain effective as long as the facility is in compliance with the Cal ARP regulatory requirements, current and future, implement preventive maintenance, monitor the ammonia process area, provide employee training and training with the identified potential receptor (PG&E employees) for emergency action and there is no accidental release of the regulated material. Any time these conditions change or the topography changes from rural to urban, the facility status will be reviewed and may change depending upon the existing conditions.

If you have any question, please contact Sukla De at 510-304-5446 / sukla.de@acgov.org or me at 510-567-6780/susan.hugo@acgov.org

Sincerely,

Susan Hugo
CUPA Program Manager

cc: Doug Urry, CH2M Hill, 2485 Natomas Park Dr., Suite 600, Sacramento, CA 95833
Bonnie Terra, Alameda County Fire Marshall
Ariu Levi, Director, ACDEH
Chris Tougeron, Senior HMS, ACDEH
Sukla De, CIH, Cal Arp Lead, ACDEH
File

Ms. Susan Hugo
CUPA/CWP/Waste Tire Program Manager
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: **Alameda County Department of Environmental Health (ACDEH) Comment Letter to California Accidental Release Program (CalARP) Risk Management Plan (RMP) for Mariposa Energy Power Plant located at 4887 Bruns Road, Byron, CA 94514**

Dear Ms. Hugo,

Mariposa Energy LLC (Mariposa) submitted a CalARP/ RMP on March 29, 2012 to the ACDEH. Following a site visit on May 8, 2012, the ACDEH sent a letter on May 18, 2012 to Mariposa identifying issues that needed to be addressed regarding the submitted CalARP/ RMP. This letter responds to the issues presented in the ACDEH letter.

Mariposa will store and use 19% aqueous ammonia for use in a selective catalytic reduction (SCR) system to control emissions of oxides of nitrogen (NOx) from natural gas combustion. Mariposa stores the aqueous ammonia solution in a single 10,000-gallon above-ground storage tank, filled to a maximum of 8,500 gallons, or approximately 12,500 pounds of ammonia (NH3) in solution. The tank is surrounded by a 42-foot-long by 23-foot-wide secondary containment basin capable of containing approximately 14,500 gallons (berm height is approximately 2 feet). This is sufficient capacity to contain the full contents of the tank plus rainwater and vapor suppression.

Vapor Suppression as Passive Mitigation

Mariposa has installed High Density Polyethylene (HDPE) balls within the secondary containment for the purpose of vapor suppression in the event of an accidental release. The HDPE balls are maintained within the secondary containment through the use of site-specific customized netting designed for the containment structure. In the May letter the ACDEH contended that the balls would be considered a mechanical means of mitigation and cannot be considered as passive mitigation.

Although the ACDEH may conclude that the balls are considered mechanical, in practice they meet the definition of a passive mitigation and have been considered as such in approved CalARP worst-case scenarios for aqueous ammonia solutions. The CalARP regulation states that "Passive mitigation

systems may be considered for the analysis of worst case provided that the mitigation system is capable of withstanding the release event triggering the scenario and would still function as intended" [Section 2750.3(h)]. As cited by the ACDEH, passive mitigation is defined as "...equipment, devices, or technologies that function without human, mechanical, or other energy input" [Section 2735.3(y)]. The HDPE balls are designed and installed to reduce volatilization without mechanical, electrical, or human input. In this application, the presence of HDPE balls in the secondary containment would reduce the liquid-to-air interface of the aqueous solution following an accidental release by approximately 90-percent. The vapor suppression balls are resistant to freezing and can withstand heat up to 176°F (80°C), which makes it the most suitable material for exterior applications. An ultraviolet (UV) stabilizing additive is also used to prevent the degrading effects of sunlight.

The HDPE balls are lighter than aqueous ammonia and will float on top of any liquid spill. The balls are designed to maintain equal distribution in liquid through the frictional adherence to adjacent balls. Sufficient balls will be used in the containment area to maintain a minimum coverage of 1-layer. The proposed HDPE balls have a 70 millimeters ball diameter with a surface coverage of 22 balls per square foot, or approximately 21,250 to adequately cover the containment area. Further, to ensure that the HDPE balls stay within the containment, mesh netting will be placed over the diked area to prevent any of the balls from escaping the area due to wind or other factors.

Since the balls are always within the containment area they will perform their duties immediately in the event of a liquid release and with no mechanical, electrical, or human input. Moreover, the HDPE balls require no maintenance and will not be damaged by aqueous ammonia should a release occur. The balls will float on top of the liquid and will not absorb any of the ammonia. Once the spill is cleaned up the balls will fall back to the bottom of the diked containment area and be ready to be used again for the next spill. A brochure for the vapor suppression balls from the manufacturer is attached to this letter in Attachment A.

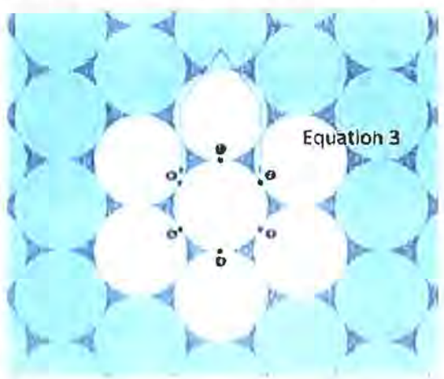
Vapor Reduction Efficiency

This reduction in potential volatilization is based on the highly efficient hexagonal configuration of the balls when floating (see diagram at right). The reduction in liquid-to-air surface area can be estimated based on the portion of a hexagon which occupied by a set of same sized circles. The ratio of the area of the circle compared to the area of the hexagon can be found using the following equation:

$$A_{CIRCLE} = \frac{2 \times A_{HEX} \times \sqrt{3}}{\pi}$$

This can be reduced to:

$$A_{CIRCLE} = 0.9069 \times A_{HEX}$$



Equation 3

In other words, the area of a circle is 90.69% the area of a hexagon. Based on this geometry, the manufacturer of the HDPE balls claims a 91% reduction in the vaporization of the liquid release because the vaporization rate is directly proportional to the surface area available for evaporation.

Because they do not require any activation, they are capable of withstanding the release event triggering the scenario and would still function as intended; HDPE balls have been considered as passive mitigation and used in developing worst-case scenarios pursuant to CalARP. One recent example is the June 2009 revision to the Risk Management Plan (RMP) presented to the Contra Costa County Health Services Department (CCCHSD) by Criterion Catalysts and Technologies L.P. (Criterion) for an aqueous ammonia system that installed vapor suppression balls as passive mitigation around the storage tank to minimize the surface area for evaporation during a spill.

Based on the design of the HDPE balls, their method of use as a non-active (no activation required) form of immediate vapor suppression, the applicable regulatory guidance and definitions, and the precedent established by other agencies, MEP believes use of HDPE balls for vapor suppression meets the regulatory and guidance definition of passive mitigation, and therefore the facility qualifies for Program Level 1 based on a worst-case scenario of a release of 19% aqueous ammonia as originally submitted.

Ammonia System Deficiencies Identified/Found

ACDEH identified seventeen (17) California Fire Code standards that MEP is subject to and where additional information was required. Written responses to these items were provided by LG Constructors, builders of the MEP facility. These are provided as Attachment B.

If there are any other questions or comments to either the CalARP RMP previously submitted, the use of the vapor suppression balls as passive mitigation, or deficiencies in the ammonia system, please do not hesitate to contact me or Mr. Wayne Forsyth, Compliance Manager, at the aforementioned address.

Sincerely,

Bo Buchynsky

Cc: Mr. Craig Hoffman – CEC
Mr. Wayne Forsyth – MEP / DGC
Mr. Gregg Wolffe – Yorke Engineering
Mr. Keith McGregor – CH2M Hill

Attachments: A – Literature from the manufacturer, ECC, LLC, of the High Density Polyethylene balls.
B - Response to Deficiencies by LG Constructors, the Engineering, Procurement & Construction Contractor.

ATTACHMENT A

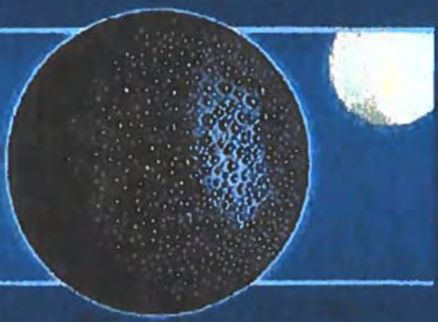
ECC, LLC
Manufactures Literature

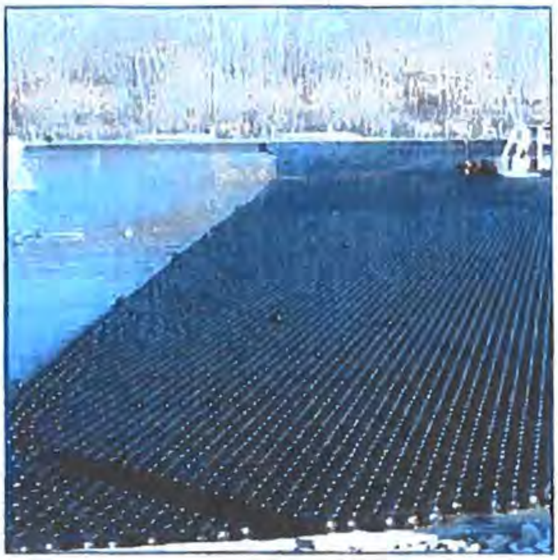
HDPE Balls for Vapor Suppression

ECC, LLC.

Not just a ball....
but a **solution**

Idustrial Applications *Wastewater*
Playpen Balls *Military Airfield* *Copper Refining*





Not just a ball but a solution to a problem

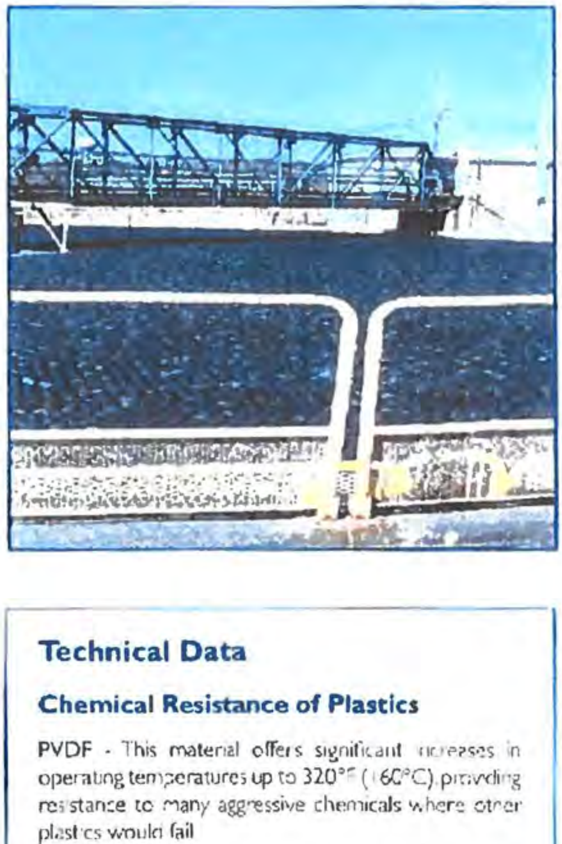
For many industrial applications, ECC provides not just a ball, but a solution to a problem. Most of our successful installations have resulted from working closely with customers, sharing our ideas and experience and tailoring a solution to meet their specific requirements.

ECC floating ball blankets provide highly effective solutions to difficult liquid storage problems in industries including Processing, Petrochemical and Metal Treatment. By placing a sufficient quantity of hollow plastic balls onto the surface of a liquid, the balls automatically arrange themselves into a close packed formation over 91% of the surface area. This high surface coverage provides an extremely effective barrier and significantly reduces the mass and heat transfer mechanisms operating between the liquid and surrounding environment. The hollow plastic balls that form a floating cover for ponds, tanks, lagoons and other basins.

The balls are of course hollow and full of air. And the plastic balls offer very low heat conductivity. Together, these properties result in a very effective thermal insulation barrier. The air pockets between the balls -- although not sealed -- also contribute to this cellular insulation system, dramatically reducing heat loss.

The barrier works both ways: the low liquid surface area exposed to atmosphere dramatically reduces liquid loss through evaporation and odor release to the atmosphere. It also prevents surface absorption of oxygen.

Yet this barrier to the elements does not present an obstacle to product dipping or equipment moving through the liquid surface. The balls are pushed aside, but quickly re-form their cover as the equipment moves forward or products are lifted away from the tank. The balls will rise and fall with liquid level within storage tanks and also provide a constant cover over liquids held in reservoirs with sloping sides. If the liquid level falls -- causing the surface area to shrink -- the balls simply stack in a double layer; they automatically spread themselves into a single layer again as the level rises.



Technical Data

Chemical Resistance of Plastics

PVDF - This material offers significant increases in operating temperatures up to 320°F (160°C), providing resistance to many aggressive chemicals where other plastics would fail.

Polypropylene (PP) - Able to withstand continuous working temperatures of up to 230°F (110°C). Suitable for contact with most chemicals used in the metal treatment industry.

High Density Polyethylene (HDPE) - Suitable for working conditions up to 176°F (80°C). HDPE is recommended for all external applications due to its enhanced resistance to freezing conditions. Black, UV stabilizing additives prevent the degrading effects of sunlight. HDPE is also recommended for demineralized water and Chromic acid applications.

Innovative Applications for ECC Hollow Plastic Balls Include:

- Heat retention. As the balls cover more than 90% of the surface area, they provide an insulation blanket on the tank.
- Evaporation reduction. Covering the water surface minimizes evaporation and water loss.
- Algae control. The balls block the UV from penetrating the water.
- Oxygen absorption
- Vapor containment. The balls reduce chemical vapor emissions.
- Odor containment. Less exposed surface area results in less odor emission.
- Radiant protection
- Acid mist reduction from electrowinning process
- Camouflage pond basins from waterfowl

ECC has more than 30 years experience in the design and distribution of hollow balls.
More than 35,000,000 balls have been delivered as floating covers.

Advantages of ECC Balls:

ECC Balls provide several advantages over other cover systems:

- Heating costs reduced by up to 75%
- Reduction of liquid loss through evaporation by up to 90%
- Reduced chemical consumption
- Improved working environments
- A reduction in corrosive vapors, ensuring increased life expectancy of building structures
- Reduced demand on air extract systems, saving factory heating and reducing gas scrubber demands
- Dramatic reduction of foul odors reaching the atmosphere
- Allows movement of equipment through the liquid
- Reduces penetration of UV rays, precluding growth of algae and clogging weeds
- Reduction of ice formation in freezing conditions, lowering the ice formation point by up to 50°F (10°C)
- The balls spread automatically as the liquid levels rise and fall

The balls are available in a variety of materials; high density polyethylene (HDPE) is the most popular ball material for outdoor applications:

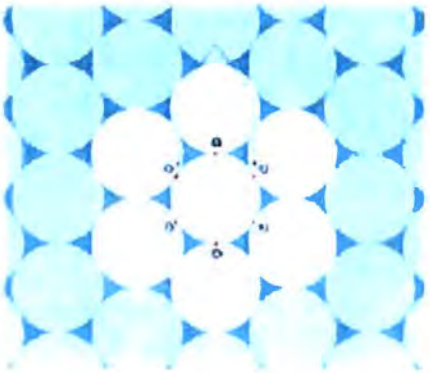
- Reduced heat loss helps to maintain biological reactions during cold weather
- Rain water is not a problem. Unlike solid covers, the balls allow rain water to pass directly into the basin. There is no opportunity for ponding to occur.
- Quick and simple to install; installation is as simple as pouring the balls into the tank.
- The balls naturally assume equal distribution
- Immediate solution to odor problems
- Virtually maintenance free

Find out more about Case Studies on ECC Hollow Plastic Balls online: www.eccllc.us

Ball Diameter and Surface Coverage

Diameter (mm)	Average weight (g)	Number per ft²	Number per m²
10	0.2	1,076	11,600
20	1.0	270	2,900
25	1.5	172	1,850
38	4.5	74	800
45	7.0	53	570
50	8.8	43	465
70	16.0	22	235
100	40.0	10	116
150	100.0	4.8	51.5

The percentage of area covered by the balls is independent of the ball diameter, being the ratio of a circle to the hexagon which surrounds it. This equates to 91% of the liquid surface area. The frictional contact points ensure that each ball remains stable when subjected to increased liquid or air turbulence.



Heat and Liquid Loss Savings

	Open Surface			1 layer 38mm balls			2 layers 38mm balls		
Avg Surface Temperature °C	90	70	50	90	70	50	90	70	50
Energy consumption kWh/h	10.73	4.61	1.61	2.70	1.31	.60	2.04	0.76	0.51
Percentage energy saving	-	-	-	75	71	65	81	76	70
Evaporation liters/m²/h	13.65	4.97	1.45	1.67	0.41	0.14	1.28	0.38	0.13
Percentage evaporation saving	-	-	-	87	91	90	90	92	91

Test Tank Dimensions = 600mm(W) x 1830mm(L) x 1200mm(H)

ECC, LLC.

P.O. Box 1325 • Vass, NC 28394
Phone: 910.245.2241 • Fax: 910.245.2821
E-mail sales@eccllc.us
www.eccllc.us

APPLICATIONS

- Applications & Advantages
- Technical Data
- Bird Deterrent Covers
- Case Studies
- Ammonia Tanks
- Commercial Airport #1
- Copper Refining
- Drinking Water Quality
- Gas Scrubber Packing
- Gold Mining
- Military Airfield
- Wastewater

Clean Energy / Ammonia Tanks Potential Leaks

Problem: How to contain vapors from leaks in liquid ammonia tanks?

Retaining walls (15' x 36.5') will contain liquid but not the evaporation of ammonia.
Solution: 5475 Vapor Containment Balls

Ammonia and Chemical Tanks Safety Covers

Ammonia and Chemical Tanks Potential Hazardous leaks or spills

The ECC Vapor Containment Covers will give the first responders extra time to clean up the Hazard

- Cover automatically covers spill
- Insurance loss preventive recommended solution
- Long lasting application
- No Maintenance

Please call for material recommendation:

Homepage

Floating Ball Covers for Municipalities Drinking Water

Hollow and Water Filled Ball Covers for Airports, Bird Control

Plastic Ball Covers for Municipalities Waste Wate

Hollow and Solid Plastic Balls / Industrial & Medical

Covers for Birds & Waterfowl, Mining Industry

Ammonia Tank & Chemical Tank Safety Covers

Gas Scrubbers

Recyclable Covers

Sustainable Energy Solutions & Services

Contact Us

ATTACHMENT B

LG Constructors, LLC
Response to Design Detail Questions

Compliance with Various California Fire Code Requirements

LG Constructors
9189 South Jamaica Street
Englewood, CO 80012
Tel 303-771-0900

June 27, 2012

VIA Electronic Mail

Mariposa Energy, LLC
333 South Grand Avenue, Suite 1570
Los Angeles, California 90071
Attn: Gary Normoyle

Subject: Alameda County Health Care Services Response

In reference to the letter sent on May 18, 2012 by Alameda County, LG Constructions has the following responses:

1. **Piping, tubing, valves and fittings conveying hazardous materials shall be designed and installed in accordance with approved standards and CFC 2703.2.2.1 and 2703.2.2.2.**
   Requirements for CFC 2703.2.2.1 are itemized below. The requirements for 2703.2.2.2 are as follows. *1) All piping and tubing shall have welded, threaded, or flanged connections.* These qualifications have been met. All of the piping is of welded construction with flanges at interfacing equipment connections. *2) Piping and tubing shall not be located within corridors, or within any portion of egress, or in concealed spaces in areas not classified as Group H occupancies.* The piping/tubing for the ammonia system is routed outdoors or underground until it reaches the duct work. It is never located in the areas listed above.

2. **Piping, tubing, valves, fittings and related components shall be designed and fabricated of materials that are compatible with the materials to be contained and shall be of adequate strength and durability to withstand the pressure, structural and seismic stress and exposure to which they are subject (CFC 2701.2.2.1 (1)).**
   Piping, valves and fittings are of 304 stainless steel construction which has excellent compatibility with 19% aqueous ammonia. The ammonia storage tank is fabricated of SA-516 carbon steel which also has excellent compatibility with 19% aqueous ammonia. The design pressure of the piping system is 120 psig. Sch 80 pipe is more than adequate for this pressure. The piping support system has been designed for the structural and seismic stresses required per ASME B31.1, par 3.3

4. **Readily accessible manual valves or automatic remotely activated fail-safe emergency shut-off valves shall be installed on supply piping and tubing at the following locations:**
   a. At point of use
   b. The tank, cylinder or bulk source (CFC 2703.2.2.1 (3))

The ammonia supply piping has an emergency stop valve (FV-AM[illegible]) located near the storage tank nozzle. Additionally, each ammonia injection point has a manually operated valve (V-[illegible]).

7. Where gases or liquids with health hazard ranking of 3 or 4 in accordance with NFPA 704 (Aqueous ammonia 19% has a health hazard rating of 3) are carried in pressurized piping, above 15 psi, an approved method of leak detection and emergency shutoff or excess flow control shall be provided. Where the piping originates from within a hazardous material storage room or area, the excess flow control shall be within the storage room area. Where the piping originates from a bulk source, the excess flow control shall be located as close to the bulk source as practical (CFC 2703.2.2.1 (6)).

   An ammonia leak monitoring system is in place 2 feet from the ammonia storage tank. The ammonia leak monitoring system will send trouble, alarm, and common fail signals to the DCS. An excess flow control valve is located on the ammonia storage tank supply nozzle. Additionally, an emergency stop valve is located downstream of the flow control valve.

8. Atmospheric tanks having a capacity greater than 500 gallons and which contain hazardous material liquids shall be equipped with a liquid level limit control to prevent overfilling of the tank. Visual observation is not adequate (CFC 2703.2.7).

   Section CFC 2703.2.7 of the code requires either a liquid level limit control or another "approved" means to prevent overfilling. At the tank fill location there are several indications of high level. There is a visual indicator on the tank, digital indicator on the unloading skid, a high level alarm horn and a visual strobe light on the unloading skid. Tank level and alarms are transmitted back to the DCS.

9. Machinery and equipment utilizing hazardous material shall be braced and anchored in accordance with the seismic design requirements of the California Building Code for the seismic design category in which the machine or equipment is classified (CFC 2713.2.8).

   The ammonia tank was anchored in accordance with CBC 2001 and used the following seismic information: SDS = 1.03, [illegible] (Site Class [illegible]). Anchoring calculations were performed [illegible].

11. Areas used for the storage of hazardous material liquids shall be provided with spill control to prevent flow of liquids to adjoining areas. Floors in indoor locations and similar surfaces in outdoor locations shall be constructed to contain a spill from the largest single vessel by one of the following methods:
    i. Liquid-tight sloped or recessed floors
    ii. Liquid-tight floors provided with liquid-tight raised or recessed sills or dikes.
    iii. Sumps or collection system
    iv. Other approved engineered system

Except for surfacing, the floors, sills, dikes, sumps and collection systems shall be constructed of non-combustible material and the liquid-tight seal shall be compatible with the material stored (CFC 2704.2.1). Provide information of the liquid-tight seal to be used/applied.

A sump is provided in the containment basin. "Greenstreak" PVC waterstops are used in all concrete joints to provide a liquid tight seal. This is shown in drawing [illegible]-1021.

12. Secondary containment for outdoor storage areas of hazardous material shall be designed to contain a spill from the largest individual vessel. If the area is open to rainfall, secondary containment shall be designed to include the volume of a 24-hour rainfall as determined by a 25-year storm history and provisions shall be made to drain accumulations of ground water and rain water (CFC 2704.2.2.4). Provide secondary containment volume calculations for adequacy of the containment. The containment shall be hydrostatically tested for tightness.
Secondary containment was designed for 10% more than the liquid capacity plus rainfall from a 25 year storm event and a 10 minute fire hose stream. Calculations were created (415059-C-18) and PE stamped.

13. An approved monitoring method shall be provided to detect hazardous materials in the secondary containment system. The monitoring method is allowed to be visual inspection of the primary and secondary containment. We recommend a liquid detection sensor to be installed at the lowest point in the containment basin for earliest detection of any release. Where secondary containment is subject to the intrusion of water, a monitoring method for detecting water shall be provided. Where monitoring devices are provided, they shall be connected to an approved audible and visual alarm (CFC 2704.2.2.5).
The ammonia leak monitoring system is located inside the tank in the secondary containment area. The monitoring system sends an alarm to the [illegible]. A horn and strobe are also provided at the containment area.

14. The type, location and alarm set points for the ammonia release detection system shall be provided.

Type: [illegible] 3000 Universal Analog Toxic Gas Detector with [illegible] MODEL 2400 Receiver and Controller.

Location: There is three detectors located in the tank containment pit, one against each wall of the pit except for the South wall. The fourth detector is located right above the forwarding pumps on the forwarding skid.

Alarm Set Points: The detection alarms are set for [illegible] ppm and [illegible] ppm.

15. Information shall be provided of the type of corrosion protection for the underground piping for the ammonia system - a. induced current or b. sacrificial anode, kind/frequency of inspection and maintenance for the system.
Sacrificial Anode

16. Provide information the years of the California Building and Fire Code used for design and construction of the system.
The 2010 California Building and Fire Code were used in design.

17. A Seismic walk through of the ammonia system shall be conducted by a registered engineer for seismic analysis. A copy of the report shall be provided.
Seismic restraints were designed per ASHRAE 2015, which has a recommended table for lateral restraints. The installation has been reviewed by the CBO and approved.

Please let us know if you have any questions or require any additional information.

Sincerely,

Les Mathine

Project Manager LG Constructors
9189 South Jamaica Street
Englewood, CO 80112-5946

Cc: James Spicer, Mariposa Energy, LLC
Bo Buchynsky, Mariposa Energy, LLC
Jeff Nobe, LG Constructors

February 6, 2013

Ms. Susan Hugo
CUPA/CWP/Waste Tire Program Manager
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: **Alameda County Department of Environmental Health (ACDEH) Email Requesting Additional Information on the California Accidental Release Program (CalARP) Risk Management Plan (RMP) for Mariposa Energy Power Plant located at 4887 Bruns Road, Byron, CA 94514**

Dear Ms. Hugo,

On January 11, 2013, ACDEH forward to Mariposa Energy (ME) a request for additional information pertaining to the use of High Density Polyethylene (HDPE) balls as a passive vapor reduction system. The specific information requested was:

1) Scientific test data to support 90% vapor reduction of 19% ammonia solution at temperatures of 100 deg F.
2) Use of a single layer of balls instead of multiples-how will it affect vaporization.
3) Information of the customized net material, chemical compatibility and weather resistance. How it will be held in place.
4) Inspection frequency, balls replacement conditions, complete recharge of the balls – when and how often.
5) Maintenance Schedule.
6) Fire suppression system at the tank site.
7) Evidence if any, that the balls are accepted by Federal RMP as "passive mitigation" for 20% ammonia solution
8) Distance of the stationary source to the property line.

Our responses to your requests follow in the same order as the request:

1) The 90% vaporization rate reduction is based upon the decrease in available surface area from which vaporization can take place and the fact that, for constant ambient conditions, vaporization is proportional to the surface area available for the vaporization to take place from. Vaporization takes place through evaporation, whose rate is proportional to the surface area available for evaporation, until boiling occurs; at which point vaporization occurs not at the surface of the liquid but within the liquid. Based upon the calculation of the area covered by the floating HDPE balls, 90.69 % of the area is covered, so vaporization is reduced from 100% to 9.31%, an over 90% reduction in surface area and thus an over a 90% reduction in vaporization amount.

   By circumscribing a regular hexagon around each ball we can determine the area of the ball and the area of the hexagon around the ball. The difference between these two areas is the open area of surface left for potential vaporization. Since each ball is right next to the neighboring ball, the regular hexagons are right next to each other and all of the area is accounted for. For the three (3) inch balls used at MEP, the area a ball occupies is $A_{BALL} = \pi r^2$, where "r" is the radius of the ball or 1.5 inches. The equation leads to a ball area of 7.06858 in^2.

   As shown in Attachment One, when we circumscribed a regular hexagon around a ball we see that "s", one side of the regular hexagon can be determined form the equation, sine 60^O = side opposite / hypotenuse or radius "r" / side "s", since a regular hexagon is composed of six (6) equilateral triangles. This produces an equation of 0.8660254 = 1.5 / "s" or "s" = 1.73205 inches. The area of a regular hexagon is $A_{HEXAGON} = (3/2)(\sqrt{3})(s^2)$, $= (3/2)(\sqrt{3})(1.73205)^2 = 7.79422$ in^2. The difference between the two areas, (Area Hexagon- Area Circle), (7.79422 – 7.06858) equals 0.72564 in^2. This is the open area of the hexagon that is left after the ball is inserted in the hexagon and the area that vaporization / evaporation can still take place from. Therefore, the open area of 0.72564 in^2 divided by the total area of the hexagon 7.79422 in^2 equals the percent of the area left open to vaporization, which is 0.0931 or 9.31 percent. The ball covers 90.69 percent of all the area of the hexagon drawn around the ball, so vaporization is decreased by 90.69%.

2) In Attachment Two we have a table from ECC, LLC the manufacturer / distributor of the HDPE balls showing what happens to evaporation with one layer of three inch balls and with two layers of three inch balls for temperatures ranging from 70 degrees to 160

degrees Fahrenheit. The results indicate that a second layer of balls only has a slight impact of evaporation losses, 0.005 to 0.070 quarts per square foot hour. Therefore the 90.69 % decrease in vaporization / evaporation that a single layer of balls provides would not be significantly improved by adding a second layer of balls.

3) In Attachment Three we have information from the manufacturer / distributor pertaining to the net material, its chemical compatibility and weather resistance along with how the netting will be held in place. The netting is made from the same high density polyethylene material as the three-inch balls. The high density polyethylene chemical resistance guide indicates that the material is satisfactory for both Ammonia, NH3, (100% dry gas) and Ammonium Hydroxide, NH4OH. The netting is a four inch stretched mesh that is cut and hung square with the containment structure to form two inch square openings. The netting will be tied by high density polyethylene ropes to anchors on the sides of the containment structure.

4) Attachment Four contains the manufacturers Inspection and Recharge Recommendations. The balls need to be inspected at least annually for UV degradation or physical damage. The balls need to be replaced every ten (10) years. The netting and netting retention system would also be checked for UV degradation on an annual basis. Any replacement of balls or repair to netting or tie down ropes would be with similar high density polyethylene materials.

5) The semi-annual HDPE ball and netting inspection form is enclosed in Attachment 5. This form will be filled out every six months based upon work orders issued by the Mariposa Energy automated maintenance system, MAXIMO. Also, every nine years, the system will issue a work order for the replacement of the balls and netting.

6) As indicated by the drawings in Attachment 6 the aqueous ammonia storage tank is located near both a fire hydrant and water cannon. Drawing G-PE001, Equipment Location Plan, shows the general arrangement of the Mariposa facility and the aqueous ammonia tank located at the north end of the facility. Drawing M-FP01, Fire Protection Plan, indicates the fire water loop around the facility along with the water cannon west of the aqueous tank and the hydrant east of the area. Finally, Drawings P-PU121 and P-PU122 show the underground piping leading to the two firefighting resources and that they are both approximately 65 feet from the aqueous ammonia tank.

7) Currently additional information on the application of these HDPE balls as "passive mitigation" for 19% aqueous ammonia applications is being complied and will be forwarded to you shortly.

8) The Mariposa Energy facility is located on approximately 10 acres within a 158 acre property owned by Kelso Landworks, LLC. The closest property line form the aqueous ammonia tank is approximately 1,103 feet to the south of the facility.

We hope that we have been able to respond to most of your questions with enough detail so that your concerns are addressed. We continue to obtain information on question 7) and will provide additional information on where the HDPE ball systems have been accepted as "passive mitigation" by Federal RMP standards. It is also possible that the California Energy Commission may provide you some information on the application of the HDPE ball systems as "passive mitigation".

If you have any additional questions as to the application of this system as passive mitigation for a potential 19% aqueous ammonia spill, please feel free to forward them to us and we hope that these responses assist you in your evaluation of our application.

Sincerely,

Bo Buchynsky

Bo Buchynsky
Senior Vice President

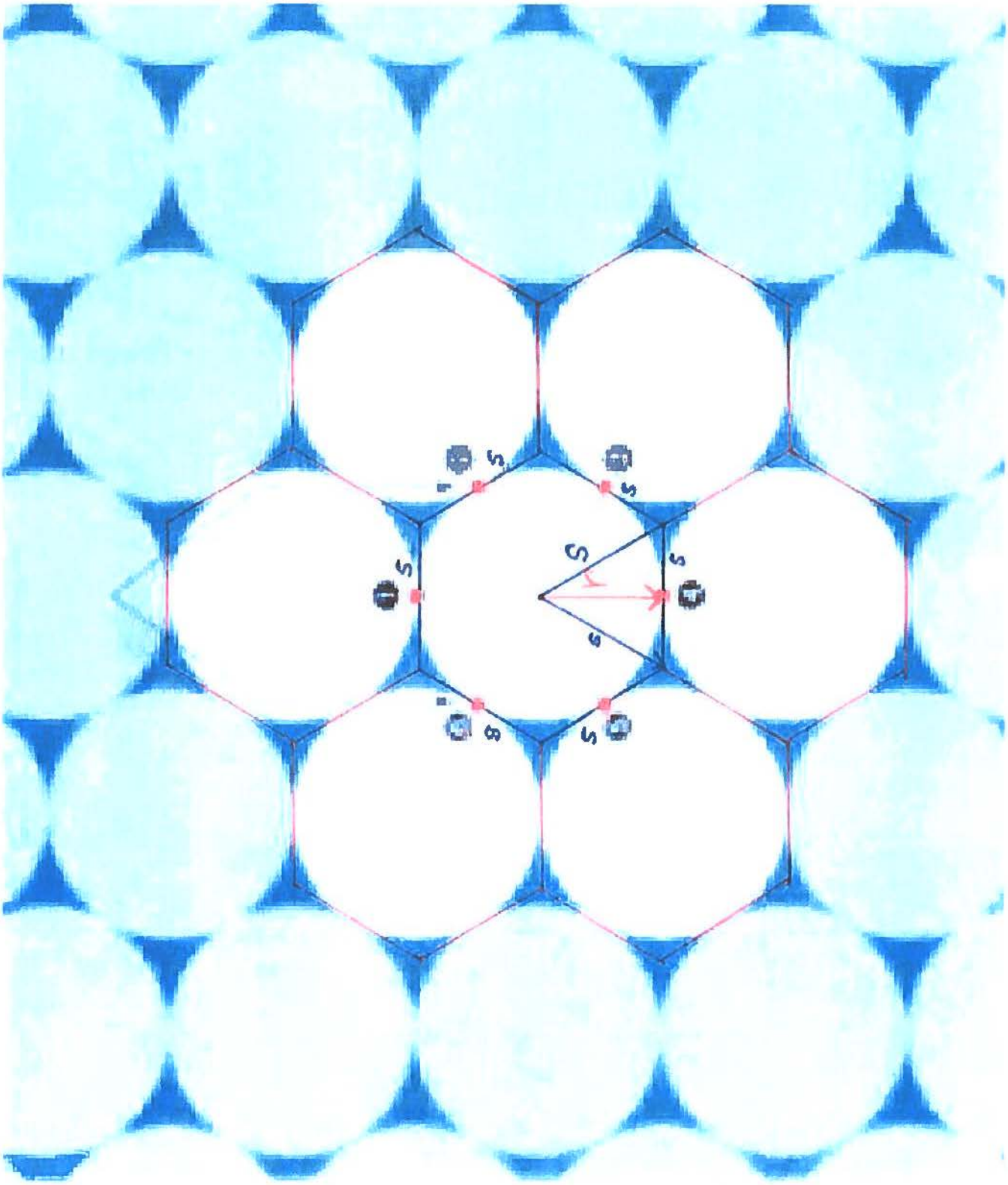
Cc: Mr. Craig Hoffman – CEC
Mr. Wayne Forsyth – MEP / DGC
Mr. Gregg Wolffe – Yorke Engineering
Mr. Keith McGregor – CH2M Hill

Attachments:

Attachment One -	Diagram of HDPE Ball and Hexagon
Attachment Two -	Evaporation Data for One and Two Layers of Balls
Attachment Three -	Netting / Rope Specifications & HDPE Chemical Resistance Guide
Attachment Four -	Inspection & Recharge Recommendations
Attachment Five -	HDPE Balls & Netting Inspection Form
Attachment Six -	Equipment Location Plan
	Fire Protection System
	Piping Plan – Underground – P-PU121
	Piping Plan – Underground – P-PU122

ATTACHMENT ONE

Diagram of HDPE Ball & Hexagon


S
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S

ATTACHMENT TWO

Evaporation Data for One & Two Layers of Balls

ECC, LLC.

P.O. Box 1322
Vass, NC 28394

910-245-2291
910-245-2671 Fax

EVAPORATION

Liquid Loss Savings	(W) 3" balls	(W2layers) 3" Balls
From Water at these temps F	Evaporation loss in quarts / ft2 h	Evaporation loss in quarts / ft2 h
70	.05	.045
90	.14	.133
125	.49	.465
160	1.28	1.21

Testing is per sq. ft. of open surface per hour

ATTACHMENT THREE

Netting / Rope Specifications

&

HDPE Chemical Resistance Guide

ECC, LLC.

P.O. Box 1325
Vass, NC 28394

910.245.2311
910.245.2811 fax
www.eccllc.us

Netting Specs

PRODUCT NAME
HDPE Knotted Bird Netting
4" stretched mesh
Netting Cut and Hung Square to form 2" by 2" Openings

SPECIFICATIONS
YARN: 380 DENIER
CONSTRUCTION: 3 strand, Z twist primary into S twist secondary
#21 twine = Approx. 122 pound tensile per strand

NETTING SPECIFICATIONS
COLOR: Twisted & Knotted, Black Polyethylene netting
WEIGHT: Approx. 60 Sq. Ft. Lb.

ROPE
DIAMETER: 1/4" braided polypropylene
COLOR: Black poly pro
TENSILE: Approx: 1000 pounds

HDPE Chemical Resistance Guide

Reagent	70° F (21° C)	140° F (60° C)
A		
Acetaldehyde	S	O
Acetic acid (1-10%)	S	S
Acetic acid (10-60%)	S	O
Acetic acid (80-100%)	S	O
Acetic anhydride	S	S
Acetone	S	S
Acids (aromatic)	S	S
Acrylic emulsions	S	S
Adipic acid	S	S
Aluminum chloride concentrated	S	S
Aluminum chloride dilute	S	S
Aluminum fluoride concentrated	S	S
Aluminum sulfate concentrated	S	S
Alums (all types) concentrated	S	S
Amino acetic acid	S	S
Ammonia (100% dry gas)	S	S
Ammonium acetate	S	S
Ammonium bromide	S	S
Ammonium carbonate	S	S
Ammonium chloride saturated	S	S
Ammonium fluoride (20%)	S	S
Ammonium hydroxide	S	S
Ammonium metaphosphate (sat.)	S	S
Ammonium nitrate saturated	S	S
Ammonium persulfate saturated	S	S
Ammonium phosphate	S	S
Ammonium sulfate saturated	S	S
Ammonium sulfide saturated	S	S
Ammonium thiocyanate saturated	S	S
Amyl acetate (100%)	O	U
Amyl alcohol (100%)	S	S
Amyl Chloride (100%)	O	U
Aniline (100%)	S	U
Anise seed oil	O	U
Antimony chloride	S	S
Aqua Regia	O	U
Aromatic hydrocarbons	U	U
Arsenic	S	S
Aspirin	S	S

Reagent	70° F (21° C)	140° F (60° C)
B		
Barium carbonate saturated	S	S
Barium carbonate saturated	S	S
Barium hydroxide	S	S
Barium sulfate saturated	S	S
Barium sulfite saturated	S	S
Beer	S	S
Benzaldehyde	S	O
Benzene	O	U
Benzene sulfonic acid	S	S
Benzoic acid crystals	S	S
Benzoic acid saturated	S	S
Bismuth carbonate saturated	S	S
Black liquor	S	S
Bleach lye (10%)	S	S
Borax cold saturated	S	S
Boric acid concentrated	S	S
Boric acid dilute	S	S
Brine	S	S
Bromic acid (10%)	S	S
Bromine liquid (100%)	O	U
Bromochloromethane	U	U
Butadiene	U	U
Butanediol (10%)	S	S
Butanediol (60%)	S	S
Butanediol (100%)	S	S
Butter	S	S
Butyl acetate (100%)	O	U
Butyl alcohol (100%)	S	S
Butylene glycol	S	S
Butyric acid (100%)	S	S
C		
Caffeine citrate saturated	S	S
Calcium bisulfide	S	S
Calcium bromide	S	S
Calcium carbonate saturated	S	S
Calcium Chlorate saturated	S	S
Calcium hydroxide	S	S
Calcium hypochlorite bleach solution	S	S
Calcium nitrate (50%)	S	S
Calcium sulfate	S	S

Legend: S = Satisfactory O = Some attack U = Unsatisfactory

INEOS
Olefins & Polymers USA

HDPE Chemical Resistance Guide

Reagent	70° F (21° C)	140° F (60° C)
Camphor crystals	S	S
Camphor oil	U	U
Carbon dioxide (100% dry)	S	S
Carbon dioxide (100% wet)	S	S
Carbon dioxide cold saturated	S	S
Carbon disulphide	O	U
Carbon monoxide	S	S
Carbon tetrachloride	U	U
Carbonic acid	S	S
Carnauba wax	S	S
Carrot juice	S	S
Castor oil concentrated	S	S
Catsup	S	S
Caustic soda	S	O
Cedar leaf oil	U	U
Cedar wood oil	U	U
Chlorine liquid	O	U
Chlorobenzene	O	U
Chloroform	U	U
Chlorosulfonic acid (100%)	U	U
Chrome alum saturated	S	S
Chromic acid (10-20%)	S	O
Chromic acid (50%)	S	O
Cider	S	S
Cinnamon	S	S
Cinnamon oil	U	U
Citric acid saturated	S	S
Citronella oil	O	U
Cloves (ground)	S	S
Coconut oil alcohols	S	S
Cod liver oil	S	S
Coffee	S	S
Copper chloride saturated	S	S
Cooper cyanide saturated	S	S
Copper fluoride (2%)	S	S
Copper nitrate saturated	S	S
Copper sulfate dilute	S	S
Copper sulfate saturated	S	S
Corn oil	S	S
Cottonseed oil	S	S
Cranberry sauce	S	S
Cresols	S	O
Cuprous chloride saturated	S	S
Cuprous oxide	S	S
Cyclohexane	U	U
Cyclohexanone	U	U
D		
Decalin	S	S
Detergents (synthetic)	S	S
Developers (photogenic)	S	S
Dextrin saturated	S	S
Dextrose saturated	S	S
Dibutyl ether	O	U
Dichlorobenzene (ortho and para)	U	U
Diethylene glycol	S	S
Dioxane	S	S
Disodium phosphate	S	S
E		
Emulsions (photographic)	S	S
Ether	O	O
Ethyl acetate (100%)	O	O
Ethyl alcohol (35%)	S	S
Ethyl alcohol (100%)	S	S
Ethylbenzene	O	U
Ethylene glycol	S	S
F		
Ferric chloride saturated	S	S
Ferric nitrate saturated	S	S
Ferrous ammonium citrate	S	S
Ferrous chloride saturated	S	S
Ferrous sulfate	S	S
Fluoboric acid	S	S
Fluorine	S	U
Fluosilicic acid (32%)	S	S
Fluosilicic acid concentrated	S	S
Formaldehyde (10-30%)	S	S
Formaldehyde (30-40%)	S	O
Formic acid (20%)	S	S
Formic acid (50%)	S	S
Formic acid (100%)	S	S
Fructose saturated	S	S
Fuel oil	S	U
Furfural (100%)	O	U
Furfuryl alcohol	S	O
G		
Gallic acid saturated	S	S
Gasoline	S	U
Glucose	S	S
Glycerine	S	S
Glycol	S	S
Glycolic acid (30%)	S	S
Grape juice	S	S
Grapefruit juice	S	S
H		
Heptane	O	U
Hexachlorobenzene	S	S
Hexane	U	U
Hydrobromic acid (50%)	S	S

Legend: S = Satisfactory O = Some attack U = Unsatisfactory

INEOS Olefins & Polymers USA

HDPE Chemical Resistance Guide

Reagent	70° F (21° C)	140° F (60° C)
Hydrochloric acid (10%)	S	S
Hydrochloric acid (30%)	S	S
Hydrochloric acid (35%)	S	S
Hydrocyanic acid	S	S
Hydrocyanic acid saturated	S	S
Hydrofluoric acid (40%)	S	S
Hydrofluoric acid (60%)	S	S
Hydrofluoric acid (75%)	S	S
Hydrogen (100%)	S	S
Hydrogen bromide (10%)	S	S
Hydrogen chloride dry gas	S	S
Hydrogen peroxide (30%)	S	O
Hydrogen sulfide	S	S
Hydroquinone	S	S
Hypochlorous acid concentrated	S	S
I		
Inks	S	S
Iodine crystals	O	O
Isobutyl alcohol	S	S
Isopropyl alcohol	S	S
Isopropyl ether	O	U
K		
Kerosene	O	O
L		
Lactic acid (10%)	S	S
Lactic acid (90%)	S	S
Lanolin	S	S
Lard	S	S
Lead acetate saturated	S	S
Lead nitrate	S	S
Lemon juice	S	S
Lemon oil	O	U
Lime juice	S	S
Linseed oil	S	S
M		
Magnesium carbonate saturated	S	S
Magnesium chloride saturated	S	S
Magnesium hydroxide saturated	S	S
Magnesium nitrate saturated	S	S
Magnesium sulfate saturated	S	S
Margarine	S	S
Mercuric chloride	S	S
Mercuric cyanide saturated	S	S
Mercurous nitrate saturated	S	S
Mercury	S	S
Methyl alcohol (100%)	S	S
Methyl ethyl ketone (100%)	U	U

Reagent	70° F (21° C)	140° F (60° C)
Methylene chloride (100%)	U	U
Methylsulfuric acid	S	S
Milk	S	S
Mineral oils	S	U
Molasses	S	S
Mustard (prepared)	S	S
N		
Naphtha	O	U
Naphthalene	S	U
Natural gas (wet)	S	S
Nickel chloride saturated	S	S
Nickel nitrate concentrated	S	S
Nickel sulfate	S	S
Nicotinic acid	S	S
Nitric acid (0-30%)	S	S
Nitric acid (30-50%)	S	O
Nitric acid (70%)	S	O
Nitric acid (95-98%)	U	U
Nitrobenzene (100%)	U	U
Nitroglycerine	O	U
O		
Octane	S	S
Oleum concentrated	U	U
Olive oil	S	S
Orange juice	S	S
Oxalic acid dilute	S	S
Oxalic acid saturated	S	S
Ozone	O	O
P		
Palm oil	S	S
Paraffin oil	S	O
Peanut butter	S	S
Pepper (fresh ground)	S	S
Peppermint oil	O	U
Perchloric acid (50%)	S	O
Perchloroethylene	U	U
Petroleum ether	U	U
Petroleum jelly	S	S
Phenol	S	S
Phosphoric acid (0-30%)	S	S
Phosphoric acid (30-90%)	S	S
Phosphoric acid (over 90%)	S	S
Photographic solutions	S	S
Phthalic anhydride	S	S
Pickling baths	S	S
Hydrochloric acid	S	S
Sulfuric acid	S	S
Sulfuric-nitric	S	U

Legend: S = Satisfactory O = Some attack U = Unsatisfactory

INEOS
Olefins & Polymers USA

HDPE Chemical Resistance Guide

Reagent	70° F (21° C)	140° F (60° C)
Pine oil	O	U
Plating solutions		
Brass	S	S
Cadmium	S	S
Chromium	S	S
Copper	S	S
Gold	S	S
Indium	S	S
Lead	S	S
Nickel	S	S
Rhodium	S	S
Silver	S	S
Tin	S	S
Zinc	S	S
Potassium bicarbonate saturated	S	S
Potassium borate (1%)	S	S
Potassium bromate (10%)	S	S
Potassium bromide saturated	S	S
Potassium carbonate	S	S
Potassium chlorate saturated	S	S
Potassium chloride saturated	S	S
Potassium chromate (40%)	S	S
Potassium cyanide saturated	S	S
Potassium dichromate (40%)	S	S
Potassium ferri / ferro cyanide	S	S
Potassium nitrate saturated	S	S
Potassium perborate saturated	S	S
Potassium perchlorate (10%)	S	S
Potassium permanganate (20%)	S	S
Potassium persulfate saturated	S	S
Potassium sulfate concentrated	S	S
Potassium sulfide concentrated	S	S
Potassium sulfite concentrated	S	S
Propane gas	S	S
Propargyl alcohol	S	S
Propyl alcohol	S	S
Propylene glycol	S	S
Pyridine	S	O
R		
Rayon coagulating bath	S	S
Resorcinol	S	S
S		
Salicylic acid	S	S
Seawater	S	S
Shortening	S	S
Silicic acid	S	S
Silver nitrate solution	S	S
Soap solution concentrated	S	S
Sodium acetate saturated	S	S
Sodium benzoate (35%)	S	S
Sodium bicarbonate saturated	S	S
Sodium bisulfate saturated	S	S
Sodium bisulfite saturated	S	S
Sodium borate	S	S
Sodium carbonate concentrated	S	S
Sodium chlorate saturated	S	S
Sodium chloride saturated	S	S
Sodium cyanide	S	S
Sodium dichromate saturated	S	S
Sodium ferricyanide	S	S
Sodium ferricyanide concentrated	S	S
Sodium fluoride saturated	S	S
Sodium hydroxide concentrated	S	S
Sodium hypochlorite	S	S
Sodium nitrate	S	S
Sodium nitrite	S	S
Sodium perborate	S	S
Sodium phosphate	S	S
Sodium sulfide (25% to saturated)	S	S
Sodium sulfite saturated	S	S
Sodium thiosulphate	S	S
Soybean oil	S	S
Stannic chloride saturated	S	S
Stannous chloride saturated	S	S
Starch solution saturated	S	S
Stearic acid (100%)	S	S
Sulfuric acid (0-50%)	S	S
Sulfuric acid (70%)	S	O
Sulfuric acid (80%)	S	U
Sulfuric acid (96%)	O	U
Sulfuric acid (98% concentrated)	O	U
Sulfuric acid (fuming)	U	U
Sulfurous acid	S	S
T		
Tannic acid (10%)	S	S
Tartaric acid	S	S
Tea	S	S
Tetrahydrofuran	O	O
Toluene	U	U
Tomato juice	S	S
Transformer oil	S	O
Trichloroethylene	U	U
Trisodium phosphate saturated	S	S
Turpentine	O	U
U		
Urea	S	S
Urine	S	S

Legend S = Satisfactory O = Some attack U = Unsatisfactory

INEOS Olefins & Polymers USA

HDPE Chemical Resistance Guide

Reagent	70° F (21° C)	140° F (60° C)
V		
Vanilla extract	S	S
Vaseline	S	S
Vinegar (commercial)	S	S
W		
Wetting agents	S	S
Whiskey	S	S
Wines	S	S
X		
Xylene	U	U
Y		
Yeast	S	S
Z		
Zinc chloride saturated	S	S
Zinc oxide	S	S
Zinc sulfate saturated	S	S

Note: The proceeding information concerns general chemical resistance only. Since other factors such as permeation, ESCR and container design are involved, full compatibility testing is recommended.

Product Inquiries.

Marina View Headquarters
2600 South Shore Blvd
League City, Texas 77573
Telephone: 281-535-6600
Fax: 281-535-6764
Customer Service: 800-527-5419

Battleground Manufacturing Complex
1230 Battleground Road
La Porte, Texas 77571
Telephone: 713-307-3000
Fax: 713-307-3521
Technical Center: 800-338-0489

www.innovene.com
www.innovene.com/orders
www.innovene.com/technicalservice

Legend S = Satisfactory O = Some attack U = Unsatisfactory

INEOS
Olefins & Polymers USA

ATTACHMENT FOUR

Inspection & Recharge Recommendations

ECC, LLC.

P.O. Box 1825
Vass, NC 28394

910-245-2241
910-245-2821 fax

Inspection and Recharge Recommendations

1. **Ball covers should be visually inspected annually for degrading from UV exposure. (Life expectancy is 10 years)**

2. **Netting should also be visually inspected annually and repaired with the treated twine if needed.**

ATTACHMENT FIVE

HDPE Balls & Netting Inspection Form

Mariposa Energy, LLC
Ammonia Tank - Secondary Containment
HPDE Balls and Netting Semi-Annual Inspection

- ☐ Verify balls do not show signs of discoloration
- ☐ Verify balls do not show signs of cracking or splitting
- ☐ Verify netting is anchored completely around the NH3 tank secondary containment
- ☐ Verify netting does not show signs of discoloration
- ☐ Verify netting does not show signs of fraying
- ☐ Verify netting is not brittle from UV exposure

Date HPDE balls were installed (MM/DD/YYYY)_____

Date HPDE balls to be replaced (MM/DD/YYYY)_____

Date netting was installed (MM/DD/YYYY)_____

Date netting to be replaced (MM/DD/YYYY)_____

Name of Inspector _____ Date _____

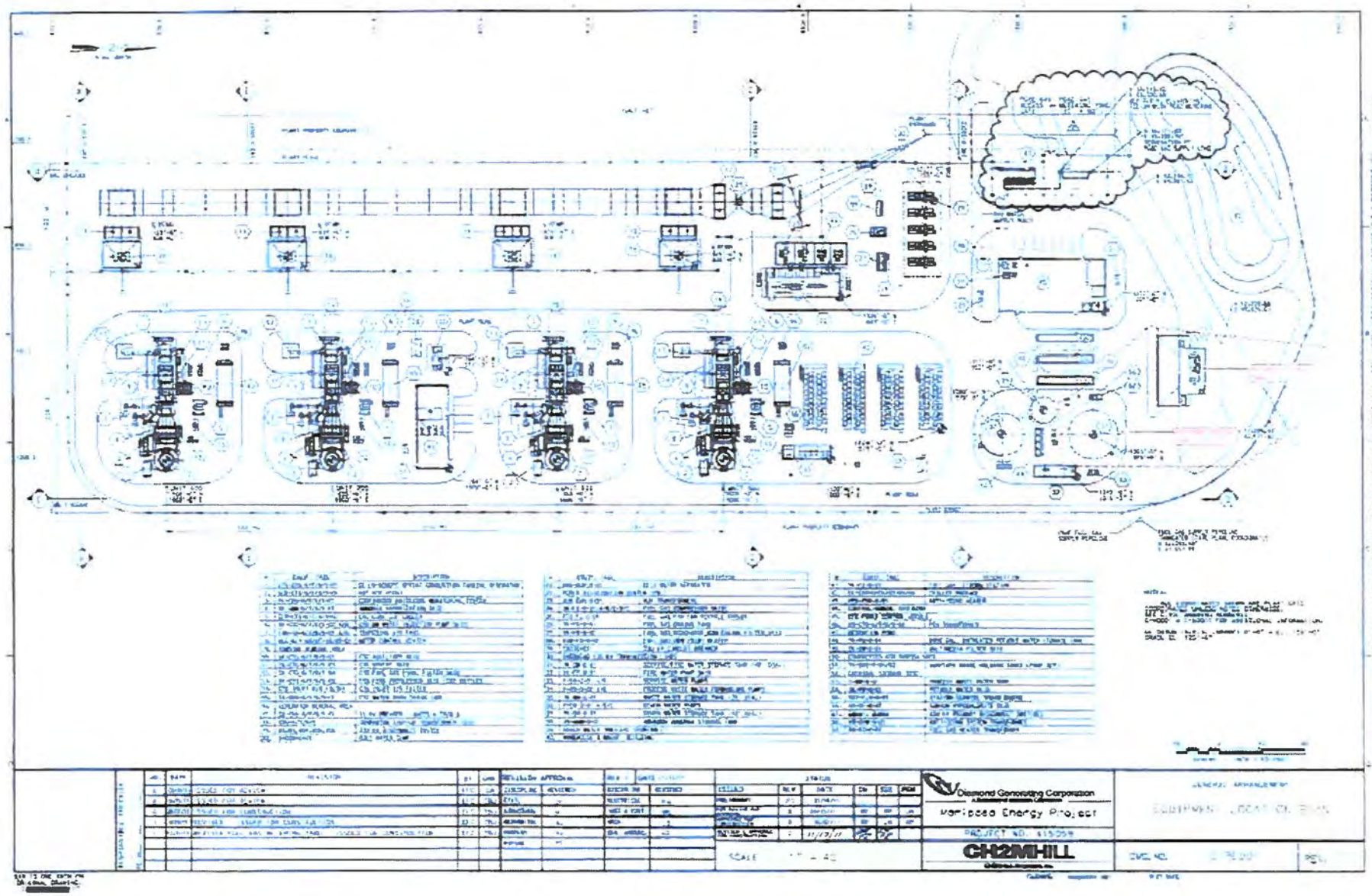
ATTACHMENT SIX

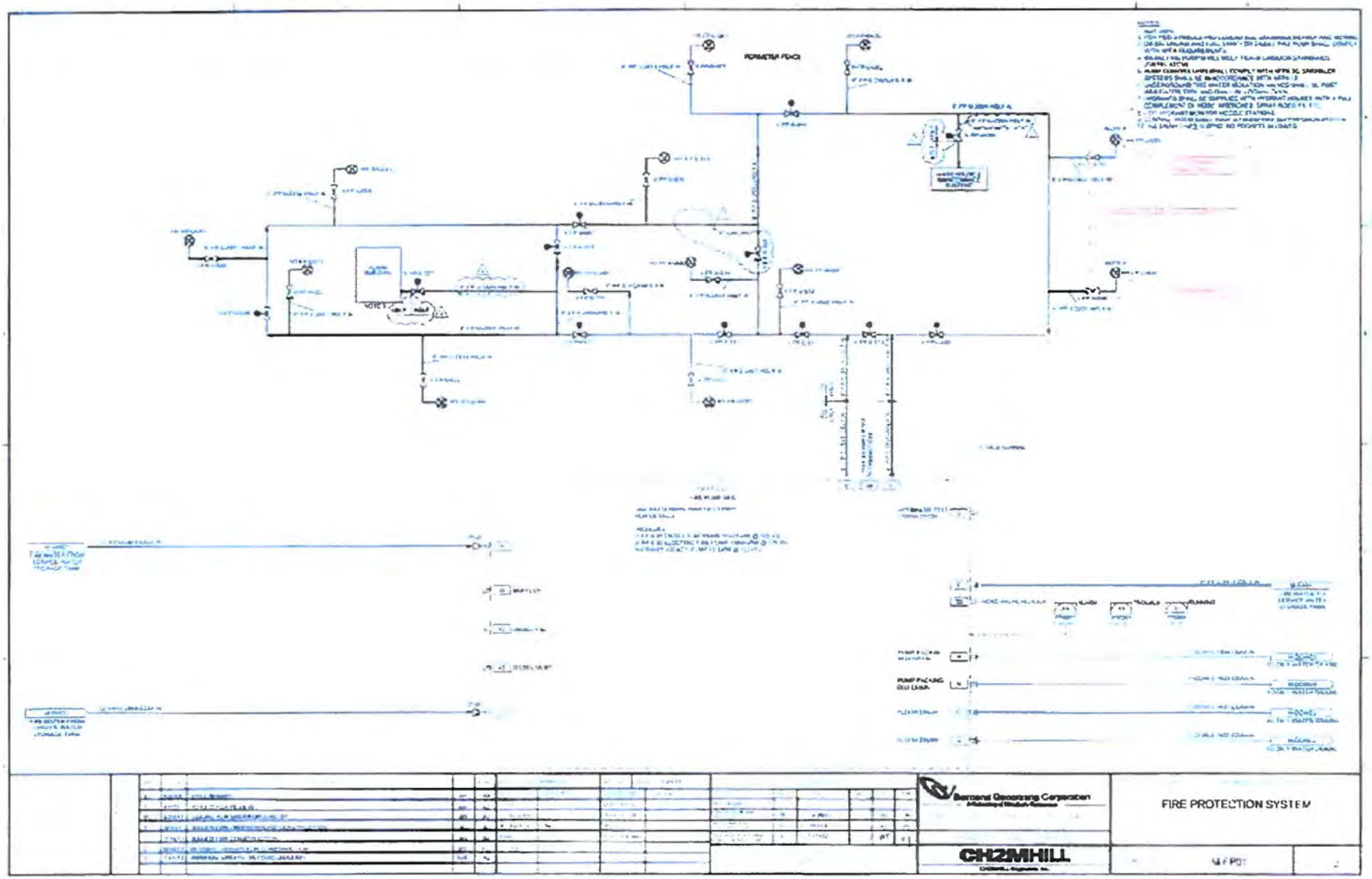
Equipment Location Plan

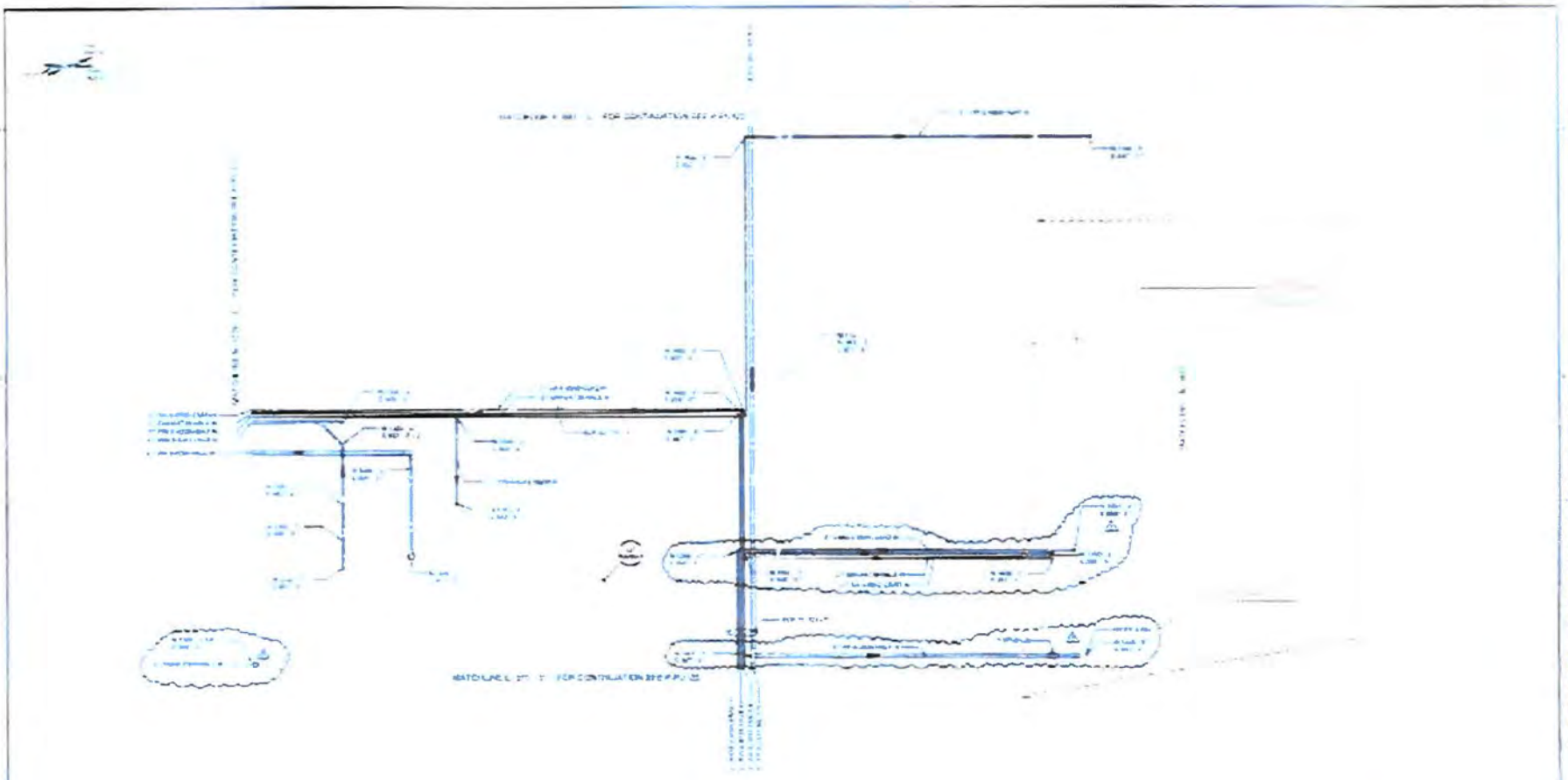
Fire Protection System

Piping Plan – Underground – P-PU121

Piping Plan – Underground – P-PU122


Diamond Generating Corporation
Proposed Energy Project
CH2MHILL


PERIMETER FENCE
CH2MHILL
FIRE PROTECTION SYSTEM



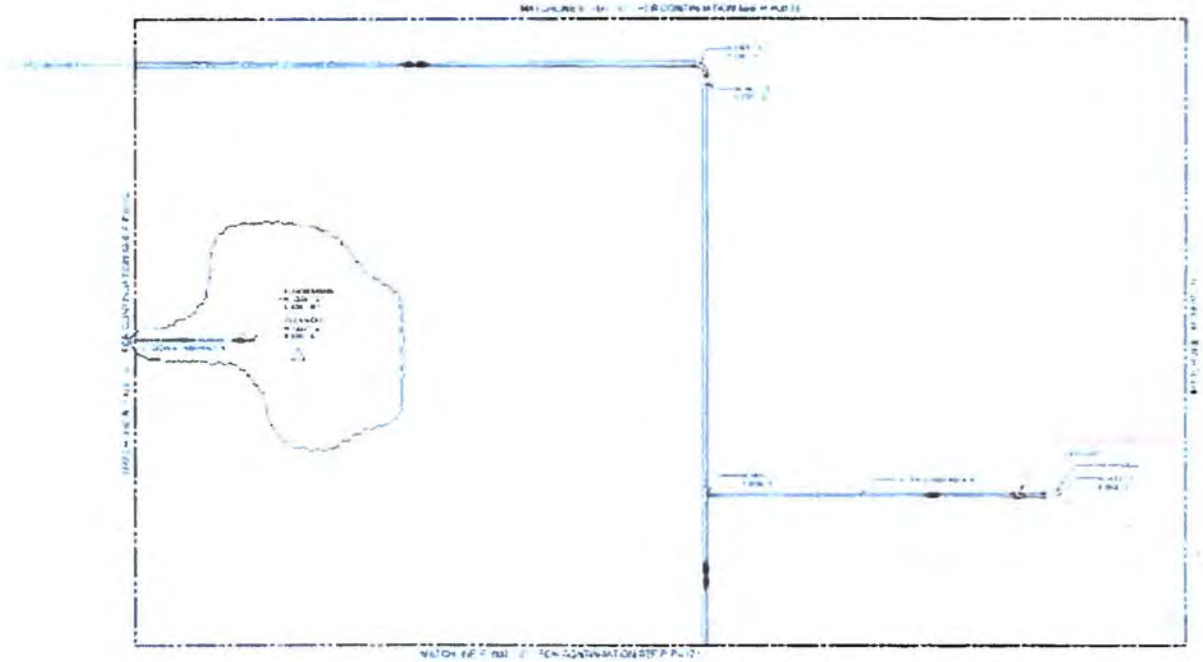
Diamond Generating Corporation

CH2MHILL

PIPING PLAN
UNDERGROUND
WW TANK, SW TANK AND
AMMONIA UNLOADING AREA

DWG NO PJPU121

REV 2



PIPING PLAN
UNDERGROUND
MAINTENANCE BUILDING AND
AMMONIA UNLOADING AREA

Diamond Generating Corporation

CH2MHILL

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Agency Director

April 8, 2013

DEPARTMENT OF ENVIRONMENTAL HEALTH
Certified Unified Program Agency (CUPA)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

Mr. Bo Buchynsky
Mariposa Energy, LLC
333 S. Grand Avenue, Suite 1570
Los Angeles, CA 90071

RE: California Accidental Release Response Plan (Cal ARP) / Risk Management Plan (RMP) for Mariposa Energy Power Plant at 4887 Bruns Road, Byron, CA 94514

Dear Mr. Buchynsky,

Mariposa Energy LLC (Mariposa) submitted a California Accidental Release Response Plan (Cal ARP) document on March 29, 2012 in response to Alameda County Department of Environmental Health (ACDEH) requirement to prepare and submit the Cal ARP /RMP Plan.

Mariposa Energy Project will store and use about 8500 gallons of 19% aqueous ammonia in a selective catalytic reduction system to control nitrogen oxide emission from the natural gas combustion process for generation of electricity. The quantity of ammonia exceeds the Cal ARP threshold quantity for ammonia (500 pounds). The facility was therefore required to prepare and submit a California Accidental Release Response Plan prior to the date on which a regulated chemical, namely the ammonia, is first present on site in a process above the listed threshold quantity (CCR Title 19, Division 2, Chapter 4.5 Section 2745.1(d)).

By submitting the RMP plan, Mariposa has fulfilled the requirement of CCR Title 19, Division 2, Chapter 4.5 section 2745.1(d)). As a result, Mariposa Energy is allowed to bring in the chemical 19% aqueous ammonia at their Byron facility provided the secondary containment testing for the tank system containment has been completed and compliance with the California Fire Code and ASME requirements had been met. A copy of the test result shall be submitted to ACDEH.

In response to Mariposa Energy letter dated February 6, 2013 regarding the use of HDPE balls for vapor reduction of ammonia release and determination of applicability of Program Level 1(one) to the system, the following issues /concerns need to be addressed:

a. Based on the ammonia concentration and the quantity of ammonia and RMP*Comp plume model, the Mariposa ammonia system is in Cal ARP Program Level 2.

In the absence of scientific test data for actual ammonia vapor reduction with such system, evaluation and verification that 90% vapor reduction using the HDPE balls is not available at this time. Therefore, the facility ammonia system will be in Program Level 2 and is required to comply with Program Level 2 applicable Cal ARP requirements. In addition, management of change and lock out/ tag out are recommended to be incorporated in the RMP plan.

b. Scientific test data to support 90% vapor reduction of 19% ammonia solution at temperature of 100 deg F.

The 90% vapor reduction is based on area calculation. Please provide scientific test result if any, with 19% ammonia to support the theory.
What happens if the ball is damaged? According to available information cracked/ damaged ball, will sink (?) exposing more area unless it is replaced. Also BP of 19% ammonia solution is 84^0 F. Since the vapor pressure of NH3 is greater than the vapor pressure of water, the ammonia is expected to come out first. We therefore, are not sure that the 90% reduction will be the actual vapor reduction.

c. Use of single layer of balls instead of multiple layers -how will it affect the vaporization?

ACDEH has reviewed the statement provided by the manufacturer. In other neighboring jurisdiction, where such balls are in use, both of the existing facilities have multiple layers, actually 5 or 6 layers of such balls. In case of damaged ball, there are multiple layers to continue the protection. Please provide the reasoning for using a single layer instead of multiple layers.

Inspection and Maintenance Issues:

a. Information of the customized net material, chemical compatibility and weather resistance; how it will be held in place?
According to the information submitted, the balls will be held in place with a customized net of the same material as the balls.

b. In the existing facilities in the neighboring jurisdiction, there is metal grid, not the net to keep the balls in place. A metal grid will support personnel conducting inspection. A net on the other hand lacks such rigidity /structure.

c. What is the containment structure for the netting?

Please explain/describe "the netting is a four inch stretch mesh that is cut and hung square with the containment structure to form two inch square opening".
Is there a photograph of such netting in place? A visual will be helpful.

d. Byron is a high wind area. Will the net be strong enough to keep the balls in place or will allow the balls to move around?

e. What will happen to the rain water that will collect underneath the netting?

It appears that the secondary containment volume submitted may be inadequate since there will be a reduction in available volume for containment of the largest container, the tank and 24 hours of rain based on 25 years of history of rainfall, due to the balls.
Please submit containment calculation taking the balls volume into account.

f. Inspection frequency, balls replacement conditions, complete recharge of the balls - when and how often

- Information provided states that the balls will be inspected annually at a minimum, but who and how the inspection will be done are not included.

- Manual inspection -how will it be done since no one can walk on net. Please provide the inspection procedure for 22000 of such balls.

- Byron is an area with extreme weather conditions, high wind and high temperature. In the neighboring jurisdiction the containment is much deeper; 4-5 feet deep compared to 2 feet at Mariposa.

We recommend more frequent inspections in the beginning to establish a baseline.

g. Fire suppression system at the tank site.
The existing two facilities with aqueous ammonia have foam deluge system (information obtained). With fire suppression water, the question comes up regarding the containment as to whether the balls will be able to be held in place with the force of the water cannon.
The containment calculation did not include the fire suppression water. ACDEH recommends the containment to be able to contain 20 minutes of sprinkler water flow per Fire Code requirements.

h. Evidence if any, that the balls are accepted by Federal RMP as 'passive mitigation' for 20% ammonia solution.
Pending

i. Multiple distances of the stationary source to the property line - 1120 feet on the south side is submitted from the property line, while 20 meters is stated in the on-line RMP posted by Mariposa Energy. Please clarify.

Please provide a written response to our comments by July 8, 2013.

If you have any question, please contact Sukla De at 510-304-5446 / sukla.de @acgov.org or me at 510-567-6780 / susan.hugo@acgov.org

Sincerely,

Susan Hugo
CUPA Program Manager

cc: Craig Hoffman, California Energy Commission, 1516 Ninth St., Sacramento, CA95814
Debi Hertz, CH2MHIL, 2485 Natomas Park Dr., Suite 600, Sacramento, CA95833
Mike Kromer, DGC Plant Manager, 4887 Burns Road, Byron, CA 94514
Bonnie Terra, Alameda County Fire Marshal
Ariu Levi, Director, ACDEH
Chris Tougeron, Senior HMS, ACDEH
Sukla De,CIH , Cal ARP Lead, ACDEH
File

CH2M HILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833
Tel 916-920-0300
Fax 916-920-8463

CH2MHILL.

July 30, 2013

Project Number 473115

Ms. Susan Hugo
CUPA/CWP/Waste Tire Program Manager
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: Mariposa Energy Project Risk Management Plan
Supplemental Information

Dear Ms. Hugo:

CH2M HILL is please to submit this supplemental information or behalf of Mariposa Energy, LLC. (Mariposa Energy). This information has been prepared as follow up to our discussions and your request for additional information during the meeting at the Alameda County Department of Environmental Health (ACDEH) office on June 26, 2013. We have prepared additional information related to the following topic areas, as discussed in detail in the sections below and attachments to this letter:

- CalARP facilities currently using poly balls for offsite release mitigation
- OCA modeling results without poly ball evaporation rate reduction
- "Public Receptor" definition guidance

CalARP Facilities Currently Using Poly Balls for Offsite Release Mitigation

CH2M HILL conducted a search for California RMP facilities using poly balls for aqueous ammonia systems using the Right-To-Know Network search tool available on-line (http://www.rtknet.org/db/rmp). Since the source of these data is the EPA RMP Registry, it does not capture CalARP RMP facilities with aqueous ammonia concentrations below 20 percent. The search was performed for all power generation facilities using applicable industry NAICS codes. Additionally, key word searches were used to identify facilities that specifically listed poly balls as mitigation. The limitations of this search approach are 1) facilities with aqueous ammonia concentrations below 20 percent were not captured, and 2) mitigation measures such as poly balls are not consistently listed in the submittal data. Therefore, it is highly likely that we were not able to identify all CalARP facilities using poly balls with aqueous ammonia systems.

The results of this search are presented in Attachment 1, including CalARP program level, ammonia concentration, ammonia quantity, and offsite consequence model approach for each facility. In addition to the EPA database search results, CH2M HILL provided information for several power generation facilities based on our staff experience. Attachment 1 demonstrates the variety of approaches used for OCA analyses, and that a majority of the facilities with 19 percent aqueous ammonia were approved as Program Level 1. Three facilities using poly balls were identified; each is discussed below.

Criterion Catalyst

CH2M HILL corresponded with Criterion Catalysts & Technologies L.P. in Bay Point, California (personal communication between Doug Urry of CH2M HILL and Mr. Jeffry Luengo, Health, Safety, Security, and Environmental Manager at Criterion Catalyst on July 9, 2013). Criterion Catalyst has a 21,300-gallon tank of 29 percent by weight aqueous ammonia. The facility uses two types of balls, including a layer of black UV-resistant balls as the top layer to resist sun damage. The first set of balls lasted 7 years, and the current set of ball has been in place over 7 years. Criterion Catalyst replaces the entire set of balls when approximately 20 percent show signs of damage during their annual inspections. For the purposes of the OCA, Criterion assumes a single layer of balls (90 percent surface reduction), however they maintain approximately two layers of non-UV resistant balls plus a top layer of black UV-resistant balls. Criterion Catalyst is a Program Level 1 facility with oversight by Contra Costa County Health Services; additional information from the EPA database is provided in Attachment 2.

Cosumnes Power Plant

CH2M HILL corresponded with the operator of the Cosumnes Power Plant (personal communication between Doug Urry of CH2M HILL and Mr. Frank Miller, Facility Manager, on July 26, 2013). The Cosumnes Power Plant includes a 15,000-gallon tank of 29 percent aqueous ammonia for the emissions control system. The facility uses a single layer of polypropylene balls in their secondary containment system for additional passive mitigation. Cosumnes Power Plant is a Program Level 1 facility; the distance to the nearest public receptor is 451 feet. Cosumnes Power Plant is located in Herald, California; the local CUPA is Sacramento County Environmental Management Department. Additional information from the EPA database is provided in Attachment 2.

UCSF Cogen

The UCSF Cogen facility is unique facility in that the ammonia system is indoors. The facility includes an 8,000-gallon underground tank of 29.5 percent aqueous ammonia for the emissions control system. Based on information received from USCF staff (personal communication between Doug Urry of CH2M HILL and Mr. Travis Clark, Environmental Programs, UCSF on July 9, 2013), UCSF has a highly redundant spill mitigation system because they are located in a residential area with the nearest residence approximately 50 feet away. Approximately 2-3 layers of poly balls are used in conjunction with other safety measures to mitigate any potential spill during ammonia delivery. USCF Cogen is a Program Level 2 facility with oversight by San Francisco Department of Public Health; additional information from the EPA database is provided in Attachment 2.

OCA Modeling Results Without Poly Ball Evaporation Rate Reduction

CH2M HILL performed supplemental OCA modeling to provide results without including the liquid surface area reduction from the use of poly balls in the secondary containment basin. This analysis was performed using the same methodology and parameters used for the previous OCA submitted with the March 2012 RMP to facilitate a direct comparison with and without the surface area reduction using poly balls. The analysis presented in Attachment 3 demonstrates that the maximum toxic endpoint distance (distance to 198 ppm) would not exceed 49.5 feet from the ammonia tank, and therefore would not extend beyond the facility fence line with or without accounting for the additional poly ball mitigation that Mariposa Energy has implemented. As noted above, this OCA methodology has been widely used for aqueous ammonia OCAs and has been accepted by CUPAs as well as the California Energy Commission.

"Public Receptor" Definition Guidance

As discussed during our meeting on June 26, 2013, we have compiled a summary of regulatory definitions and guidance relating to the determining the closest public receptor location.

CalARP Regulations, 19 CCR Section 2735.3 (nn)

Public receptor means offsite residences, institutions (e.g., schools, hospitals), industrial, commercial, and office buildings, parks, or recreational areas inhabited or occupied by the public at any time without restriction by the

stationary source where members of the public could be exposed to toxic concentrations, radiant heat, or overpressure, as a result of an accidental release.

CalARP Regulations, 19 CCR Section 2735.3 (ee)
Offsite means areas beyond the property boundary of the stationary source, and areas within the property boundary to which the public has routine and unrestricted access during or outside business hours.

Federal RMP regulations have the same definitions (40 CFR 68.3)
Public receptor means offsite residences, institutions (e.g., schools and hospitals), industrial, commercial, and office buildings, parks, or recreational areas inhabited or occupied by the public at any time without restriction by the stationary source where members of the public could be exposed to toxic concentrations, radiant heat, or overpressure, as a result of an accidental release. Offsite means areas beyond the property boundary of the stationary source, and areas within the property boundary to which the public has routine and unrestricted access during or outside business hours.

GENERAL GUIDANCE ON RISK MANAGEMENT PROGRAMS FOR CHEMICAL ACCIDENT PREVENTION (40 CFR PART 68), EPA 555-B-04-001, March 2009, page 2-4 – 2-6 (see Attachment 4)
Not all areas offsite are potential public receptors. The point of identifying public receptors is to locate those places where there are likely to be, at least some of the time, members of the public whose health could be harmed by short-term exposure to an accidental release at your site. The basic test for identifying a public receptor is thus whether an area is a place where it is reasonable to expect that members of the public will routinely gather at least some of the time.

The definition of "public receptor" itself specifies the types of areas where members of the public may routinely gather at least some of the time: residences, institutions such as hospitals and schools, buildings in general, parks and recreational areas. There should be little difficulty in identifying residences, institutions and businesses as such, and virtually any residence, institution and business will qualify as a public receptor, even when the property is used only seasonally (as in a vacation home). Notably, a residence includes its yard, if any, and an institution or business includes its grounds to the extent that employees or other members of the public are likely to routinely gather there at least some of the time for business or other purposes (see discussion of recreational areas below). The only circumstances that would justify not considering such a property a public receptor would be where your facility owns or controls the property and restricts access to it, or no member of the public inhabits or occupies it at any time.

Roads and parking lots are not included as such in the definition of "public receptor." Neither are places where people typically gather; instead they are used to travel from one place to another or to park a vehicle while attending an activity elsewhere. However, if a parking lot is predictably and routinely used as a place of business (e.g., a farmer's market) or for a recreational purpose (e.g., a county fair), it would qualify as a public receptor.

In general, farm land would not be considered a public receptor. However, if farm land, or a portion thereof, is predictably and routinely occupied by farm workers or other members of public, even if only on a seasonal basis, that portion of the land would be a public receptor.

Conclusion
Regulated processes can qualify for Program Level 1 if the distance to a toxic or flammable endpoint for a worst-case release assessment is less than the distance to any public receptor. CalARP regulations have the same basic definitions as the federal RMP regulations for "offsite" and "public receptor". Roads are generally not public receptors. Per EPA guidance, the basic test for whether public receptors are present is whether it is a place where it is reasonable to expect that members of the public will routinely gather at least some of the time.

Closing

Mariposa Energy understands you have general concerns about the certainty of a single layer of poly balls achieving a 90 percent reduction in evaporation rates corresponding to the equivalent reduction in surface area. Based on this concern, Mariposa Energy proposes to double the quantity of poly balls within the containment basin. The additional layer will add redundancy to the system to achieve an evaporation rate reduction in excess of 90 percent, in the event of an aqueous ammonia release.

As discussed in the sections above, the approach used for preparation of the March 2012 RMP was consistent with RMPs for other power generation facilities throughout California. SLAB is an EPA-approved offsite consequence analysis modeling alternative, and has been commonly used and accepted by the California Energy Commission and numerous CUPAs (see Attachment 1). Several similar facilities have been approved under Program Level 1 by other CUPAs.

In this case, the nearest public receptors are located at a significant distance from the project site. The nearest businesses are the PG&E Bethany Compressor Station and Marie Gomes Farms feedlot, both north of Kelso Road and approximately 2,000 feet (0.4 mile) from the aqueous ammonia tank. Neither of these facilities is regularly manned. The nearest residential receptors are approximately 3,000 feet (0.6 mile) from the ammonia tank. The presence of members of the public is very limited in the project vicinity as there is very limited traffic or activity in the general area of Kelso Road and Bruns Road.

Mariposa Energy has gone to great lengths during the development, design, and construction of MEP to minimize the potential for ammonia releases and any offsite impacts, including the following measures:

- Selection of 19 percent aqueous ammonia for emission controls in lieu of more economical higher aqueous concentrations or anhydrous ammonia
- Using less-efficient refrigerants for turbine inlet air chillers to avoid anhydrous ammonia refrigeration systems
- Rigorous design ammonia system design based on industry codes and standards
- Construction oversight and inspection by the third-party Chief Building Official
- Secondary containment to control any releases
- Addition of poly balls within the secondary containment basin to further reduce ammonia evaporation and downwind impacts from any release

Mariposa Energy has focused on ammonia system safety and minimizing on-site ammonia concentrations and quantities since the inception of this project. Public receptors in the vicinity are limited and not in close proximity to the MEP site. Additionally, it is worth noting that anhydrous ammonia trailers are commonly seen in the area for agricultural use, without implementation of the rigorous controls listed above.

Based on the information provided to date and this supplemental data, Mariposa Energy respectfully requests that ACDEH approve the Program Level 1 RMP submitted in March 2012. The completed CalARP Program Registration Form is included as Attachment 5. As discussed on June 26, please provide additional guidance to clarify secondary containment basin testing requirements noted in your April 8, 2013 letter to Mariposa Energy.

Thank you again for coordinating and hosting the June 26 meeting to discuss the project. Please contact me at 916.286.0348 or by email: doug.urry@ch2m.com at your convenience should you have any questions or require further information

Sincerely,

Doug Urry
Senior Project Manager

Attachments:

1) RMP Facility Database Search Summary
2) Poly Ball Facility RMP Database Summaries
3) Offsite Consequence Analysis
4) EPA Public Receptor Definition Guidance
5) CalARP Program Registration Form

c: Sukla De/ACDEH
Chris Tougeron/ACDEH
Ariu Levi/ACDEH
Wayne Forsyth/DGC
Gary Normoyle/DGC
Bo Buchynsky/DGC
Michael Kromer/Mariposa Energy
Peter Torrey/CH2M HILL

ATTACHMENT 1
RMP FACILITY DATABASE SEARCH SUMMARY

Federal RMP Aqueous Ammonia Power Plant Facilities in California (EPA Database Search)

Facility	Program Level	Ammonia Conc.	Ammonia Qty (gal)	Ammonia Qty (lbs)	Date	OCA Model	Notes:
Cosumnes PP	1	29	15,000	33,625	2009	Screen 3	Poly balls, dikes
Contra Costa Power Plant	1	29.4	60,000	46,000	2007	Screen 3	
Inland Empire EC	1	28	32,000	67,200	2007	SLAB & EPA tables	
La Paloma Generating Plant	1	29	42,000	91,400	2011	EPA tables	Tanks within ammonia storage building
South Bay PP	1	29.4	42,244	316,700	2009	DEGADIS	Floating roof in sump
Criterion Catalyst	1	29	20,500	160,000	2009	Aloha	Poly Balls
High Desert Power Project	2	25	39,300	310,000	2007	EPA tables	
Broadway Power Plant (Pasadena W&	2	29.4	12,000	89,600	2009	EPA tables	
AES Alamitos	2	29.4	80,000	185,000	2009	RMP*Comp	
AES Redondo	2	29.4	40,000	93,000	2009	RMP*Comp	
El Segundo GS	2	29.4	20,000	42,210	2011	RMP*Comp	
Feather River Energy Center	2	"<20"	12,000	17,692	2008	SLAB	
Gateway GS	2		18,020	39,681		RMP*Comp	
Harbor GS	2			110,000	2009	EPA tables	
Haynes GS	2			390,000	2009	EPA tables	
Kings River Conservation District Peak	2	29.4	12,000	76,000	2011	EPA tables	
Los Medanos Energy Center	2	24.5	17,000	129,030	2011	EPA tables	
Mandalay GS	2	29	14,650	32,000	2009	RMP*Comp	
Metcalf Energy Center	2	28	15,000	28,000	2010	SLAB	
Moss Landing	2	29.4	150,000	329,940	2010	DEGADIS	underground vault
Ormond Beach	2	29	40,000	87,000	2009	RMP*Comp	
Otay Mesa	2	29.4	13,600	36,000	2009	SLAB	
Pittsburg PP	2	29.4	60,000	96,000	2007	Screen 3	
SCA Cogen	2	29.4		21,932	2009	RMP*Comp	
Scattergood GS	2	29	99,000	199,926	2007	EPA tables	
Valley GS	2	>20		267,835	2009	EPA tables	
Yuba City EC	2	19	12,000	17,100	2008	SLAB	
Goal Line	2	30		41,400			
UCSF Cogen	2	29.5	8,000	59,600	2009	Aloha	Poly Balls, indoor facility, residents 50 ft away
Mirant Potrero	3	29.4	20,000	44,000	2011	RMP*Comp	

Note: The EPA database generally only includes federal RMPs (> 20% aqueous ammonia)

Source: http://data.rtknet.org/rmp/ (retrieves data from the EPA's RMP Registry database)

NAICS Codes searched:
- 22111 Electric Power Generation
- 221112 Fossil Fuel Electric Power Generation
- 221119 Other Electric Power Generation

The following facilities were approved as Program Level 1

(this information may not be current, these facilities are not in the EPA database)

Facility	Program Level	Ammonia Conc.	Ammonia Qty (gal)	Ammonia Qty (lbs)	Date	OCA Model	Notes
Russell City Energy Center	1	29	12,750	28,114	2013	SLAB	(current data - CH2M HILL prepared in 2013)
Los Esteros Critical Energy Facility	1	19	17,000	24,742	2012	SLAB	(current data - CH2M HILL prepared in 2012)
Donald Von Raesfeld Power Plant	1	19	9,000	NA		SLAB	
Creed Energy Center	1	19	12,000	NA		SLAB	
Goosehaven Energy Center	1	19	12,000	NA		SLAB	
Lambie Energy Center	1	19	12,000	NA		SLAB	
Roseville Energy Park	1	28	9,000	NA		SLAB	

NA - not available

ATTACHMENT 2
POLY BALL FACILITY RMP DATABASE SUMMARIES

RMP Facilities with name(s) "cosumnes power"

Search Criteria Used (More)
Level of Detail: Extended GO
Type of Report Output: Text (HTML) GO

Facility #1 : Cosumnes Power Plant

Basic Facility Info

Facility ID	100000193596
Deregistered (Yes/No)	No
Facility Name	Cosumnes Power Plant
Street Address Line 1	14295A Clay East Road
City	Herald
State	CA
Zip Code	95638
County	Sacramento County
113th Congressional District	CA07: California 7
Owner or Operator Name	Wood Group Power Operations, Inc.
Parent Company	Sacramento Municipal Utility District
Latitude	38.336100
Longitude	-121.126100
Number of RMP Submissions	3

Most Recent Submission Info

RMP ID	53733
Submission Type	revised submission for facility
Submission Date	02/24/2009
Reason For Submission	Revised OCA due to change (40 CFR 68.190(b)(6))
Process Toxic Amount Total (lbs)	33,625
Process Flammable Amount Total (lbs)	0
Process Amount Total (lbs)	33,625
Number of Potential Offsite Consequence Processes	0
Potential Offsite Consequence Toxic Amount Total (lbs)	0
Potential Offsite Consequence Flammable Amount Total (lbs)	0
Potential Offsite Consequence Amount Total (lbs)	0
All Process NAICS	22111
Exec Summary Submission Date	02/24/2009

Executive Summary (Facility #1 : Cosumnes Power Plant, executive summary: all)

Executive Summary

Sacramento Metropolitan Utility District Financing Authority (SMUDFA) constructed the Cosumnes Power Plant (CPP), a nominal 500 megawatt, natural gas-fired, combined cycle power plant approximately 25 miles south south-east of Sacramento, California. The facility will beis operated by Wood Group Power Operations, Inc. under contract to SMUDFA.

The facility is subject to the California Accidental Release Prevention (CalARP) program because the amount of ammonia stored onsite (18,000 total tank size, administratively controlled to 15,000 gallons of 29 percent ammonia, or approximately 32,625 pounds, as ammonia) exceeds the CalARP threshold quantity (TQ) of 500 pounds. CPP is also subject to the federal Risk Management Plan (RMP) requirements because aqueous ammonia is stored in concentrations of greater than 20 percent, and the total quantity of 32,625 pounds exceeds the federal TQ of 10,000 pounds. Wood Group Power Operations, Inc. prepared this RMP to satisfy CalARP and federal RMP requirements for the aqueous ammonia process at the CPP facility.

Ammonia Hydroxide (700 gallons of 19 percent ammonia (30-40 percent ammonia hydroxide) is also used as a boiler water treatment chemical on-site. The material is stored in 350 gallon totes with a total of no more than 700 gallons at any one time. This brings the total volume of aqueous ammonia onsite to 15,700 gallons, 117,750 total pounds, and 33,625 pounds as ammonia. Both of these were considered one process but due to the inherent size of the aqueous ammonia storage tanks the worst case scenario, off-site consequence analysis assumed a complete release from this

vessel.

The major hazards represented by the CPP aqueous ammonia process are the accidental release of ammonia, a toxic substance, due to spill or rupture of the storage vessel, associated piping system, or during a tanker truck unloading accident.

Wood Group Power Operations, Inc. is concerned with the safety of its workers and individuals living a nd working near CPP. Wood Group Power Operations, Inc. has therefore implemented a number of measures to ensure that it maintains a safe working environment.

Wood Group Power Operations, Inc. prepared an Integrated Contingency Plan for the facility. The Integrated Contingency Plan establishes the facility safety systems, procedures, and administrative controls necessary to prevent an accidental release of ammonia, respond to a release, and minimize the consequences of a release should one occur.

Wood Group Power Operations, Inc. has developed a comprehensive safety training program for all employees, has established detailed material handling procedures, and has adopted safe operating procedures for aqueous ammonia off -loading, storage, and use. Initial emergency response training of facility staff is complete.

The ammonia process is monitored by the plant operator. Ammonia detectors (4) with audible alarms are located adjacent to the ammonia storage tank. The containment area is inspected daily by plant operators for evidence of spills, leaks, or other conditions that may leac to a release.

A seismic analysis was conducted for CPP as part of the licensing process. The CPP facility is designed and constructed to conform to the 2001 California Building Standards Code for Seismic Zone 3. As part of the licensing process, the California Energy Commission (CEC) concluded that the CPP facility (including the aqueous ammonia system) will be adequately constructed to provide seismic safety in the event of an earthquake.

The power plant consists of two General Electric 7FA natural gas-fired combustion turbine generators (CTGs). There are twenty full-time employees, and the facility will be manned 24 hours a day, seven days a week. The North American Industrial Classification System (NAICS) number for the CPP is 221112, Fossil Fuel Electric Power Generation. CPP is located at 14295 Clay East Road in Herald, California. The facility is located on approximate ly 30 acres in Section 29, Township 6N, Range 8E Mount Diablo base and meridian, adjacent to the Rancho Seco Power Plant. CPP is located on the southeastern quarter of APN 140-0050-010 and on the southwestern quarter of APN 140-0050-008. The site is zoned AG-80, which is compatible with the land use designation for a power generation facility.

CPP uses aqueous ammonia (29 percent concentration by weight) as the reducing agent in the selective catalytic reduction (SCR) pollution control system to minimize emissions of nitrogen oxides (NOx) from the CTGs. Aqueous ammonia (31 percent concentration by weight) is also used for pH control of the condensate system. Aqueous ammonia is a hazardous substance regulated under the CalARP and federal RMP programs.

Submission - Other Facility Info

Number of Full Time Employees	20
Owner or Operator Name	Wood Group Power Operations, Inc.
Owner or Operator Address Line 1	P.O. Box 490
Owner or Operator City	Herald
Owner or Operator State	CA
Owner or Operator Zip	95638
Parent Dun and Bradstreet Number	0
Second Parent Dun and Bradstreet Number	0
Number of Full Time Employees	20
Number of FTE CBI Flag	No
Coverec by OSHA PSM Standard	No
Coverec by EPCRA Section 302	No
Covered by CAA Title V	Yes
CAA Title V Air Operating Permit ID	TV2006-19-01B
Last Safety Inspection Date	10/13/2010
Last Safety Inspection By	State environmental agency
OSHA Star or Merit Ranking	Yes
LEPC Name	Inland Region 4 LEPC

Submission - Contact Info (Facility #1 : Cosumnes Power Plant, RMP submission #1 : 2009-02-24)

Owner or Operator Phone	2097485177

Facility Dun and Bradstreet Number	0
RMP Contact	Frank Miller
RMP Contact Title	Facility Manager
RMP Contact Email	frank.miller@woodgroup.com
RMP Preparer Name	Premier Environmental Services
RMP Preparer Address Line 1	153 North Main Street, Suite 201
RMP Preparer City	Collierville
RMP Preparer State	TN
RMP Preparer Zip	38017
RMP Preparer Phone	9018505404

Submission - Additional Info

RMP Description	Update to previous RMP submit 2/6/06
RMP Complete Flag	Yes
Predictive Filing	No
No RMP Accidents Last 5 Years	Yes
Complete Check Date	03/18/2011
Postmark Date	02/23/2009
Anniversary Date	02/23/2014
Confidential Business Information	No

Submission - Lat/Long Info (Facility #1 : Cosumnes Power Plant, RMP submission #1 : 2009-02-24)

Latitude	38.336100
Longitude	-121.126100
Valid Lat/Long	Yes
Lat/Long Method	Interpolation - Map
Lat/Long Location Type	SW Corner of Land Parcel

Submission - Counts and Totals

Number of RMP Accidents	0
RMP Accident Flammable Total (lbs)	0
RMP Accident Toxic Total (lbs)	0
RMP Accident Amount Total (lbs)	0
Number of RMP Accidents	0
Number of Processes	1
Number of Process Chemicals	1
Number of Toxic Worst-case Scenarios	1
Number of Toxic Alternate Case Scenarios	0
Number of Flammable Worst-case Scenarios	0
Number of Flammable Alternate Case Scenarios	0
RMP Accident Flammable Total (lbs)	0
RMP Accident Toxic Total (lbs)	0
RMP Accident Amount Total (lbs)	0
Total RMP Accident Deaths	0
Total RMP Accident Injuries	0
Total RMP Accident Evacuated/Sheltering In Place	0
Total RMP Accident Property Damage	$0

Processes (Facility #1 : Cosumnes Power Plant, RMP submission #1 : 2009-02-24, process #1 : Aqueous Ammonia (29%))

Process Description	Aqueous Ammonia (29%)
Program Level	1
Confidential Business Information	No
Toxic Amount Total (lbs)	33,625

Flammable Amount Total (lbs)	0
Process Amount Total (lbs)	33,625
Number of Process Chemicals	1
Number of Toxic Worst-Case Scenarios	1
Number of Toxic Alternate Scenarios	0
Number of Flammable Worst-Case Scenarios	0
Number of Flammable Alternate Scenarios	0

Process Chemicals

Process Chemical ID	Ammonia (conc 20% or greater)
CAS number	007664417
Chemical Type	Toxic
Process Chemical Amount (lbs)	33,625
Confidential Business Information	No

Process Chemicals (Facility #1 : Cosumnes Power Plant, RMP submission #1 : 2009-02-24, process #1 : Aqueous Ammonia (29%), process chemical #2)

Process Chemical ID	Public OCA Chemical
CAS number	000000000
Process Chemical Amount (lbs)	0
Confidential Business Information	No

Worst-Case Toxic Scenarios

Percent Weight (Within Mixture)	29
Physical State	Liquid
Model Used	Screen3
Release Duration (minutes)	10
Wind Speed (meters/sec)	1.5
Atmospheric Stability Class	F
Topography	Rural
Passive Mitigation - Dikes	Yes
Passive Mitigation - Enclosures	No
Passive Mitigation - Berms	No
Passive Mitigation - Drains	No
Passive Mitigation - Sumps	Yes
Passive Mitigation - Other	polypropylene balls
Confidential Business Information	No

Process NAICS (Facility #1 : Cosumnes Power Plant, RMP submission #1 : 2009-02-24, process #1 : Aqueous Ammonia (29%), process NAICS code #1 : 22111)

NAICS Code 22111: Electric Power Generation

Emergency Response Plan Info

Facility In Community Plan	Yes
Facility Own Response Plan	Yes
Specific Facility Response Plan	Yes
Inform. Procedures in Response Plan	Yes
Emergency Care in Response Plan	Yes
Plan Review Date	03/01/2008
Response Training Date	07/01/2009
Local Response Agency	Herald Fire Department
Local Response Agency Phone	2097482322
Subject To - OSHA EAP	Yes
Subject To - OSHA HAZWOPER	Yes

Subject To - CWA	Yes
Subject To - RCRA	No
Subject To - OPA	Yes
Subject To - State EPCRA	Yes

END OF REPORT

This search was done on July 26, 2013. It was compiled from government data last released on May 30, 2013. The data were obtained from the U.S. EPA's **Risk Management System** database (RMP).

Search Criteria Used

Facility, Parent, or Owner or Operator Name cosumnes power

Level of Detail Extended GO

Type of Report Output Text (HTML) GO

RMP Facilities with name(s) "criterion"

Search Criteria Used (More)
Level of Detail Extended GO
Type of Report Output Text (HTML) GO

Facility #1 : Criterion Catalysts &Technolog

Basic Facility Info

Facility ID	100000111032
Deregistered (Yes/No)	No
Facility Name	Criterion Catalysts &Technologies L.P. - Pittsburg
Street Address Line 1	2840 Willow Pass Road
City	Pittsburg
State	CA
Zip Code	94565
County	Contra Costa County
113th Congressional District	CA11: California 11
Owner or Operator Name	Dave Olund
Parent Company	Shell Global Solutions
Latitude	38.028333
Longitude	-121.943056
Number of RMP Submissions	3

Most Recent Submission Info

RMP ID	1000008089
Submission Type	revised submission for facility
Submission Date	06/17/2009
Reason For Submission	5-year update (40 CFR 68.190(b)(1))
Process Toxic Amount Total (lbs)	160,000
Process Flammable Amount Total (lbs)	0
Process Amount Total (lbs)	160,000
Number of Potential Offsite Consequence Processes	0
Potential Offsite Consequence Toxic Amount Total (lbs)	0
Potential Offsite Consequence Flammable Amount Total (lbs)	0
Potential Offsite Consequence Amount Total (lbs)	0
All Process NAICS	325188
Exec Summary Submission Date	06/17/2009

Executive Summary (Facility #1 : Criterion Catalysts &Technolog, executive summary: all)

Executive Summary
1.0 EXECUTIVE SUMMARY

This document is a modified revision to the Risk Management Plan (RMP) dated June 2006 presented to the Contra Costa County Health Services Department (CCCHSD) for the Criterion Catalysts and Technologies L.P. (Criterion) facility at 2840 Willow Pass Road in Pittsburg, California. It fulfills the requirements to submit an RMP under the California Accidental Release Prevention (CalARP) Program. Criterion qualifies for Program Level 1 under the Environmental Protection Agency (EPA) RMP and CalARP regulations.

This revised RMP summarizes the accidental release prevention and emergency response policies at Criterion that minimize the public's exposure to regulated substances used at the facility. Included is a description of the hypothetical worst-case accidental release of aqueous ammonia (29% maximum concentration) from a 20,500 gallon above-ground storage tank (AST). The process for which aqueous ammonia is used is also presented. Passive mitigation equipment has been installed around the AST to minimize the surface area for evaporation during a spill.

Vanadium pentoxide, included in the RMP submittal dated June 2006, is no longer used at the Criterion facility in Pittsburg and is excluded in this revised RMP.

1.1 ACCIDENTAL RELEASE PREVENTION AND EMERGENCY RESPONSE POLICIES

Since Criterion is ISO 9001 certified, there are several programs in place designed to maintain the safe operation, installation, and modification of process equipment at the facility, and to minimize errors and accidents. Criterion is committed to being a responsible member of the community by operating in a safe and environmentally sound manner. This commitment is documented in the company's policy on health, security, safety and environmental (HSSE) performance. Included in this policy are the following statements:

"Criterion and Criterion's parent companies CRI/Criterion and Shell Oil are committed to:

Pursue the goal of no harm to people

Protect the environment

Manage HSSE matters as any other critical business activity

Continuously improve our HSSE Performance

Be recognized to be among the best in our industry in HSSE performance

Promote a culture in which all CRI/Criterion and Shell Oil employees share these commitments

We believe that:

All occupational illnesses, injuries and environmental incidents are preventable

Each individual is personally responsible for their own safety and for following established practices and procedures

Line Management is accountable for HSSE performance"

The HSSE Management System is designed to ensure compliance with the law and to achieve continuous performance improvement.

The HSSE policy is implemented through Criterion's Management System which is designed to identify and manage risk. Although not subject to California's Occupational Safety and Health Administration (OSHA) Process Safety Management requirements, Criterion has developed several similar procedures to protect the health and safety of their workers, the public, and the environment. The following summarizes portions of the Management System that are most closely aligned with OSHA's Process Safety Management requirements:

Management of Change

Criterion has a Management of Change (MOC) procedure requiring a comprehensive review of all proposed process changes. Projects including installation of new equipment must be evaluated by the appropriate department managers (e.g., technical, operations, maintenance, safety, and environmental). Written documentation of department approvals, hazard evaluation, changes in process and instrumentation drawings (P&IDs), and operating procedures are maintained.

Pre-Startup Safety Review

As part of the MOC process, Criterion requires that new or modified equipment meet all design requirements prior to operation. This review includes updating P&IDs, employee/contractor training, documenting operating/maintenance/safe
ty/emergency procedures, environmental permits, chemical information (including material safety data sheets [MSDS]), and information on technology/equipment.

Contractors

Criterion's contractor management program requires HSSE review of each contractor. All contractors are required to complete training on the hazards and emergency response activities at the facility prior to starting work. Contractor activities are monitored to verify safe work practices and appropriate training.

Safety Work Permits/Hot Work Permits/Confined Space Permits

All equipment installation and maintenance work requires use of a work permit process, including issuance of safety work permits for general work, hot work permits, and confined space permits when applicable. Each Safety Work Permit identifies the work to be performed, equipment involved, precautions to be taken, dates, and authorized signatures. For Hot Work Permits, fire prevention measures are also included. Criterion staffs a confined space rescue team, which must be present during confined space entries. Copies of all permits are maintained.

Training

To ensure that processes are operated by competent individuals, training is a key component of Criterion's Management System. Initial training is given to employees at the time of hire. Subsequent training is given when there has been a change to relevant systems. On-the-job-training qualification is required for each operator.

Incident Investigation

Each HSSE incident or near miss incident involving an RMP/CalARP material is analyzed and evaluated to determine the underlying cause(s). A Root Cause Analysis (RCA) is conducted and appropriate corrective actions to prevent recurrence are determined. Risk analysis is used to prioritize established actions and records are maintained to track these actions to completion.

Process Safety Information

Criterion maintains copies of all MSDS for all raw materials and substances used at the
facility. A list of maximum inventory and largest container s for all regulated substances is maintained. MSDS and inventory data is updated as necessary. MSDS's are maintained electronically on the network drive to allow access to all employees and also with two hard copies (Guard Shack and HSSE Department). Inventory information (i.e., Business Plan) is maintained at the HSSE department.

Process Hazard Review

As part of the Management of Change procedures at the facility, safety and operating hazards are evaluated for new or modified equipment. Appropriate personnel involved with the equipment operation, maintenance and safety participate in the hazard review. The review is designed to identify the hazards of the process, possible equipment failures, and safeguards to prevent failures or errors. Results of the hazard review, along with any design changes, are incorporated into the project.

Operating Procedures

Written procedures for aqueous ammonia and other bulk liquids are located in the H2 Plant Operating Procedures. Procedures include handling, off-loading, and tank line-up for ammonia service.

Maintenance

Criterion has a preventive maintenance/inspection program established for process equipment and tanks. Ultrasonic thickness (UT) testing is conducted on the aqueous ammonia tank. The passive mitigation vapor suppression balls are evaluated annually and replaced if necessary. Criterion's maintenance department conducts preventive maintenance to assure mechanical integrity of the aqueous ammonia tank & associated pumps.

Compliance Audits

Criterion's Management System includes a compliance auditing component made up of internal compliance audits as well as external assessments by Criterion's parent companies (CRI/Criterion and Shell). HSSE performance compliance issues are documented and require prompt follow up with action plans to prevent reoccurrence.

Emergency Procedures

Emergency procedures have been esta
blished at the Criterion facility. These include response and management of any accidental release and/or injury that may pose an impact to the community. These procedures are included in the Hazardous Material Business Plan (HMBP) submission annually. Emergency response activities for RMP/CalARP and other hazardous materials are coordinated with the Contra Costa County Hazardous Material Team or the San Ramon Valley Hazardous Material Team. Emergency response activities for medical, rescue and other emergencies are coordinated with Contra Costa Fire, located two blocks from the facility.

1.2 DESCRIPTION OF FACILITY

Criterion's Pittsburg facility manufactures a variety of catalysts for the oil manufacturing industry. Products manufactured are dry solids, containing alumina oxide, and other metals. The primary products are hydrotreating catalysts, an aluminum oxide based catalyst for petroleum refineries. Aqueous ammonia is the only regulated compound used above threshold quantities and is subject to EPA's RMP and CalARP programs.

1.3 DESCRIPTION OF CHEMICAL USAGE

Figure 1 is a simplified block diagram illustrating the equipment connected in the aqueous ammonia process. One 21,300-gallon aqueous ammonia storage tank is located onsite. There is an independent high level alarm set at 20,500 gallons, which will prevent more than 20,500 gallons being loaded into the tank. A maximum of 20,500 gallons (160,000 pounds) of 29% aqueous ammonia may be stored at ambient conditions and is used in two operations: manufacture of hydrotreating catalyst and air pollution control.

Manufacture of Hydrotreating Catalyst

Aqueous ammonia is used as a process material during the manufacture of hydrotreating catalyst and is pumped as a liquid into mixing equipment and blending tanks. Generally, the manufacture of hydrotreating catalysts can be described as the following process:

& #8195,

1. Raw materials (including aqueous ammonia) are mixed in a tank.

2. The reaction creates an intermediate product which is removed, dried in an oven, and subsequently dried in a kiln.

3. The intermediate product is infused with a metal salt solution (including aqueous ammonia), kiln dried, screened, and packaged.

Air Pollution Control

Criterion also uses aqueous ammonia to reduce air emissions in selective catalytic reduction (SCR) air pollution abatement equipment. Criterion operates two SCR systems to reduce emission of nitrogen oxides (NOx). In these operations, aqueous ammonia is pumped to an ammonia skid at each SCR, filtered, vaporized, and subsequently injected into the process gas stream to convert NOx into nitrogen and water prior to discharge to the atmosphere. The ammonia is consumed in the process.

1.4 THE WORST-CASE RELEASE SCENARIO

Criterion's offsite consequence analysis (presented in the June 2006 RMP submittal) utilizes the EPA's 1996 RMP Offsite Consequence Analysis Guidance, and computer dispersion modeling to estimate impacts of potential worst-case scenario (WCS) from the aqueous ammonia and vanadium pentoxide processes. Vanadium pentoxide is no longer used at the facility and no changes have been made in aqueous ammonia storage and use. Therefore, results from the June 2006 dispersion modeling submittal regarding aqueous ammonia are presented herein. The Off Site Consequence Analysis from the June 2006 RMP submittal (reflecting aqueous ammonia only) is included in Appendix A.

Aqueous Ammonia Process

The WCS associated with the Criterion's aqueous ammonia process is the catastrophic failure of the aqueous ammonia storage tank resulting in the release of 20,500 gallons of 29% concentrated aqueous ammonia solution over a 10-minute period. In reality, this event is extremely unlikely since Criterion has many control measures in place preventing this type of event. The aqueous ammonia storage tank is located inside a concrete containment area, and any release would be contained wit
hin the 800 square foot (ft2) diked area. In addition, the containment area is filled with small polypropylene balls that would float on top of the liquid surface, reducing the exposed surface area for evaporation by 90%, and resulting in an effective surface area for evaporation of 80 ft2.

According to EPA's 1996 RMP Offsite Consequence Analysis Guidance, using urban conditions and default values for 30% aqueous ammonia solution, the distance to the toxic endpoint of 0.14 milligrams per liter (mg/L) (200 parts per million [ppm], ERPG-2 for ammonia) for the WCS is 0.06 miles (317 feet). This distance from the aqueous ammonia storage tank is within the property boundary, and there are no public receptors within 317 feet of the tank. The Criterion facility has not had an aqueous ammonia release meeting the accident history criteria for five years and emergency response procedures have been coordinated with local emergency planning and response organizations. Therefore, Criterion's aqueous ammonia process qualifies for Program Level 1 under the EPA RMP and CalARP regulations.

1.5 THE GENERAL ACCIDENTAL RELEASE PREVENTION PROGRAM AND CHEMICAL-SPECIFIC PREVENTION STEPS

Criterion management realizes the importance of establishing administrative and technological safeguards to ensure the safety of workers and the continued safety of public receptors. There are no current recommendations planned for implementation in this RMP plan. Section 1.8; Planned Changes to Improve Safety remains as a place holder for future ideas and plans. The safeguards shown in Table 1 include all the implement ideas for both administrative and technological safeguards that prevent, detect, or mitigate releases of aqueous ammonia.

1.6 THE FIVE-YEAR ACCIDENT HISTORY

Criterion has not had any accidental releases involving aqueous ammonia or other extremely hazardous substances that resulted in deaths, injuries, or significant property damage onsite, or known offsite deat
hs, injuries, evacuations, sheltering in place, property damage, or environmental damage. Criterion reviewed incident investigations from June 2006, the date of the previous RMP submittal. This five-year accident history review satisfies the requirements of Section 2750.9 of the CalARP regulation. The purpose of conducting an accidental release review is to promote an informed community while also documenting that accidental releases are investigated and concrete changes are made to protect against reoccurrence.

Criterion has established procedures to investigate accidents and recommend changes to operations to minimize the likelihood that a similar accident might occur again. Although not required under Program Level 1 of the CalARP regulations, Criterion has voluntarily adopted many of the procedural requirements required for a Level 3 facility. These procedural requirements are highlighted under Section 1.1, Accidental Release Prevention and Emergency Response Policies at Criterion.

1.7 THE EMERGENCY RESPONSE PROGRAM

Criterion's emergency response program was developed to comply with Title 19 of California Code of Regulations (T19 CCR2731, AB2185 Business Plan) and emergency action plan requirements under Title 8 of California Code of Regulations (T8 CCR3220, HAZWOPER standard). Criterion has coordinated emergency response plans with local officials and satisfies the requirements of Section 2735.4(c)(3) of the CalARP regulation.

Criterion has developed the emergency response program to minimize the effects of accidental releases of hazardous compounds to employees. Computer dispersion modeling, along with using the EPA's RMP Offsite Consequence Analysis Guidance document, has demonstrated that worst-case releases of aqueous ammonia would not impact any public receptor. The site does not maintain an active hazardous material response team. Any Criterion employees associated with a large scale emergency response with contractors or outside
agencies are only for administrative and coordination of the response and are considered a non-responders. Large scale emergency response scenarios involving aqueous ammonia (or any other hazardous material) are coordinated with Contra Costa County Health Services Hazardous Materials personnel and/or outside emergency response contractors. For very small spills that do not put employees or the community at risk, Criterion's personnel will use proper personal

safety equipment as required by the material's MSDS.

Criterion's emergency action plan contains detailed spill, injury, fire, and other emergency response procedures as well as the performance of emergency training, evacuation, and notification.. The emergency action plan includes instructions and lists the telephone numbers of agencies and individuals that are to be contacted in the event of an emergency situation (e.g., fire, hazardous material spill, injury). The agencies and individuals to be contacted include emergency responders (e.g., Fire Department/Haz Mat Team), internal plant contacts (e.g., Plant Manager), and those required to request public notification sirens according to the following protocol:

1. The Day Supervisor or Team Lead will determine the level of the incident.

a. If the incident is a Level 2, the Day Supervisor or Team Lead will notify the Plant Manager or Operations Manager or HSSE to determine whether to sound the siren and/or order a SIP depending upon wind direction and the type of release and whether the downwind public could be impacted.

b. If the incident is a Level 3, the Day Supervisor or Team Lead will notify the Plant Manager or Operations Manager or HSSE that they will be notifying CCHS to sound the siren.

c. The Day Supervisor or Team Lead will then call CCHS and advise them to sound the alarm/SIP..

2. The operations supervisor will update CCHS at least once per hour for levels 2 (which required sounding the alarm or a SIP), or 3 until plant management arriv
es.

3. If a unified incident command is created, they will take the lead communication with CCHS.

4. If no unified incident command is created, the Day Supervisor or Team Lead will have responsibility to communicate with CCHS.

"Emergency Response Notification Forms" are completed when notifying an agency and document when the telephone calls were placed and the name and position of the person contacted. All completed notification forms are maintained.

CCCHSD performs a triennial audit of the RMP/CalARP programs, as well as periodic unannounced inspections of all areas in their jurisdiction (including RMP/CalARP) as the local CUPA. The Fire Department conducts annual inspections of Criterion's processes. Criterion has discussed the details of hazardous materials maintained onsite and mitigating measures available with CCCHSD personnel and the Fire Department. The emergency response program is reviewed annually to ensure that it remains accurate and current. Employees are trained on the emergency response program when initially hired, after changes to the emergency response plan, and when employees' responsibilities are changed. Facility personnel are trained on safety issues and appropriate material handling procedures.

1.8 PLANNED CHANGES TO IMPROVE SAFETY

Although facilities with Program Level 1 processes are not required to develop additional safety measures to prevent offsite impacts from accidental releases, Criterion is continually evaluating potential improvements to worker safety that could minimize a potential release of a hazardous material. Recommendations for improvement routinely come from safety meetings, equipment inspections, technology improvements and employee suggestions. There are no current planned changes to the ammonia system and Table 1 incorporates all the implemented ideas from pre
vious plans.

Submission - Other Facility Info

Number of Full Time Employees		64
Owner or Operator Name	Dave Olund	
Owner or Operator Address Line 1	P.O. Box 5159	
Owner or Operator City	Pittsburg	
Owner or Operator State	CA	
Owner or Operator Zip	94565	
Parent Dun and Bradstreet Number	0	
Second Parent Dun and Bradstreet Number	0	
Number of Full Time Employees		64
Number of FTE CBI Flag	No	
Other Facility ID	94564CRTRN2850W	
Covered by OSHA PSM Standard	No	
Covered by EPCRA Section 302	No	
Covered by CAA Title V	Yes	
CAA Title V Air Operating Permit ID	A0227	
Last Safety Inspection Date	07/13/2011	
Last Safety Inspection By	Contra Costa County Health Services - Haz Mat Div	
OSHA Star or Merit Ranking	No	
LEPC Name	Region II LEPC	

Submission - Contact Info (Facility #1 : Criterion Catalysts &Technolog, RMP submission #1 : 2009-06-17)

Owner or Operator Phone	9254587269
Facility Dun and Bradstreet Number	186283909
RMP Contact	Jeff Luengo
RMP Contact Title	HSSE Advisor
RMP Contact Email	jeffrey.luengo@cri-criterion.com
RMP Preparer Name	TRC Inc
RMP Preparer Address Line 1	2300 Clayton Valley Rd, Suite 610
RMP Preparer Address Line 2	One Concord Center
RMP Preparer City	Concord
RMP Preparer State	CA
RMP Preparer Zip	94520
RMP Preparer Phone	9256882491

Submission - Additional Info

RMP Complete Flag	Yes
Predictive Filing	No
No RMP Accidents Last 5 Years	No
Complete Check Date	06/04/2012
Postmark Date	06/17/2009
Anniversary Date	06/17/2014
Confidential Business Information	No

Submission - Lat/Long Info (Facility #1 : Criterion Catalysts &Technolog, RMP submission #1 : 2009-06-17)

Latitude	38.028333
Longitude	-121.943056
Valid Lat/Long	Yes
Lat/Long Method	Address Matching - House Number
Lat/Long Location Type	Plant Entrance (General)
FRS Latitude	38.02
FRS Longitude	-121.94
FRS Lat/Long Description	PLANT ENTRANCE (GENERAL)
FRS Lat/Long Method	ADDRESS MATCHING-HOUSE NUMBER

Submission - Counts and Totals

Number of RMP Accidents	0
RMP Accident Flammable Total (lbs)	0
RMP Accident Toxic Total (lbs)	0
RMP Accident Amount Total (lbs)	0
Number of RMP Accidents	0
Number of Processes	1
Number of Process Chemicals	0
Number of Toxic Worst-case Scenarios	1
Number of Toxic Alternate Case Scenarios	0
Number of Flammable Worst-case Scenarios	0
Number of Flammable Alternate Case Scenarios	0
RMP Accident Flammable Total (lbs)	0
RMP Accident Toxic Total (lbs)	0
RMP Accident Amount Total (lbs)	0
Total RMP Accident Deaths	0
Total RMP Accident Injuries	0
Total RMP Accident Evacuated/Sheltering In Place	0
Total RMP Accident Property Damage	$0

Processes (Facility #1 : Criterion Catalysts &Technolog, RMP submission #1 : 2009-06-17, process #1 : Aqueous Ammonia AST)

Process Description	Aqueous Ammonia AST
Program Level	1
Confidential Business Information	No
Toxic Amount Total (lbs)	160,000
Flammable Amount Total (lbs)	0
Process Amount Total (lbs)	160,000
Number of Process Chemicals	0
Number of Toxic Worst-Case Scenarios	1
Number of Toxic Alternate Scenarios	0
Number of Flammable Worst-Case Scenarios	0
Number of Flammable Alternate Scenarios	0

Process Chemicals

Process Chemical ID	Ammonia (conc 20% or greater)
CAS number	007664417
Chemical Type	Toxic
Process Chemical Amount (lbs)	160,000
Confidential Business Information	No

Process Chemicals (Facility #1 : Criterion Catalysts &Technolog, RMP submission #1 : 2009-06-17, process #1 : Aqueous Ammonia AST, process chemical #2)

Process Chemical ID	Public OCA Chemical
CAS number	000000000
Process Chemical Amount (lbs)	0
Confidential Business Information	No

Worst-Case Toxic Scenarios

Percent Weight (Within Mixture)	29
Physical State	Liquid
Model Used	EPA's OCA Guidance Reference Tables or Equations
Release Duration (minutes)	10
Wind Speed (meters/sec)	1.5

Atmospheric Stability Class	F
Topography	Urban
Passive Mitigation - Dikes	Yes
Passive Mitigation - Enclosures	No
Passive Mitigation - Berms	No
Passive Mitigation - Drains	No
Passive Mitigation - Sumps	No
Passive Mitigation - Other	Vapor Supression Balls
Confidential Business Information	No

Process NAICS (Facility #1 : Criterion Catalysts &Technolog, RMP submission #1 : 2009-06-17, process #1 : Aqueous Ammonia AST, process NAICS code #1 : 325188)

NAICS Code 325188: All Other Basic Inorganic Chemical Manufacturing

Emergency Response Plan Info

Facility In Community Plan	Yes
Facility Own Response Plan	Yes
Specific Facility Response Plan	Yes
Inform. Procedures in Response Plan	Yes
Emergency Care in Response Plan	Yes
Plan Review Date	05/03/2011
Response Training Date	05/03/2012
Local Response Agency	Contra Costa County Health Services
Local Response Agency Phone	9253353200
Subject To - OSHA EAP	Yes
Subject To - OSHA HAZWOPER	No
Subject To - CWA	Yes
Subject To - RCRA	No
Subject To - OPA	No
Subject To - State EPCRA	Yes
Subject To - Other	19CCR2731 (AB2185 Business Plan), 8CCR3220 (Hazwoper std), 19CCR2735.4(c)(3) (Coordinated Plans), 19CCR Div 2 Ch 4.5 (Calif Accidental Release Program)

END OF REPORT

This search was done on July 26, 2013. It was compiled from government data last released on May 30, 2013. The data were obtained from the U.S. EPA's **Risk Management System** database (RMP).

Search Criteria Used

Facility, Parent, or Owner or Operator Name criterion

Level of Detail: Extended GO

Type of Report Output: Text (HTML) GO

RMP Facilities with name(s) "university of california san"

Search Criteria Used (More)
Level of Detail Extended GO
Type of Report Output Text (HTML) GO

Facility #1 : University Of California San F

Basic Facility Info

Facility ID	100000037569
Deregistered (Yes/No)	No
Facility Name	University of California San Francisco
Street Address Line 1	2 Medical Center Way
City	San Francisco
State	CA
Zip Code	94143
County	San Francisco County
113th Congressional District	CA12: California 12
Owner or Operator Name	Regents, University of California
Latitude	37.763908
Longitude	-122.455905
Number of RMP Submissions	3

Most Recent Submission Info

RMP ID	1000009368
Submission Type	revised submission for facility
Submission Date	06/29/2009
Reason For Submission	5-year update (40 CFR 68.190(b)(1))
Process Toxic Amount Total (lbs)	59,600
Process Flammable Amount Total (lbs)	0
Process Amount Total (lbs)	59,600
Number of Potential Offsite Consequence Processes	1
Potential Offsite Consequence Toxic Amount Total (lbs)	59,600
Potential Offsite Consequence Flammable Amount Total (lbs)	0
Potential Offsite Consequence Amount Total (lbs)	59,600
All Process NAICS	61131
Exec Summary Submission Date	06/29/2009

Executive Summary (Facility #1 : University of California San F, executive summary: all)

Executive Summary
Section 1: Executive Summary

This section is specified in 40CFR68.155 and 19CCR2745.3

The University of California, San Francisco (UCSF) at its Parnassus Heights Campus generates power and steam at the Central Utilities Plant (CUP). The plant provides electricity, steam and chilled water to meet current and future campus demand. The CUP contains two gas turbine generators rated at 4.75 megawatts (MW) each, two heat recovery steam generators (HRSGAs) and associated duct burners, two steam turbine generator (rated at 3.75 MW), two auxiliary boilers (each rated at 90,000 lb/hr of steam), and three diesel generators (each rated at 2 MW) for emergency electric power.
In order to meet the nitrogen oxides (NOx) emissions limit required by the Bay Area Air Quality Management District's (BAAQMD) Regulation 9, Rule 7, the two HRSGAs and two gas turbines are equipped with a selective catalytic reduction (SCR) system. The SCR system uses ammonia, in the presence of a catalyst, to convert NOx contained in the gas turbine exhaust into nitrogen gas and water vapor. The ammonia gas is obtained from a 29.5% solution of aqueous ammonia (aqua ammonia) which is stored in an 8,000-gallon steel underground storage tank located on UCSF property at the corner of Parnassus Avenue and Medical Center Way. Aqua ammonia was chosen over anhydrous ammonia because it is significantly less hazardous. The aqua ammonia system consists of unloading, storage, transfer, vaporization and injection systems.

The aqua ammonia unloading system will receive and transfer the contents of the delivery tanker truck from the unloading station to the underground double wall steel storage tank in the containment structure. This tank is anchored to a concrete slab in a pit filled with pea gravel and covered by the containment building floor slab. All lighting and equipment in the building are designed as Aexplosion proofA. Smoking and other ignition sources in the vicinity of the containment structure w
ill be strictly forbidden. Outside the containment structure, bollards (steel cylindrical posts filled with concrete) are placed at strategic locations to prevent traffic from impacting the containment structure.
Deliveries to the containment structure are prescheduled between UCSF and the deliverer. The route of the delivery truck to Parnassus Avenue have been discussed with interested UCSF neighbors and representatives from the San Francisco Fire Department (SFFD), Local Emergency Planning Committees (LEPCAs), and San Francisco Department of Public Health Hazardous Materials Unified Program Agency (SFDPH/HMUPA). The delivery truck is met by a UCSF plant operator at the entrance of the containment structure. Prior to delivery, appropriate containment structure systems are activated such as the ventilation system. The UCSF plant operators remains at the containment structure until the unloading process is completed. After the delivery truck reaches Parnassus Avenue, it proceeds easterly crossing Medical Center Way and entering the west end of the containment structure.

Once the truck is inside the containment structure, the doors are lowered, hose connections are made, and the driver and UCSF operator enter the vestibule/observation room. From the vestibule/observation room, the driver and UCSF operator initiate the unloading process (transfer by gravity) and monitor its progress until completion. The filled storage tank contains an approximate thirty-day supply of aqua ammonia; however, regular deliveries to refill the tank are planned at 30-day intervals by a 3500-gallon tanker truck. The 30-day supply provides for potential deferrals of deliveries in inclement weather without depleting the tank supply. Upon completion of delivery, the hose is uncoupled. It should be noted that the hose coupling is a dry lock coupling type similar to those used in gasoline transfer hoses. The east end door is then raised and the delivery truck will drive out and p
roceed easterly along Parnassus Avenue. This delivery configuration (Adrive throughA) will maintain traffic flow along Parnassus Avenue and Medical Center Way. No backing maneuvers are required by the driver nor is the delivery truck required to drive on Medical Center Way. The Adrive-throughA procedure minimizes impact on both vehicle and pedestrian traffic.
The aqua ammonia transfer system will convey aqua ammonia as needed from the storage tank to the CUP facility via a 700 foot, 3/4 inch, double-walled underground pipe. The aqua ammonia transfer system consists of two pumps and associated piping. The pumps are self contained and located inside the containment structure.
The injection system is located at the CUP is computer controlled to minimize NOx emissions. The system receives, vaporizes, and regulates the rate of ammonia fed into the SCR catalyst bed. Ammonia emissions from the plant are limited by BAAQMD permit to less than 20ppm.

The administering agency, SFDPH/HMUPA, has required UCSF to prepare and submit a Risk Management Plan (RMP) in accordance with the federal, state and local laws. The federal law is provided under the provisions of the Clean Air Act (CAA) Section 112(r); state law is specified in the California Health and Safety Code (Article 2, Chapter 6.95, Division 20) and in the California Code of Regulations (19CCR2735-2785.1); and the local law is found in the San Francisco Municipal Health Code (Article 21, Chapter 5).

The RMP has been reviewed and evaluated by design, construction, operations, and health and safety personnel. The prevention program has resulted in the identification of potential problems and allowed for modifications to upgrade the facility. UCSF is committed to maintaining the highest standards in the design, construction, operation, and maintenance of the facility.

The following information is presented as required in 40CFR68.155 and 19CCR2745.3 and their subparts.
(a) UCSF policy requires adhere
nce to applicable federal, state, and local laws, rules, and regulations. The safe handling of ammonia is enhanced by designing the facilities to include multiple safety devices and engineering controls, by implementing effective training programs for personnel, and by following standard operating procedures. Both passive and active mitigation measures have been incorporated into the facility design.
These measures are complemented by the presence of a robust emergency response program. In particular, UCSF maintains an Emergency Response Team (ERT) that is knowledgeable and trained to handle hazardous material spills such as aqua ammonia. The ERT can resolve accidental releases of a hazardous material by controlling and mitigating the release to allow a safe return to normal operations. This RMP identifies the system/process controls to further clarify the extent to which UCSF has identified and implemented the necessary measures to ensure the safe and efficient operation of the facility. The UCSF accidental release prevention program has been established to provide to the maximum extent possible a risk free environment for employees, patients, visitors and neighbors.
(b) The stationary source consists of an aqua ammonia unloading facility and underground storage tank located on the corner of Parnassus Avenue and Medical Center Way on the Parnassus Heights campus. A transfer pump and piping delivers the aqua ammonia to the selective catalytic reduction unit located on the first floor of the Central Utilities Plant. The regulated substance is 29.5% aqua ammonia, an ammonia solution consisting of just over 70% water. The regulated substance has a maximum inventory of 8,000 gallons at any given time. The maximum delivery quantity is approximately 3,500 gallons.
(c) The general accidental release prevention and chemical-specific prevention steps are based on passive and active mitigation systems. The passive mitigation measures include an emergency cont
ainment basin (spill chamber), which is sized to be four times larger than the delivered quantity of ammonia and

contains a floating polypropylene ball blanket to further reduce the evaporation area (by 91%). The structure itself also acts as a passive mitigation device.
Active mitigation measures include a foam spray vapor suppressant system, fog misters, fire sprinkler system, emergency response program, and process controls. In addition, the interior air is exhausted to the outside atmosphere through a gaseous ammonia scrubber (impregnated activated charcoal) system.
An ammonia leak detection system is provided to monitor the ambient air concentrations near the aqua ammonia storage tank. In particular, gaseous ammonia detectors are located inside the containment structure, inside the catch basin, outside the structure at the vent exhausts and other selected ambient air locations, and in the interstitial annular space of the double walled storage tank and piping. Ammonia concentrations above 25 ppm will be alarmed at the control room of the ammonia facility and CUP.
The CUP is staffed 24 hours a day. A visual inspection of the exterior components of the aqua ammonia system will be performed daily by plant operation personnel. Preventative maintenance procedures will be followed and documented. Low and high-pressure alarms are provided to monitor the underground storage tank, transfer system, and the ammonia injection unit. If a leak (release) is detected in the aqua ammonia system, the extent of the leak will be identified and the entire system will be rigorously inspected. A record keeping process will begin upon detection of a leak and continue to document subsequent inspections and appropriate actions taken to mitigate leaks, including repair efforts, until such time as the system is properly functioning.
Delivery of aqua ammonia to the facility is between the times of 6am-10am.
(d) In five years of operation, this facility has had no acci
dental releases. The aqua ammonia delivery vendor, Hill Brothers Chemical Company, located in San Jose, CA, is a major supplier of aqua ammonia in the Western United States. They have been in business since 1923 and have had no reportable accidents in the transport and delivery of aqua ammonia.
(e) The UCSF Emergency Response Program is well established and has Standard Operating Procedures (SOPs) that are regularly reviewed and updated. SOPs specific to the aqua ammonia process are kept in the Chief EngineerAs office in the CUP. In addition, there are extensive and comprehensive references located at the UCSF Environmental Health & Safety Office to assist in addressing hazardous material situations. The Emergency Response Program meets local, state, and federal standards for training and competency. The aqua ammonia facility is included in this program and appropriate personnel from EH&S, plant operations, and the UCSF Police Department will be trained to respond to potential aqua ammonia spills. Training will be coordinated with the San Francisco Fire Department, San Francisco Department of Public Heath and with the aqua ammonia vendor. UCSF maintains a liaison with the local responders and has a full time Fire Marshal on staff. The ERT is on call 24 hours/day, 7 days/week.
(f) Planned changes to improve safety are an on going UCSF commitment. The aqua ammonia process facility has been designed to meet and exceed applicable codes and regulations. UCSF has conducted hazard assessments (Hazard Operability Study - HAZOP) with the intent to identify and improve the facility.
UCSF conducts regular inspections, audits, and training and will continue to solicit ideas for modifications that could enhance and improve plant safety. UCSF reviews and updates the RMP as needed, but at a minimum of every five years. An audit of the RMP was conducted to ensure completeness and accuracy in June 2009.

Submission - Other Facility Info ?

Number of Full Time Employees	25
Owner or Operator Name	Regents, University of California
Owner or Operator Address Line 1	50 Medical Center Way
Owner or Operator City	San Francisco
Owner or Operator State	CA
Owner or Operator Zip	94143
Parent Dun and Bradstreet Number	0
Second Parent Dun and Bradstreet Number	0
Number of Full Time Employees	25
Number of FTE CBI Flag	No
Covered by OSHA PSM Standard	No
Covered by EPCRA Section 302	Yes
Covered by CAA Title V	No
Last Safety Inspection Date	06/26/2009
Last Safety Inspection By	State environmental agency
OSHA Star or Merit Ranking	No
LEPC Name	Region II LEPC

Submission - Contact Info ? (Facility #1 : University of California San F, RMP submission #1 : 2009-06-29)

Owner or Operator Phone	4154761300
Facility URL	www.ucsf.edu
Facility Phone	4154761300

Facility Email	donald.clark@ucsf.edu
Facility Dun and Bradstreet Number	0
RMP Contact	Bruce Shapiro
RMP Contact Title	Director
RMP Contact Email	Bruce.Shapiro@ucsf.edu
RMP Preparer Name	Travis Clark
RMP Preparer Address Line 1	50 Medical Center Way
RMP Preparer City	San Francisco
RMP Preparer State	CA
RMP Preparer Zip	94143
RMP Preparer Phone	4154765506

Submission - Additional Info ?

RMP Complete Flag	Yes
Predictive Filing	No
No RMP Accidents Last 5 Years	No
Complete Check Date	06/29/2009
Postmark Date	06/29/2009
Anniversary Date	06/29/2014
Confidential Business Information	No

Submission - Lat/Long Info ? (Facility #1 : University of California San F, RMP submission #1 : 2009-06-29)

Latitude	37.763908
Longitude	-122.455905
Valid Lat/Long	Yes
Lat/Long Method	Interpolation - Photo
Lat/Long Location Type	Center of Facility
FRS Latitude	37.76
FRS Longitude	-122.45
FRS Lat/Long Description	PLANT ENTRANCE (GENERAL)
FRS Lat/Long Method	CENSUS BLOCK/TRACT-1990-CENTROID

Submission - Counts and Totals ?

Number of RMP Accidents	0
RMP Accident Flammable Total (lbs)	0
RMP Accident Toxic Total (lbs)	0
RMP Accident Amount Total (lbs)	0
Number of RMP Accidents	0
Number of Processes	1
Number of Process Chemicals	0
Number of Toxic Worst-case Scenarios	1
Number of Toxic Alternate Case Scenarios	1
Number of Flammable Worst-case Scenarios	0
Number of Flammable Alternate Case Scenarios	0
RMP Accident Flammable Total (lbs)	0
RMP Accident Toxic Total (lbs)	0
RMP Accident Amount Total (lbs)	0
Total RMP Accident Deaths	0
Total RMP Accident Injuries	0
Total RMP Accident Evacuated/Sheltering In Place	0
Total RMP Accident Property Damage	$0

Processes ? (Facility #1 : University of California San F, RMP submission #1 : 2009-06-29, process #1 : Electrical Generation)

Process Description	Electrical Generation
Program Level	2
Confidential Business Information	No
Toxic Amount Total (lbs)	59,600
Flammable Amount Total (lbs)	0
Process Amount Total (lbs)	59,600
Number of Process Chemicals	0
Number of Toxic Worst-Case Scenarios	1
Number of Toxic Alternate Scenarios	1
Number of Flammable Worst-Case Scenarios	0
Number of Flammable Alternate Scenarios	0

Process Chemicals ?

Process Chemical ID	Ammonia (conc 20% or greater)
CAS number	007664417
Chemical Type	Toxic
Process Chemical Amount (lbs)	59,600
Confidential Business Information	No

Process Chemicals ? (Facility #1 : University of California San F, RMP submission #1 : 2009-06-29, process #1 : Electrical Generation, process chemical #2)

Process Chemical ID	Public OCA Chemical
CAS number	000000000
Process Chemical Amount (lbs)	0
Confidential Business Information	No

Worst-Case Toxic Scenarios ?

Percent Weight (Within Mixture)	29.5
Physical State	Liquid
Model Used	Areal Locations of Hazardous Atmospheres [ALOHA(R)]
Release Duration (minutes)	60
Wind Speed (meters/sec)	1.5
Atmospheric Stability Class	F
Topography	Urban
Passive Mitigation - Dikes	No
Passive Mitigation - Enclosures	Yes
Passive Mitigation - Berms	No
Passive Mitigation - Drains	No
Passive Mitigation - Sumps	No
Passive Mitigation - Other	structural containment, concrete catch basin, dilution water, floating polypropylene ball blanket, meteorological conditions, sub surface storage tank
Confidential Business Information	No

Alternate Case Toxic Scenarios ? (Facility #1 : University of California San F, RMP submission #1 : 2009-06-29, process #1 : Electrical Generation, process chemical #2, alternate toxic scenario #1)

Percent Weight (Within Mixture)	29.5

Physical State	Liquid
Model Used	Areal Locations of Hazardous Atmospheres [ALOHA(R)]
Wind Speed	3
Atmospheric Stability Class	C
Topography	Urban
Passive Mitigation - Dikes	No
Passive Mitigation - Enclosures	Yes
Passive Mitigation - Berms	No
Passive Mitigation - Drains	No
Passive Mitigation - Sumps	No
Passive Mitigation - Other	Structural containment, concrete catch basin, dilution water, floating polypropylene ball blanket, meteorological conditions, sub surface storage tank
Active Mitigation - Sprinklers	Yes
Active Mitigation - Deluge Systems	Yes
Active Mitigation - Water Curtain	No
Active Mitigation - Neutralization	No
Active Mitigation - Excess Flow Valves	No
Active Mitigation - Flares	No
Active Mitigation - Scrubbers	No
Active Mitigation - Emergency Shutdown	No
Active Mitigation - Other	level controls, lead detection, pressure sensors, independent ventillation
Confidential Business Information	No

Process NAICS ? (Facility #1 : University of California San F, RMP submission #1 : 2009-06-29, process #1 : Electrical Generation, process NAICS code #1 : 61131)

NAICS Code 61131: Colleges, Universities, and Professional Schools

Prevention Program 2 ?

Safety Info Review Date	06/09/2009
Safety Regs - NFPA 58	No
Safety Regs - OSHA (Ammonia)	No
Safety Regs - ASTM Standards	No
Safety Regs - ANSI Standards	No
Safety Regs - ASME Standards	No
Safety Regs - None	No
Safety Regs - Other	California Code of Regulations, Title 19, Division 2, Chapter 4.5: California Accidental Release Prevention (CalARP) Program.
PHA Review Date	06/09/2009
PHA Change Completion Date	06/24/2009
Hazard Identified - Toxic Release	Yes
Hazard Identified - Fire	No
Hazard Identified - Explosion	No
Hazard Identified - Runaway Reaction	No
Hazard Identified - Polymerization	No
Hazard Identified - Overpressure	No
Hazard Identified - Corrosion	Yes
Hazard Identified - Overfilling	Yes
	Yes

Hazard Identified - Contamination	
Hazard Identified - Equipment Failure	Yes
Hazard Identified - Cooling Loss	Yes
Hazard Identified - Earthquake	Yes
Hazard Identified - Flood	No
Hazard Identified - Tornado	No
Hazard Identified - Hurricane	No
Hazard Identified - Other	sabotage, vandalism
Process Controls - Vents	Yes
Process Controls - Relief Valves	Yes
Process Controls - Check Valves	Yes
Process Controls - Scrubbers	Yes
Process Controls - Flares	No
Process Controls - Manual Shutoffs	Yes
Process Controls - Auto Shutoffs	Yes
Process Controls - Interlocks	Yes
Process Controls - Alarms	Yes
Process Controls - Keyed Bypass	No
Process Controls - Emergency Air	Yes
Process Controls - Emergency Power	Yes
Process Controls - Backup Pump	Yes
Process Controls - Grounding	Yes
Process Controls - Inhibitor Addition	No
Process Controls - Rupture Disks	Yes
Process Controls - Excess Flow Devices	Yes
Process Controls - Quench System	Yes
Process Controls - Purge System	Yes
Process Controls - None	No
Process Controls - Other	closed circuit TV, controlled access
Mitigation Systems - Sprinklers	Yes
Mitigation Systems - Dikes	Yes
Mitigation Systems - Fire Walls	No
Mitigation Systems - Blast Walls	No
Mitigation Systems - Deluge Systems	Yes
Mitigation Systems - Water Curtains	No
Mitigation Systems - Enclosure	Yes
Mitigation Systems - Neutralization	No
Mitigation Systems - None	No
Mitigation Systems - Other	fog misters, administrative controls, foam suppression, poly foam ball blanket
Monitoring Systems - Process Area	Yes
Monitoring Systems - Perimeter	Yes
Monitoring Systems - None	No
Monitoring Systems - Other	closed circuit TV, campus security
Changes Since PHA - Reduced Inventory	No
	No

Changes Since PHA - Increased Inventory	
Changes Since PHA - Process Parameters	No
Changes Since PHA - Process Controls	No
Changes Since PHA - Process Detection	No
Changes Since PHA - Perimeter Monitoring	No
Changes Since PHA - Mitigation Systems	No
Changes Since PHA - None Recommended	No
Changes Since PHA - None	Yes
Procedure Review Date	09/01/2006
Training Review Date	11/01/2008
Type of Training - Classroom	Yes
Type of Training - On the Job	Yes
Competency Testing - Written Tests	No
Competency Testing - Oral Tests	No
Competency Testing - Demonstration	Yes
Competency Testing - Observation	Yes
Maintenance Review Date	12/01/2007
Maintenance Inspection Date	06/26/2009
Equipment Tested	ammonia sensors, secondary containment, transfer hoses and equipment, ammonia vaporization skid
Compliance Audit Date	06/24/2009
Compliance Audit Change Completion Date	07/24/2009
Most Recent Change Date	03/01/2000
Confidential Business Information	No

Prevention Program 2 Chemicals ?

(Facility #1 : University of California San F, RMP submission #1 : 2009-06-29, process #1 : Electrical Generation, process NAICS code #1 : 61131, prev. program 2 #1, prev. program 2 chemical: all)

Process Chemical Record ID

1000012521

Prevention Program 2 Text ?

Prevention Program Description

Electrical Power Generation for the University

Emergency Response Plan Info ?

Facility In Community Plan	Yes
Facility Own Response Plan	Yes
Specific Facility Response Plan	Yes
Inform. Procedures in Response Plan	Yes
Emergency Care in Response Plan	Yes
Plan Review Date	06/01/2009
Response Training Date	04/01/2009
Local Response Agency	San Francisco Fire Department
Local Response Agency Phone	4155583200

Subject To - OSHA EAP	Yes
Subject To - OSHA HAZWOPER	Yes
Subject To - CWA	No
Subject To - RCRA	No
Subject To - OPA	No
Subject To - State EPCRA	No
Subject To - Other	40 CFR 68.95, 40 CFR 68.180, 19 CCR 2735, 19 CCR 2765

END OF REPORT

This search was done on July 26, 2013. It was compiled from government data last released on May 30, 2013. The data were obtained from the U.S. EPA's **Risk Management System** database (RMP).

Search Criteria Used

Facility, Parent, or Owner or Operator Name university of california san

Level of Detail Extended GO

Type of Report Output Text (HTML) GO

ATTACHMENT 3
OFFSITE CONSEQUENCE ANALYSIS

Mariposa Energy Project Off-site Consequence Analysis

PREPARED FOR: Alameda County Department of Environmental Health

PREPARED BY: CH2M HILL

DATE: July 25, 2013

This Offsite Consequence Analysis (OCA) has been prepared at the request of Alameda County Department of Environmental Health (ACDEH) to support review of the Mariposa Energy Project (MEP) Risk Management Plan (RMP). This OCA has been prepared using the same assumptions and methodologies used for the previous OCA included in the RMP submitted in March 2012, without including the use of poly balls to achieve a reduced evaporation surface area.

Background

MEP is a nominal 200-megawatt (MW) peaking facility in the northeast portion of Alameda County, California. The proposed MEP consists of four General Electric (GE) LM6000 PC-Sprint natural gas-fired combustion turbine generators (CTG) and associated equipment as well as connection to natural gas, water, and electrical transmission interties.

Aqueous ammonia (ammonium hydroxide at 19 percent nominal concentration by weight) is used to reduce NOx emissions. One 10,000-gallon aqueous ammonia aboveground storage tank (holding 8,500 gallons of aqueous ammonia) provides aqueous ammonia for the emission control system. The ammonia tank will is approximately 30 feet long and 10 feet in diameter.

Aqueous ammonia is delivered to the plant by truck transport. The ammonia delivery truck unloading station includes a bermed and sloped pad surface. The bermed truck drainage pad slopes from the south end to a collection trough on the north end that drains into the basin underlying the ammonia tank. The ammonia storage tank also drains into the basin capable of holding the full contents of the tank, plus rainwater.

The ammonia tank is equipped with a pressure relief valve set at 50 pounds per square inch gage (psig), a vapor equalization system, and a vacuum breaker system. The storage tank is maintained at ambient temperature and atmospheric pressure.

Worst-Case Release Scenario

A worst-case release scenario was evaluated following CalARP regulations in 22 CCR 2750.2 and 2750.3. An analysis of a tank failure and subsequent release of aqueous ammonia was prepared using a numerical dispersion model. The analysis assumed the complete failure of the storage tank, the immediate release of the contents of the tank and the formation of an

evaporating pool of aqueous ammonia within the secondary containment structure. Evaporative emissions of ammonia would be subsequently released into the atmosphere. Meteorological conditions at the time of the release would affect the evaporation rate, dispersion and transport of ammonia released to the atmosphere.

Meteorological Parameters

Worst-case meteorological parameters in 22 CCR 2750.2 were used for purposes of this analysis.

The maximum temperature recorded in the last three years near MEP was 110 F or 316.5 Kelvin, measured at the Western Regional Climate Center Station at the Tracy Pumping Plant, California (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca9001). Maximum temperatures combined with low wind speeds and stable atmospheric conditions would be expected to result in the highest ammonia concentrations at the furthest distance downwind of the release site.

Table 1 displays the meteorological data values used in the modeling analysis.

TABLE 1
Meteorological Input Parameters

Parameter	Worst Case Meteorological Data
Wind Speed (meters/second)	1.5
Stability Class	F
Relative Humidity, Percent	50
Surface Roughness Length (m)	0.03 (rural)
Ambient Temperature, Kelvin (F)	316.5 (110°F)

Release Rate

The release rate for ammonia vapor from an evaporating 19-percent solution of aqueous ammonia was calculated assuming mass transfer of ammonia across the liquid surface occurs according to principles of heat transfer by natural convection. The ammonia release rate was calculated using the emission calculation tool for evaporating solutions provided in the Area locations of Hazardous Atmospheres (ALOHA) model provided by the EPA (http://www.epa.gov/oppt/cameo/index.htm) assuming a secondary containment area of 1,200 square feet[1].

For the worst-case release scenario, an initial ammonia evaporation rate was calculated and assumed to occur for one hour after the initial release. This is a conservative estimate of time, as EPA guidance suggests that the majority of the toxic component would be released during the first 10 minutes after the release. For concentrated solutions, the initial

[1] The as-built secondary containment basin is 42 feet x 23 feet, with two concrete supports (9.5 feet x 2 feet), for an available liquid surface area of 942 ft^2. The larger surface area was used for this analysis to be conservative and directly comparable with previous submittals.

evaporation rate is substantially higher than the rate averaged over time periods of a few minutes or more since the concentration of the solution immediately begins to decrease as evaporation begins.

Although the edge of the tank containment area is raised above ground level, the release heights used in the model were set at 0 m above ground level (AGL) to maintain the conservative nature of the analysis. Downwind concentrations of ammonia were calculated at heights of 0 and 1.6 meters above ground level. The California Office of Environmental Health Hazard Assessment (OEHHA) has designated 1.6 meters as the breathing zone height for individuals.

Dispersion Modeling

Modeling was conducted using the SLAB numerical dispersion model. A complete description of the SLAB model is available in *User's Manual for SLAB: An Atmospheric Dispersion Model for Denser-Than-Air Releases. D. E. Ermak, Lawrence Livermore National Laboratory, June 1990.* The SLAB user's manual contains a substance database, which includes chemical-specific data for ammonia. These data were used in the modeling run without exception or modification.

One reason ALOHA and SLAB were used is that they are more rigorous and accurate methods to calculate the toxic endpoint distance than using RMP*Comp. EPA states that "RMP*Comp is a planning tool, designed to help you to easily identify high-priority hazards at your facility "(EPA Emergency Management website, http://www.epa.gov/oswercepp/content/rmp/rmp_comp_faq.htm, July 25, 2013). More sophisticated models (e.g., ALOHA, DEGADIS, and SLAB) typically provide a more accurate estimate of the toxic endpoint that RMP*Comp because they account for many more factors that affect dispersion of hazardous chemicals (EPA Emergency Management website, http://www.epa.gov/oswercepp/content/rmp/rmp_comp_faq.htm, July 25, 2013).

As required by CalARP regulations, the toxic endpoint for anhydrous ammonia is 0.14 mg/L, or 198 parts per million (ppm) by volume. As defined by the American Industrial Hygiene Association (AIHA) Emergency Response Planning Guideline (ERPG)-2, these levels represent "the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing or developing irreversible or other serious health effects or symptoms, which could impair an individual's ability to take protective action."

An individual at the toxic endpoint distance would be affected *less than the results* represented in the worst-case scenario because the cloud from an ammonia leak would disperse relatively quickly; an individual at a toxic endpoint distance would be exposed to a concentration of 198 ppm for much less than the 1 hour assumed by the ERPG-2. In addition, the ERPG-2 levels result in relatively minor health effects.

Modeling Results

Table 2 shows the modeled distance to the CalARP toxic endpoint (198ppm) for two cases: 1) without poly ball surface area reduction, and 2) with 90 percent surface area reduction using poly balls (based on the March 2012 RMP OCA modeling results). Two potential receptor

heights were analyzed to determine worst case results: ground level and a representative breathing height of 1.6 meters.

TABLE 2
Distance to CalARP Toxic Endpoint Level

Scenario	Distance in Meters to CalARP Toxic Endpoint without poly ball mitigation (198 ppm)	Distance in Meters to CalARP Toxic Endpoint with poly ball mitigation (198 ppm)
Worst Case, 0 m AGL	11.6	5.54
Worst Case, 1.6 m AGL	15.1	9.44

The model input file and the output files are available upon request.

The results of the off-site consequence analysis for the worst case release scenario of ammonia at MEP indicate that the toxic endpoint distance would not extend off the project site, whether or not poly balls mitigation is used. The maximum toxic endpoint distance at ground level or 1.6 meters above ground is 15.1 meters from the point of release, or 49.5 feet. The distance to the facility fence line is approximately 20 meters, or 66 feet.

Assessment of the Methodology Used

A number of conservative assumptions were used in the worst-case release scenario. These include the following:

- Worst-case of a constant mass flow, at the highest possible initial evaporation rate for the modeled wind speed and temperature was used, whereas in reality the evaporation rate would decrease with time as the concentration in the solution decreases.
- In the case of the tank rupture, worst-case stability class was used which almost exclusively occurs during nighttime hours, but the maximum ambient temperature of 110 °F was used, which would occur during daylight hours.
- Again worst-case meteorology corresponds to nighttime hours, whereas the worst-case release of a tank failure would most likely occur during daytime activities at the power plant. At night, activity at a power plant is typically minimal.

Risk Probability

Accidental releases of aqueous ammonia in industrial use situations are rare. Statistics compiled on the normalized accident rates for RMP chemicals for the years 1994-1999 from *Chemical Accident Risks in U.S. Industry-A Preliminary Analysis of Accident Risk Data from U.S. Hazardous Chemical Facilities, J.C. Belke, Sept 2000*, indicates that ammonia (all forms) averages 0.017 accidental releases per process per year, and 0.018 accidental releases per million pounds stored per year. Data derived from *The Center for Chemical Process Safety,*

1989, indicates the accidental release scenarios and probabilities for ammonia in general shown in Table 3.

TABLE 3
General Accidental Release Scenarios and Probabilities for Ammonia

Accident Scenario	Failure Probability
Onsite Truck Release	0.0000022
Loading Line Failure	0.005
Storage Tank Failure	0. 000095
Process Line Failure	0.00053
Evaporator Failure	0.00015

Conclusions

Several factors need to be considered when determining the potential risk from the use and storage of hazardous materials. These factors include the probability of equipment failure, population densities near the project site, meteorological conditions, and the process design. Considering the results of the above analysis, and accounting for the probabilities of a tank failure resulting in the modeled ammonia concentrations at the conditions modeled, the risk posed to the local community from the storage of aqueous ammonia at MEP is less than significant.

The results of the worst-case release scenario analysis indicate that the probability of a complete storage tank failure in combination with the conservatively modeled meteorological conditions would pose an insignificant threat since ammonia concentrations above the CalARP threshold of 198 ppm at both ground level and breathing height would not extend offsite.

As described above, numerous conservative assumptions have been made at each step in this analysis. The conservative nature of these assumptions has resulted in a significant overestimation of the probability of an ammonia release at the MEP site, and the predicted distances to toxic endpoints do not pose a threat to the public. Therefore, it is concluded that risk from exposure to aqueous ammonia due to MEP is less than significant.

ATTACHMENT 4
EPA PUBLIC RECEPTOR DEFINITION GUIDANCE

WHAT IS A PUBLIC RECEPTOR?

The rule (§ 68.3) defines **public** as "any person except an employee or contractor of the stationary source." Consequently, employees of other facilities that may share your site are considered members of the public even if they share the same physical location. Being "the public," however, is not the same as being a public receptor.

Public receptors include "offsite residences, institutions (e.g., schools and hospitals), industrial, commercial, and office buildings, parks, or recreational areas inhabited or occupied by the public at any time without restriction by the stationary source where members of the public could be exposed to toxic concentrations, radiant heat, or overpressure, as a result of an accidental release." **Offsite** means areas beyond your property boundary and "areas within the property boundary to which the public has routine and unrestricted access during or outside business hours."

The first step in identifying public receptors is determining what is "offsite." For most facilities, that determination will be straightforward. If you restrict access to all of your property all of the time, "offsite" is anything beyond your property boundaries. Ways of restricting access include fully fencing the property, placing security guards at a reception area or using ID badges to permit entry.

If you do not restrict access to a section of your property and the public has routine and unrestricted access to it during or after business hours, that section would be "offsite." For example, if your operations are fenced but the public has unrestricted access to your parking lot during or after business hours, the parking lot is "offsite." In the case of facilities such as hospitals, schools, and hotels that shelter members of the public as part of their function or business, the parts of the facility that are used to shelter the public would be "offsite."

Not all areas offsite are potential public receptors. The point of identifying public receptors is to locate those places where there are likely to be, at least some of the time, members of the public whose health could be harmed by short-term exposure to an accidental release at your site. The basic test for identifying a public receptor is thus whether an area is a place where it is reasonable to expect that members of the public will routinely gather at least some of the time.

The definition of "public receptor" itself specifies the types of areas where members of the public may routinely gather at least some of the time: residences, institutions such as hospitals and schools, buildings in general, parks and recreational areas. There should be little difficulty in identifying residences, institutions and businesses as such, and virtually any residence, institution and business will qualify as a public receptor, even when the property is used only seasonally (as in a vacation home). Notably, a residence includes its yard, if any, and an institution or business includes its grounds to the extent that employees or other members of the public are likely to routinely gather there at least some of the time for business or other purposes (see discussion of recreational areas below). The only circumstances that would justify not considering such a property a public receptor would be where your facility owns or controls the property and restricts access to it, or no member of the public inhabits

or occupies it at any time. Where a hospital, school, hotel or other entity that provides public shelter is itself subject to the part 68 rule, it will be its own public receptor except for those areas where members of the public are not allowed to go at any time.

Buildings other than residences, institutions or businesses are also highly likely to qualify as public receptors since the function of most buildings is at least in part to shelter people. Accordingly, toll booth plazas, transit stations, and airport terminals would qualify as public receptors. For a building not to qualify as a public receptor, one of the circumstances mentioned above would have to apply.

Every designated park or recreational area, or at least some portion thereof, is apt to be a public gathering place by virtue of facilities made available to the public (e.g., visitors' center, playground, golf course, camping or picnic area, marina or ball field) or attributes that members of the public routinely seek to use (e.g., beach). It does not matter whether use of such facilities is seasonal; routine use for at least part of the year would qualify the area as a public receptor.

At the same time, some portion of a designated park or recreational area may not be a public receptor. For instance, a large state or national park may include relatively inaccessible tracts of land that do not contain public facilities or receive routine use. Occasional hiking, camping or hunting in such areas would not qualify the areas as public receptors.

An area need not be designated a recreational area to be one in fact. If an area is routinely used for recreational purposes, even if only seasonally, it is a recreational area for purposes of the part 68 rule. For example, a marina may not bill itself as a "recreational area," but if a marina houses recreational boats, it qualifies as a public receptor. Further, if your facility or a neighboring property owner allows the public to make routine recreational use of some portion of land (e.g., a ball field or fishing pond), that portion of land would qualify as a public receptor.

Roads and parking lots are not included as such in the definition of "public receptor." Neither are places where people typically gather; instead they are used to travel from one place to another or to park a vehicle while attending an activity elsewhere. However, if a parking lot is predictably and routinely used as a place of business (e.g., a farmer's market) or for a recreational purpose (e.g., a county fair), it would qualify as a public receptor.

In general, farm land would not be considered a public receptor. However, if farm land, or a portion thereof, is predictably and routinely occupied by farm workers or other members of public, even if only on a seasonal basis, that portion of the land would be a public receptor.

If you are in doubt about whether to consider certain areas around your facility as public receptors, you should consult with the relevant local officials and land owners and your implementing agency for guidance.

Qs & As
Public Receptors

Q. My processes are fenced, but my offices and parking lot for customers are not restricted. What is considered offsite? What is considered a public receptor?

A. The unrestricted areas would be considered offsite. However, they would not be public receptors because you are responsible for the safety of those who work in or visit your offices and because parking lots are not generally public receptors.

Q. What is considered a recreational area?

A. Recreational areas would include land that is designed, constructed, designated, or used for recreational activities. Examples are national, state, county, or city parks, other outdoor recreational areas such as golf courses or swimming pools and bodies of waters (oceans, lakes, rivers, and streams) when used by the public for fishing, swimming, or boating. Public and private areas that are predictably used for hunting, fishing, bird watching, bike riding, hiking, or camping or other recreational use also would be considered recreational areas. EPA encourages you to consult with land owners, local officials, and the community to reach an agreement on an area's status; your local emergency planning committee (LEPC) can help you with these consultations. EPA recognizes that some judgment is involved in determining whether an area should be considered a recreational area.

Q. Does public receptor cover only buildings on a property or the entire property? If the owner of the land next to my site restricts access to the land, is it still a public receptor?

A. Public receptors are not limited to buildings. For example, if there are houses near your property, both the houses and their yards are considered public receptors because it is likely that residents will be present in one or the other at least some of the time, and, in fact, people are likely to be in more danger if they are outside when a release occurred. The ability of others to restrict access to an area does not change its status as a public receptor. You need to consider whether that land is generally unoccupied. If the land is undeveloped or rarely has anyone on it, it is not a public receptor. If you are not sure of the land's use of occupancy, you should talk with the landowner and the community about its status. Because it is the landowner and members of the local community who are likely to be affected by your decision, you should involve them in the decision is you have doubts.

What is a distance to an endpoint from a worst-case release?

In broad terms, the distance to an endpoint is the distance a toxic vapor cloud, fire, or explosion from an accidental release will travel before dissipating to the point that serious injuries from short-term exposures will no longer occur. The rule establishes "endpoints" for each regulated substance and defines the circumstances of a worst-case release scenario (e.g., release type, rate and duration, weather) (see Chapter 4 or the *Risk Management Program Guidance for Offsite Consequence Analysis* for more information). You will have to define a worst-case release (usually the loss of the total contents of your largest vessel) for each Program 1 process and determine the distance to the endpoint for that release. (EPA has developed

ATTACHMENT 5
CalARP PROGRAM REGISTRATION FORM

ALAMEDA COUNTY
DEPARTMENT OF ENVIRONMENTAL HEALTH

Certified Unified Program Agency (CUPA)

1131 Harbor Bay Parkway, Alameda, CA 94502-6577
Phone: (510) 567-6700 ; Fax (510) 337-9335

CAL-ARP PROGRAM REGISTRATION FORM

I. Registration:

Registration Type:	Revision Type:	
☒ New	☐ Updates and Re-Submissions per 2745.10 (a) and (b)	☐ Corrections per 2745.10.5
☐ Revision	☐ De-registration per 2745.10 (c) or (d)	☐ Withdrawals

II. Business Owner/Operator Information:

Business Name/dba				
Mariposa Energy, LLC				
Street:	**City:**	**State:**	**Zip Code**	**NAICS Code**
4887 Bruns Road	Byron	CA	94514	22111

Latitude:	Longitude:	Method for Obtaining Lat./Long:	SS USEPA Identifier:
37°47'26" N	121°36'03" W	Google Earth	NA

Owner/Operator Name	Dun & Bradstreet Number:	Parent Company Name and Dun & Bradstreet Number:	Phone Number
Mariposa Energy, LLC	07-843-8674	Diamond Generating Corporation, 01-638-4849	(209) 633-7880

Mailing Address Street:	City:	State:	Zip Code:
4887 Bruns Road	Byron	CA	94514

Name & Title of Person/Position with Overall RMP Responsibility	RMP Contact E-mail address:	24 Hr Emergency Phone Number
Michael Kromer	m.kromer@dgc-ops.com	(925) 337-3859

Number of Full-Time Employees:	Subject to BCCR § 5189?	Subject to 40 CFR Part 355?
9	Yes: ☐ No: ☒	Yes ☐ No: ☒

CAA Title V operating permit?	CAA Permit Number
Yes ☐ No: ☒	

Last Safety Inspection Date and Name of Agency
May 24, 2013. Alameda County Department of Environmental Health

III. RMP Contractor Information:

Contractor Name Who Helped Prepare RMP	Phone Number: (916) 266-0348
CH2M HILL	E-mail Address: doug.urry@ch2m.com

RMP Contractor Mailing Address - Street:	City:	State:	Zip Code:
2485 Natomas Park Drive, Suite 600	Sacramento	CA	95833

IV. Cal ARP Registration Certification:

I, the owner or operator of the aforementioned facility, hereby certify that the registration information herein is true, accurate, and complete to the best of my knowledge, based upon reasonable inquiry. I am fully aware that this certification, executed on the date indicated below, is made under penalty of perjury under the laws of the State of California.

Owner/Operator Name (Print)	
Bo Buchynsky-Senior Vice President, Mariposa Energy, LLC	
Owner /Operator Signature Bo Buchynsky	Date July 30, 2013

V. Regulated Substances List (per covered process)

Process Number	1			
Process Description:	Aqueous ammonia (19% by weight) for selective catalytic reduction nitrogen oxides emissions control system			
Federal and / or Cal ARP Program	CalARP only, ammonia concentration is be ow the federal threshold of 20%			
Chemical:	Name	CAS #	Concentration (%)	Quantity (lbs.)
	Ammonium hydroxide solution (aqueous ammonia)	1336-21-6	19%	65,900 (lbs solution)

Process Number	2			
Process Description:				
Federal and / or Cal ARP Program				
Chemical:	Name	CAS #	Concentration (%)	Quantity (lbs.)

Process Number	3			
Process Description:				
Federal and / or Cal ARP Program				
Chemical:	Name	CAS #	Concentration (%)	Quantity (lbs.)

CH2M HILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833
Tel 916-920-0300
Fax 916-920-8463

CH2MHILL

October 21, 2013

Project Number 473115

Ms. Susan Hugo
CUPA/CWP/Waste Tire Program Manager
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: Mariposa Energy Project Risk Management Plan
Supplemental Information – Aloha OCA Modeling Results

Dear Ms. Hugo:

CH2M HILL is pleased to submit this supplemental information on behalf of Mariposa Energy, LLC. (Mariposa Energy). This information has been prepared per your request during our teleconference on September 24, 2013. As directed by ACDEH, we have performed additional offsite consequence analysis modeling using the U.S. Environmental Protection Agency (EPA) ALOHA (Areal Locations of Hazardous Atmospheres) chemical release and dispersion model. We understand ACDEH requires the use of ALOHA for OCA modeling. The information below provides the basis and results for this modeling analysis.

Consideration of Poly Ball Passive Mitigation

Mariposa Energy has and will continue to maintain poly balls within the secondary containment basin to serve as passive mitigation in the event of a release to the secondary containment basin. The balls would act as a barrier to ammonia release to atmosphere from a liquid pool. For a given ammonia concentration, release parameters, and atmospheric parameters, the rate of ammonia release to atmosphere is limited by the surface area available for evaporation. As noted in previous submittals, the floating balls reduce the surface area available for ammonia transfer via evaporation by approximately 90 percent based on the geometry of the floating balls.

Based on our teleconference on September 24th, we understand that ACDEH has consulted with EPA staff regarding the use of poly balls, and that EPA staff responded confirming that poly balls are an acceptable passive mitigation technique; however, the EPA staff was not aware of an EPA-approved assumption for reduction in evaporation rate[1]. Please note that the ACDEH-specified ALOHA model calculates evaporation rates based on available surface area, the evaporation rate reduction is not an assumption in the analysis. Therefore Mariposa Energy respectfully requests that ACDEH allow this passive mitigation to be considered in the OCA analysis, in accordance with Section 2750.3(d)(1)(A) of the CalARP regulations which reads:

> *"The surface area of the pool shall be determined by assuming that the liquid spreads to 1 centimeter deep unless passive mitigation systems are in place that serve to contain the spill and limit the surface area. Where passive mitigation is in place, the surface area of the contained liquid shall be used to calculate the volatilization rate".*

[1] Information is paraphrased based on ACDEH comments during the September 24, 2013 teleconference. Mariposa Energy has requested copy of the e-mail correspondence from EPA to fully understand and benefit from the information provided by EPA; this information has not been received as of the date of this letter.

As detailed in previous submittals, one layer of poly balls will reduce the liquid pool exposure area in excess of 90 percent. We understand ACDEH has concerns regarding this assumption based on discussions to date, and propose the following practical responses to address these concerns.

- Apply a safety factor of 2 to account for any gaps in floating ball placement (assume a surface area reduction of 80 percent instead of 90 percent)
- As noted in the previous data submittal, Mariposa Energy proposes to double the quantity of balls, to achieve two layers of floating balls in the event of a spill. The second layer of balls nested on top of the floating layer will provided added release reduction in two ways: 1) drop to fill any gaps in the floating layer, and 2) provide an additional barrier to migration of ammonia vapor from the liquid surface to atmosphere.
- It was noted during our teleconference there was a concern about the floating balls providing increased wetted surface area for ammonia evaporation. The balls would need to be continuously rolling to provide a wetted surface for ammonia evaporation. Both liquid surface tension and the friction between the tightly packed balls would not allow the balls to continuously roll. Additionally, the proposed second layer of balls will serve as a barrier to this unlikely scenario.

Therefore, additional OCA modeling analyses using ALOHA have been performed for two cases for ACDEH review:

1) No consideration of the poly ball passive mitigation, in accordance with ACDEH direction, and
2) Including poly ball passive mitigation with a corresponding surface area reduction of 80 percent, as described above.

ALOHA Modeling Analysis

We have updated OCA input parameters where appropriate, including secondary containment basin area and maximum ambient temperature.[2,3] Default input parameters for wind speed, stability, and relative humidity were used as specified in Section 2750.2 of the CalARP Program Regulations. The "open county" ground roughness parameter was selected to be representative of the open and undeveloped nature of the project area. The ALOHA model "Threat Zone" was set to 200 parts-per-million (ppm) (or 0.14 milligrams per liter) of ammonia, the CalARP Toxic Endpoint defined in Appendix A of the CalARP Regulations. The results of the modeling analysis are summarized in Table 1 below, and modeling output is included as Attachment 1.

Table 1. ALOHA Modeling Results

Scenario	Surface Area (square feet)	Ammonia Evaporation Rate (lb/min)	Toxic Endpoint Distance - 200 ppm (feet)
No Poly Balls	938.5	32.7	3,822
Poly Ball Passive Mitigation	187.7	7.93	1,767

As we discussed on the September 24th teleconference, ACDEH considers the closest public receptor to be the PG&E Bethany Compressor Station. The distance from the MEP aqueous ammonia tank to the PG&E compressor station building (closest location where personnel would potentially gather or work) is approximately 2,050 feet.

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[2] Aqueous ammonia containment basin area is based on basin internal dimensions of 42.0 feet by 23.25 feet, subtracting out the two concrete tank supports measuring 9.5 feet by 2.0 feet. The resulting maximum surface area of the basin is 938.5 square feet.

[3] The maximum temperature recorded during the last three years (2010 through 2012) at the Tracy Pumping Plant on Kelso Road was 105 degrees Fahrenheit (Western Regional Climate Center, http://www.wrcc.dri.edu/)

Therefore the nearest public receptor is beyond the distance to the toxic endpoint when the poly ball passive mitigation is considered in the ALOHA OCA analysis.

Administrative Controls

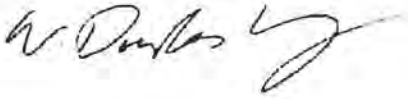
In addition to the measures described above, Mariposa Energy proposes the following measures to ensure effectiveness of the passive mitigation system.

- Quarterly hydrodynamic testing of the floating poly balls by filling the secondary containment area sufficiently to observe the floating poly balls. Defective balls will be removed and logged. Any balls removed will be immediately replaced with spares.
- Change out of the poly balls every 5 years (manufacturer recommendation is every 9 years)
- Daily visual inspections of the containment area for netting integrity, debris intrusion, and liquid accumulation
- Annual staff training on the MEP RMP will include review of the RMP, verification of emergency contact phone numbers, mandatory location of RMP book, daily inspections, quarterly hydrodynamic testing (including replacement of failed poly balls), and the 5-year replacement plan for the poly balls as a complete set.

Closing

Based on the information provided to date and this revised OCA using the ALOHA release and dispersion model, Mariposa Energy respectfully requests that ACDEH approve MEP as a Program Level 1 facility. Thank you for your continued efforts to review the project. Please contact me at 916.286.0348 or by email: doug.urry@ch2m.com at your convenience should you have any questions.

Sincerely,



Doug Urry
Senior Project Manager

Attachments:

1) ALOHA Modeling Output Files
2) Secondary Containment As-Built Drawing

c: Sukla De/ACDEH
Chris Tougeron/ACDEH
Ariu Levi/ACDEH
Wayne Forsyth/DGC
Gary Normoyle/DGC
Bo Buchynsky/DGC
Michael Kromer/Mariposa Energy
Peter Torrey/CH2M HILL