

Appendix H

Preliminary Fire Protection Plan

PRELIMINARY FIRE PROTECTION PLAN

HELLMAN GAS PLANT EXPANSION

Prepared For:
Hellman Properties, LLC



February 13, 2018
Revision A

REV.	DESCRIPTION	BY	DATE	REVIEWED	DATE	APPROVED	DATE
A	ISSUED FOR REVIEW	JAD	2/13/18	ASL	2/13/18		

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FIRE PROTECTION PLAN
Hellman Gas Plant Expansion

1 INTRODUCTION

Hellman Properties, LLC is proposing to build a new gas plant at their Hellman Ranch Oil and Gas Facility in Seal Beach, CA to treat the produced gas and use a portion of the gas in an on-site microturbine for electrical power generation.

- 1.1 The objective of this study is to review the proposed location for the proposed gas plant and provide recommendations for fire protection for the gas plant site.
- 1.2 The facility is located in Seal Beach, CA which is served by the Orange County Fire Authority. The City of Seal Beach has adopted the 2016 edition of the California State Fire Code (CFC), which is based on the 2015 edition of the International Fire Code (IFC).

2 EXISTING FACILITY DESCRIPTION

2.1 Facility Overview

The new facility is planned to be installed to the north-west of the existing tank battery.

2.2 Fire Water Distribution System

The oil tank farm has an existing 1,500 bbl fire water tank with a 1,000 gpm pump rated at 105 psi, which is approximately 725 feet from the proposed gas plant site. The existing oil tank farm area is provided with six monitors with 220 gallon AFFF totes and hose reels. Makeup water is provided from the City water system.

3 PROPOSED FACILITY DESCRIPTION

3.1 Gas Plant Overview

The gas plant will have the following major pieces of equipment:

- Gas scrubber vessel (2)
- Feed gas compressor (2)
- Recycle gas compressor (2)
- Pressure swing adsorption system (1)
- Micro-turbine (1)
- Absorption chiller (1)

4 HAZARD ANALYSIS

4.1 General

The principal hazard of the facility is that of a fire due to potential leak and ignition of flammable gas.

Other hazards at the facility include ordinary electrical fires, and vehicle fires.

This hazard analysis applies to the new gas plant facilities.

4.2 Risk Assessment Summary and Fire Prevention Measures

The risks at this site include the following possible occurrences:

4.2.1 Seal or gasket failure at pipe flanges

Piping is designed, constructed, tested, maintained and inspected in accordance with ANSI B31.3.

4.2.2 Overheating of mechanical devices such as compressor bearings

Compressors are routinely monitored for vibration and temperature as part of the operator rounds.

4.2.3 Overheated motor failure or fire

Failure of compressor motors will cause a shutdown of the affected system. Normal circuit breakers should permit shutdown. Motor failures in themselves would not be a catastrophic event.

4.2.4 Gas Compressor Seal Leak

The gas compressors will be provided with dual seals in accordance with SCAQMD requirements. Leakage of the primary seal will be alarmed and the compressor automatically shut down. A leak of the primary seal will not cause gas to leak from the compressor due to the secondary seal.

4.2.5 Wiring or electrical equipment fire

Electrical systems will be designed, constructed and maintained in accordance with NFPA-70 and API-500 in order to insure safe operation. Proper installation, maintenance and routine inspections minimize the possibility of an electrical fire. An electrical area classification diagram will be prepared as part of this project.

4.2.6 Earthquake

All equipment foundations and structures will be designed for installation per the building code. Geotechnical site investigations have been conducted to assure adequate design of equipment foundations. The piping systems will be designed with sufficient flexibility to allow a limited amount of independent movement of the equipment, relative to the piping, to prevent damage to the piping or the equipment during a seismic event.

4.2.7 Welding, smoking and open flames

A hot work permit system will be in use at the facility that will regulate welding and any open flames. Smoking will be absolutely prohibited, except in designated safe smoking areas.

4.2.8 Physical impact by vehicle driving on site

On-site vehicles will be operated by trained employees or authorized drivers. Parking for the gas plant will be located away from the active equipment.

4.2.9 Sabotage or malicious mischief

Security at the facility consists of perimeter fencing and locked gates to prevent unauthorized access.

4.2.10 Pipe seam or weld failure

All piping systems will be designed, installed, inspected and non-destructively tested in accordance with ANSI B31.3 requirements, regulatory codes and nationally recognized engineering codes and standards.

4.2.11 Corrosion

Any metal underground piping will be coated and wrapped to prevent corrosion. Aboveground metal piping will be painted to prevent corrosion.

4.2.12 Mechanical or structural failure of equipment

Equipment will be designed and built in accordance with API standards, regulatory codes and nationally recognized engineering codes and standards.

4.3 Facility Recommendations

4.3.1 Compressor Location

Compressors should be well separated from other process equipment or occupancies.

Separation between compressors should be sufficient to prevent interexposure.

All buildings and parking areas shall be located at least 50 feet away from the compressors.

4.3.2 Compressors

Relief valves on compressor discharges should be piped back to the suction or to a safe location

Provide means of releasing the gas pressure in the compressor suction and discharge lines between the shutoff valves and the compressor to a safe location when the compressor is not operating.

A gas fire can be best extinguished by shutting off the gas supply and immediately venting the gas piping to a safe location.

4.3.3 Gas Detection

A leak of combustible gas could expose other equipment and a combustible gas detection system is recommended.

The shutdown should include closing all inlet and outlet gas lines and blowdown valves.

4.3.4 Fire Protection

A new stand pipe should be installed at the edge of the tank farm that would allow for fire hose connections. The location of the new stand pipe would be about 500 feet from the gas plant. A fire extinguisher should be provided for use when area is attended by maintenance or operations personnel.

5 OTHER CODES AND STANDARDS

Other codes and standards that have been utilized for guidance include the following:

National Fire Protection Association:

NFPA 10	<i>Standard for Portable Fire Extinguishers</i>
NFPA 24	<i>Standard for the Installation of Private Fire Service Mains</i>
NFPA 70	<i>National Electrical Code</i>
NFPA 72	<i>National Fire Alarm Code</i>
NFPA 497	<i>Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous Locations for Electrical Installation in Chemical Process Areas</i>

6 REFERENCES

The below information was used as reference for this plan:

- P-SK02: Proposed Piping Plan
- E-mail from Devon Shay to Andrew Lopez, January 30, 2018, regarding existing fire system at tank battery
- E-mail from Devon Shay to Andrew Lopez, January 11, 2018, Google Earth image of proposed location of gas plant relative to existing tank battery