Planning Commission Staff Report

Date:	March 10, 2010
Case No.:	PA-10-001
Application Type:	Pre-Application
Location:	670 Garnet Avenue
Applicant:	Border Valley Trading Company
Zone:	M-1-P (Research and Development Park Zone)
General Plan:	RBC (Regional Business Center)
APN:	666-330-064
From:	Craig A. Ewing, AICP, Director of Planning Services
Project Planner:	Ken Lyon, Associate Planner

PROJECT DESCRIPTION

The proposed project is a liquefied natural gas (LNG) fueling facility. It is proposed in two phases: phase 1 is a temporary LNG tank and dispensing unit installed on the east half of the site while the main permanent tanks and dispensing units (phase 2) are being constructed on the west half. Liquefied Natural Gas is an alternative fuel to diesel, and is used for fueling large semi tractor-trailer trucks. The applicant has a fleet of such trucks and requires a station in this vicinity as a mid-point fueling facility between Redding and Blythe. The applicant is here to answer questions from the Planning Commission prior to submitting a formal development application in the form of a Conditional Use Permit application.

RECOMMENDATION

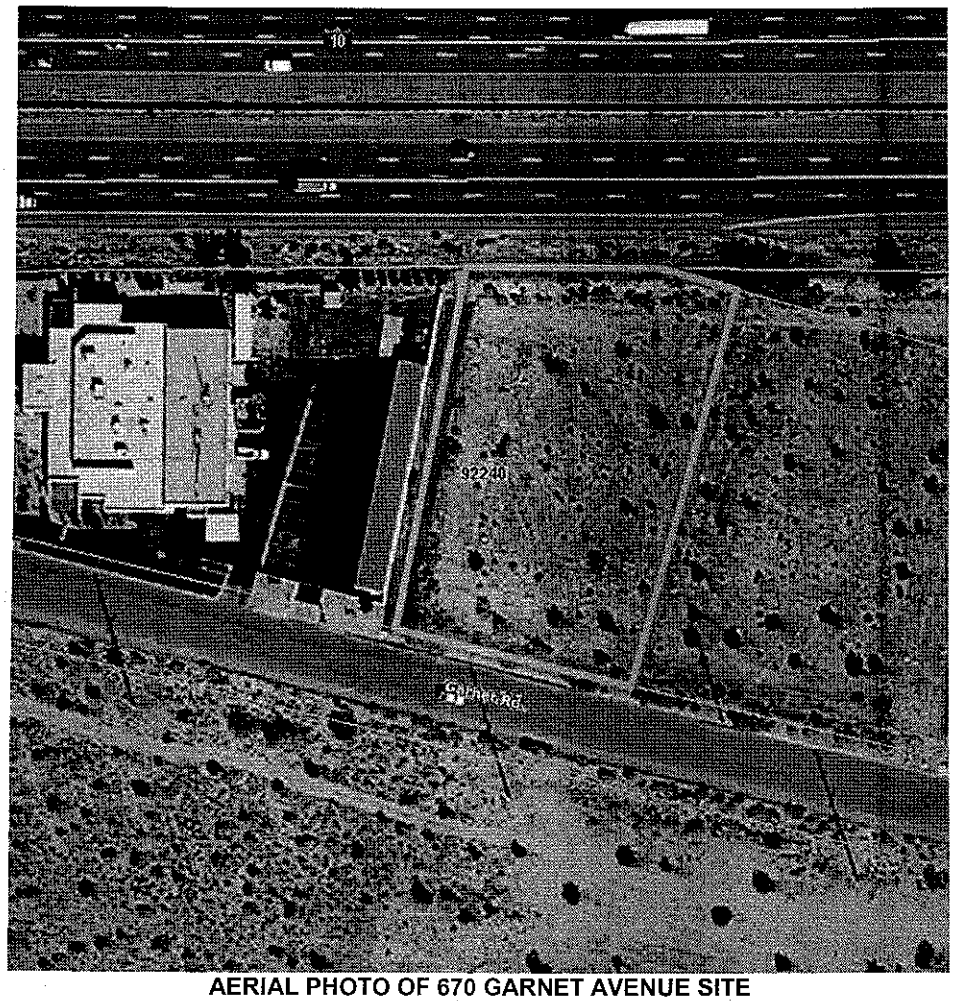
The Planning Commission is encouraged to ask questions on the proposed scope of the project and staff will incorporate those topics into the final response letter to the applicant. No recommendation or comments inferring approval or disapproval is to be made for pre-applications.

PRIOR ACTIONS TAKEN ON THE PROJECT:

On March 8, 2010, the project was reviewed by the Architectural Advisory Committee. The comments from the AAC will be presented verbally by Planning Staff at the time of the Planning Commission review of this pre-application.

BACKGROUND AND SETTING:

The applicant, Border Valley Trading, is proposing construction of a private liquefied natural gas (LNG) fueling facility on an approximately one acre site on the north side of Garnet Road, south of the I-10 freeway, west of Indian Canyon Drive on a lot immediately east of the former BLM offices.



AERIAL PHOTO OF 670 GARNET AVENUE SITE

The project is proposed in two phases: Phase 1 is a temporary fuel storage tank and fueling pump, and is estimated to have a maximum capacity of 50 vehicles per day. It would NOT be open to the public (it would be for Border Valley Trading vehicles only). With the completion of Phase 2, the capacity would be increased to 100 vehicles per day and the facility would be open to the public (phase 2 scope would include the

removal of the phase 1 temporary tank). The finished site would be capable of handling six vehicles at one time and has room for several vehicles to queue on-site.

The project is being proposed to provide an intermediate fueling station between Redding and Blythe for the Border Trading Company's fleet of LNG trucks. The company previously used an LNG fueling site operated by Clean Energy Inc, in Thousand Palms that recently was closed.

The project site would be fully enclosed at the perimeter with fences, walls and gates. The structures on the site include an above ground tank, pumping/dispensing apparatus and a masonry building containing a toilet. More information about the facility is provided in the attached project executive summary.

The project proposes a pair of vertical tanks approximately 40 feet tall and 15 feet in diameter within a masonry block wall spill containment enclosure. The site would be provided with gravel/rock groundcover and drought and wind tolerant landscaping along the Garnet Avenue frontage. The rear of the parcel abuts the Interstate-10 right of way and the site is visible from the freeway. The site is not proposed to have a shade canopy at the fuel dispensing pumps. Unlike CNG (compressed natural gas) fueling facilities, passenger cars and small truck are not the anticipated user of this station. Large semi-tractor/trailer vehicles are the primary vehicle type that would use this station.

The Indian Canyon Drive/I-10 interchange renovation is scheduled for construction to commence shortly and this station would be located for convenient on-off access for vehicles from the I-10.

ANALYSIS:

Pre-applications are routed to internal City Departments including Police, Fire, Building, and Engineering. A preliminary, but not exhaustive review of the project against various concerns and regulatory standards of each department is performed and comments are provided which are noted below. The Planning Commission may also provide comments to the applicant and staff will incorporate all comments into a letter that will be submitted to the applicant as the City's final response to the pre-application review request.

Planning Department Preliminary Comments:

General Plan:
The General Plan land use designation is Regional Business Center (RBC). The RBC is intended to accommodate a variety of uses. Commercial, office and industrial uses that can be supported by their proximity to the freeway are encouraged in this area. Staff believes the proposed LNG can be found to be consistent with the policies of the General Plan RBC land use designation.

Zoning:
The proposed project lies in the Planned Research and Development Park (M1P) zone. The proposed use most closely resembles an automobile service station, which is permitted in this zone subject to a CUP and the development standards of the M1P zone. Automobile service stations are also subject to the development standards listed in Section 94.02.00 (H,2) "Conditions for Specific Uses" of the Zoning Code. A brief review of applicable code sections is provided below with staff's comments.

PSZC Section 92.16.03 Development Standards for the M-1-P Zone

A. Lot Area.
Except where lot sizes are otherwise established by an approved master plan, each lot shall have a minimum area of forty thousand (40,000) square feet, except that lots which abut a major or secondary thoroughfare shall have a minimum area of sixty thousand (60,000) square feet.

The project application lists the site at 43,304 square feet and thus conforms.

B. Lot Dimensions.
1. Each lot shall have a minimum width of two hundred (200) feet.
2. Each lot shall have a minimum depth of two hundred (200) feet.

The lot is approximately 250 feet in depth and 160 feet in width and is thus deemed legal non-conforming.

C. Building Height.
1. Buildings and structures shall have a height not greater than forty (40) feet; provided that, any portion of buildings in excess of thirty (30) feet are: (a) located on a parcel of not less than one (1) acre in size; and (b) set back one (1) foot from any property line for every one (1) foot of vertical rise. Buildings which exceed forty (40) feet in height may be permitted pursuant to the provisions of Sections 93.04.00 and 94.02.00.

The project proposes 1 temporary horizontally mounted LNG Fuel storage tank and two permanent tanks. The permanent tanks are vertical and their maximum height is approximately 40 to 45 feet. They are approximately 60 feet from the property line and thus conform.

D. Yards.
1. General provisions, see Section 93.01.00.
4. a. Where property in the M-1-P zone abuts a major or secondary thoroughfare which is not a boundary with a residential zone, there shall be a yard abutting such street of not less than twenty-five (25) feet which shall be landscaped and maintained. No portion of this yard shall be used for parking, storage or loading.

The project fronts on Garnet Avenue which is a secondary thoroughfare on the City's General Plan Circulation map. The rear property line abuts the Interstate 10 freeway right of way. The project conforms to this requirement.

5. Where property in the M-1-P zone abuts property in a nonresidential zone, there shall be a yard of not less than twenty (20) feet. Such yard may be used for parking, loading or storage.

The project abuts other M1P properties and conforms to this finding.

7. Landscaped buffers at least five (5) feet in width may be required by the planning commission along interior yards.

The project has non-paved areas of at least 8 feet on the side yards. No landscaping is proposed except along the Garnet Road frontage.

E. Walls, Fences and Landscaping.
The provisions of Section 93.02.00 shall apply.
Exception..
Fences and walls shall not exceed eight (8) feet in height in any required interior side or rear yard.

The project proposes a masonry wall 6 feet in height across the front of the project site and chain link fencing at the side and rear yards.

J. Signs.
The provisions of Section 93.20.00 shall apply.

A separate sign application would be required

K. Outdoor Storage and Waste Disposal.
1. Outdoor storage and activities associated with permitted uses shall be entirely enclosed by solid masonry walls to adequately screen view of outdoor storage and/or equipment from the external boundaries of the property. Items shall not be stacked or stored higher than the wall. All enclosures and stored materials must comply with fire department requirements for access and fire protection.

2. No materials or wastes shall be deposited or stored in such form or manner that they may be transferred off the lot by normally-occurring natural causes or forces. Wastes which might cause fumes or dust or which constitute a fire hazard or which may be edible by or otherwise be attractive to rodents or insects shall be stored only in closed containers in required enclosure.

No outdoor storage is proposed.

PSZC Section 94.02.00(H,2) Conditions for Specific Uses – Automobile Service Stations

Although the requested use is not intended for automobiles per se, Staff believes that as a vehicle fueling facility, conformance with the standards of this section will be a requirement.

2. Automobile service stations shall comply with the following provisions in addition to zone provisions and conditions imposed in a conditional use permit. Any amendment to the use of an automobile service station, or accessory use, shall require the previous approval of a new conditional use permit.

a. Location.

i. The site shall have two hundred (200) feet of frontage on a major or secondary highway.

The project is proposed on a legal non-conforming lot that has a frontage of approximately 160 on a secondary thoroughfare.

ii. The site shall not adjoin an existing hotel or residential use at the time of its establishment.

The project does not abut an existing hotel or residential use.

iii. The minimum distance from the site to a property containing a school, park, playground, church, museum or similar use shall be two hundred fifty (250) feet. The minimum distance to a residential zone shall be one hundred seventy-five (175) feet.

The project is not adjacent to such uses.

iv. The minimum distance between properties containing automobile service stations shall be five hundred (500) feet, except that service stations that are approved as part of a master plan are exempt from this requirement, and except that two (2) automobile service stations may be permitted at intersections formed by streets both of which have a forecasted average daily volume of twenty-five thousand (25,000) trips according to the adopted general plan or other subsequent city-approved comprehensive traffic study.

The project is not adjacent to another service station.

b. Site Area.

The minimum net site area shall be twenty thousand (20,000) square feet. Any proposal to expand activity to an existing use on a lot of less than twenty thousand (20,000) square feet shall not be permitted unless the planning commission, pursuant to a new conditional use permit, finds that the site can adequately support the increased use without adversely affecting public streets or surrounding land uses. For purposes of this section, "site" shall mean the same as "lot" or shall mean that portion of a lot that is dedicated solely for the purpose of accommodating the service station.

The project conforms at approximately 43,304 square feet.

c. Access.
Access drives shall be at least thirty (30) feet from any street corner measured from the intersection of the ultimate right-of-way lines; the city engineer may require a greater distance based upon street and traffic characteristics. All drives shall be designed to provide vehicle queuing in a manner that minimizes possible hazard or slowing of vehicles on adjacent city streets. Reciprocal access/parking arrangements may be with adjacent properties to enhance public convenience and safety.

The project conforms to this standard.

d. Number of Pumps.
One (1) gasoline pump shall be permitted per two thousand (2,000) square feet of site area. The number of pumps shall be the same as the number of sale transactions which may be conducted simultaneously at all of the pump stations.

The project conforms to this standard.

f. Walls.
A solid masonry wall six (6) feet in height shall be erected on all interior property lines which abut property in a residential zone or wherever else deemed necessary by the planning commission.

The project does not abut residential zones. The project proposes chain link fences on the interior and rear yard property lines. The front of the site has a 6 foot masonry wall and electronically controlled vehicular security gates.

g. Paving.
The entire ground area shall be paved except that ten (10) percent of the site area shall be reserved for landscaping.

The project conforms, however no specific landscaping is proposed other than at the frontage along Garnet Avenue.

h. Lighting.
Lighting shall conform to the requirements of Section 93.06.00.

No lighting plan is submitted as part of this pre-application.

k. Minimum Building Area.
The minimum gross floor area for each automobile service station building, not including the canopy area, shall be seven hundred fifty (750) square feet. Accessible public restrooms shall be provided.

The project proposes only a toilet facility at approximately 150 square feet. No canopy is proposed.

n. Signs.
All signing shall conform to the provisions of Section 93.20.00.

A sign application is not included in this Pre-application.

Engineering Department Preliminary Comments:

ENG 1. No structure, obstructions, or encroachments shall be located within the 8.5 feet wide drainage easement along the west property line.

ENG 2. No structure shall be located within the 10 feet wide public utility easement along the south property line.

ENG 3. No improvement shall be approved within that portion of the property previously conveyed to the City of Palm Springs identified as Parcel 20553-1 by Grant Deed recorded as Document #86788 on February 24, 2009.

ENG 4. A 5 ft wide sidewalk shall be constructed behind the existing curb & gutter on Garnet Avenue in conjunction with this project.

ENG 5. A Preliminary Hydrology Study shall be submitted to the City Engineer prior to project entitlement. The Preliminary Hydrology Study shall be submitted to address required on-site retention or other facilities approved by the City Engineer to contain the increased stormwater runoff generated by the development of the property.

Sanitary Sewer:

ENG 6. In Phase 2 of the project, a private sanitary sewer system shall be constructed in accordance with City of Palm Springs Ordinance No. 1084. The record property owner shall enter into a covenant agreeing to extend the private sewer lines the necessary distance to connect to the public sewer system within one year of official notice that an operating public sewer has been completed within 500 feet of the lot. The covenant shall be executed and notarized by the property owner and submitted to the City Engineer prior to issuance of the grading permit for Phase 1 of the project.

ENG 7. The City recommends that the applicant contact the Riverside County Health Department and the Colorado River Basin Regional Water Quality Control Board (RWQCB) for requirements related to the construction of private septic systems for non-residential uses. Private septic systems may now require additional environmental requirements and/or permits from Riverside County and the RWQCB.

ENG 8. Coordinate with Mission Springs Water District (MSWD) on any requirements to design and construct public sewer improvements.

ENG 9. This project will be subject to the General Permit for Stormwater Discharges Associated with Construction Activity requirements and shall prepare and implement a stormwater pollution prevention plan (SWPPP).

ENG 10. This property is subject to the Coachella Valley Multiple Species Habitat Conservation Plan Local Development Mitigation fee (CVMSHCP-LDMF). The LDMF shall be paid prior to issuance of Building Permit.

ENG 11. There are some errors on the site plan for this project. In the plan view of the site plan (left-hand side of page), the dimensioning is incorrect for Garnet Avenue. The curb and gutter are not proposed, but existing. It will not be relocated in conjunction with this project. Only a 5 ft. wide sidewalk will be required. Also, in Section A-A of Garnet Avenue (not Road, as stated) the dimensioning is incorrect. See Sheet 4 of PM21921 for the correct dimensioning (especially see enlargement at bottom of sheet).

Police Department Preliminary Comments

The LNG tanker traffic that is expected to fill the temporary QRS- 6000 LNG fueler "three to four times a week" is a concern from a standpoint of traffic collisions.

The lighting for the facility must be adequate and positioned to properly illuminate points of entry not just on the corners of the security fencing as proposed in the project description. Light fixtures should be vandal resistant. It is suggested that the temporary site be equipped with a 24 hour video surveillance system that monitors and records the entry point(s) and the entire perimeter of the facility. With the temporary facility being closed between the hours of midnight and 6AM, It is suggested that Border Valley Trading consider contracting with a security company that will patrol the facility during those hours.

The facility is located in a remote area of the city. The security measures mentioned should become conditions should this project move forward in the future. The police department fully expects BVT to work with City and incorporate the Crime Prevention through Environmental Design (CEPTED) principles for their commercial facility.

Fire Department Preliminary Comments

FID 1. These comments/conditions are subject to final plan check and review. Initial fire department comments were based upon the site plan dated and received on 1/16/2010. Additional requirements may be required at the time an actual application is submitted based on subsequent revisions to site plans.

FID 2. Fire Department Conditions were based on the 2007 California Fire Code and NFPA standards. Four complete sets of plans for fire alarm and gas monitoring systems must be submitted at time of the building plan submittal. Conditions set forth are for both Phase 1 and Phase 2 of this project.

FID 3. Training Impact Fees: In order to ensure that the Palm Springs Fire Department receives the proper training to mitigate emergency incidents at this facility, the Applicant shall provide the fire department technical on site training prior to fueling operations are to commence.

FID 4. Access During Construction (CFC 503): Access for firefighting equipment shall be provided to the immediate job site at the start of construction and maintained until all construction is complete. Fire apparatus access roads shall have an unobstructed width of not less than 20 feet and an unobstructed vertical clearance of not less than 13'6". Fire Department access roads shall have an all weather driving surface and support a minimum weight of 73,000 lbs.

FID 5. Buildings and Facilities (CFC 503.1.1): Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility. Plans submitted meet this requirement.

FID 6. Fire Department Access: Minimum width of 24' Fire Department Access Roads shall be provided and maintained in accordance with (Sections 503 CFC) along the perimeter and interior roadways.

FID 7. Surface (CFC 503.2.3): Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus (73,000 lbs. GVW) and shall be surfaced so as to provide all-weather driving capabilities.

FID 8. Premises Identification (CFC 505.1): New and existing buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numerals or alphabet letters. Numbers shall be a minimum of 4" high with a minimum stroke width of 0.5".

FID 9. Turning radius (CFC 503.2.4): The required turning radius of a fire apparatus access road shall be determined by the fire code official. Fire access road turns and corners shall be designed with a minimum inner radius of 25 feet and an outer radius of 43 feet. Radius must be concentric.

FID 10. Security Gates (CFC 503.6): The installation of security gates across a fire apparatus access road shall be approved by the fire chief. Where security gates are installed, they shall have an approved means of emergency operation. The security gates and the emergency operation shall be maintained at all times. Approved security gates shall be a minimum of 14 feet in unobstructed drive width on each side with gate in open position. Secured automated vehicle gates or entries shall utilize approved Knox

access switches as required by the fire code official. Secured non-automated vehicle gates or entries shall utilize an approved padlock or chain (maximum link or lock shackle size of ¼ inch) when required by the fire code official.

FID 11. Key Box Required to be Installed (CFC 506.1): Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box to be installed in an approved location.

FID 12. Location of Knox boxes: A Knox box shall be installed at every locked gate. Boxes shall be mounted at 5 feet above grade. Show location of boxes on plan elevation views. Show requirement in plan notes.

FID 13. Operational Fire Hydrant(s) (CFC 508.1, 508.5.1 & 1412.1): Operational fire hydrant(s) shall be installed within 250 feet of all combustible construction. They shall be installed and made serviceable prior to and during construction. No landscape planting, walls, or fencing is permitted within 3 feet of fire hydrants, except ground cover plantings.

FID 14. Portable Fire Extinguisher (CFC 906.1): Portable fire extinguishers shall be installed. Provide one 2-A:20-B:C portable fire extinguisher for every 75 feet of floor or grade travel distance for normal hazards. Portable fire extinguishers shall not be obstructed or obscured from view. Portable fire extinguishers shall be installed so that the top is not more than 5 feet above the floor.

FID 15. 2007 California Fire Code: Applicant shall adhere to the 2007 California Fire Code for the design and maintenance of this facility. The following articles shall be adhered to:

- Chapter 22 – Motor Fuel and Dispensing Facilities
- Chapter 27 – Hazard Materials
- Chapter 30 – Compressed Gases
- Chapter 32 – Cryogenic Fluids
- Chapter 34 – Flammable and Combustible Liquids

FID 16. National Fire Protection Association Standards: The following nationally recognized standards will be adhered to:

- NFPA 30 – Flammable and Combustible Liquids, 2008 Edition
- NFPA 52 - Vehicular Fuel Systems Code, 2010 Edition
  - Chapter 12 LNG Fueling Facilities
  - Chapter 15 LNG Fire Protection
  - Chapter 16 Installation Requirements for ASME Tanks for LNG
- NFPA 55 – Compressed Gases and Cryogenic Fluids, 2010 Edition
- NFPA 59A – Standard for Storage and Handling of Liquefied Natural Gas (LNG), 2009 Edition
- NFPA 400 – Hazardous Materials Code, 2010 Edition

- NFPA 704 placards are required for the compressed storage cylinders.

CONCLUSION

The Planning Commission questions and topics will be incorporated by staff into the final report that will be submitted to the applicant. No additional approvals, comments or conclusions are necessary as part of a pre-application review.

ENVIRONMENTAL ASSESSMENT

There is no CEQA process required for pre-applications, however a typical environmental analysis, Initial study concluding with a possible Mitigated Negative Declaration or Negative Declaration would be anticipated when the formal application comes in for City review and processing.

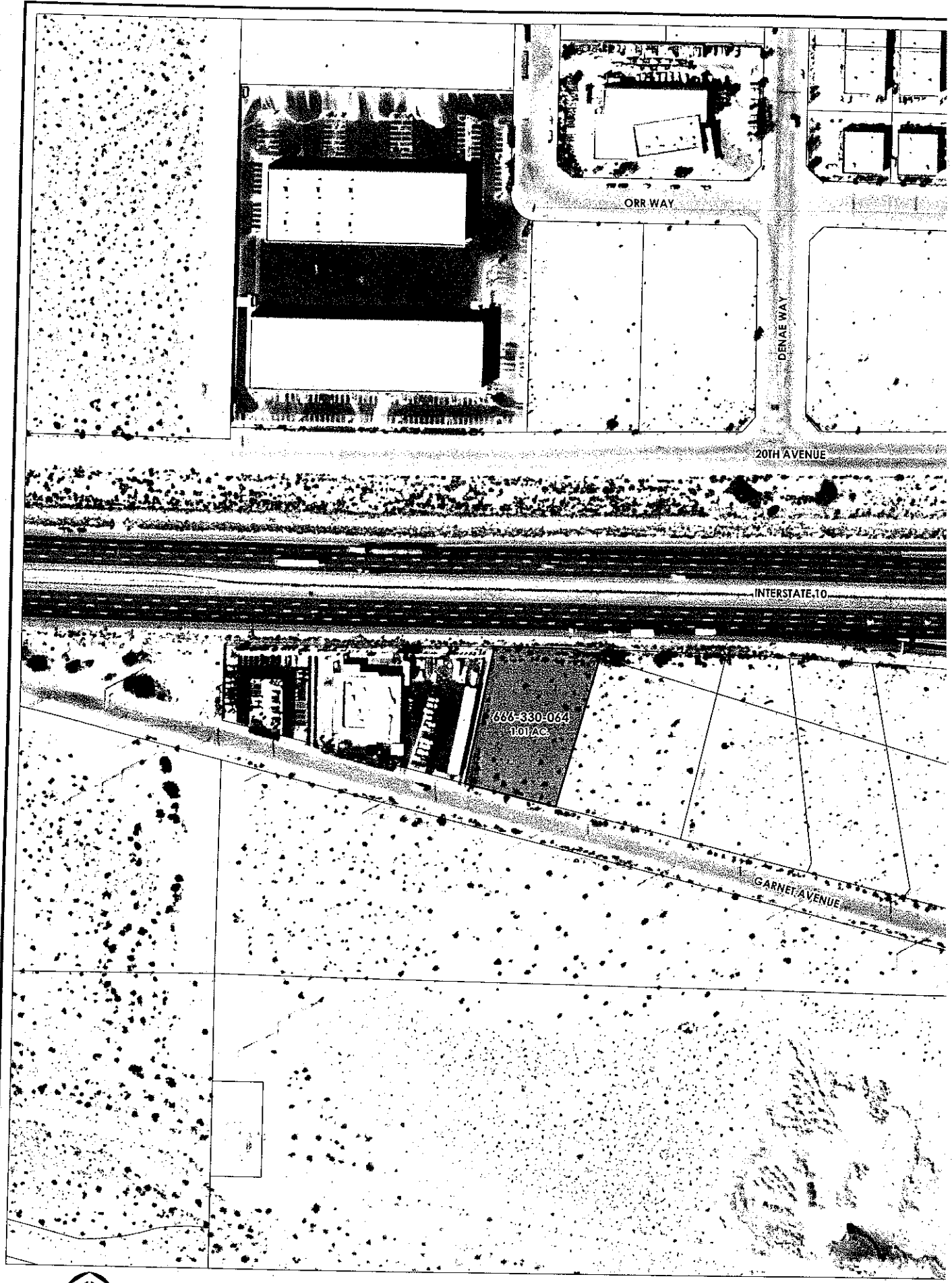
NOTIFICATION

Notice was not provided for this pre-application.

Ken Lyon,
Associate Planner

Craig A. Ewing, AICP
Director of Planning

ATTACHMENTS:
1. Vicinity Map
2. Photos
3. Reduced plans and elevations
4. Project Executive Report and LNG Primer



NORTH

0 75 150 225 300 Ft.

NOTE: THE PARCEL BOUNDARIES SHOWN ARE NOT BASED ON A FIELD SURVEY.

SOURCE: COUNTY OF RIVERSIDE

Al
Aeria

NO.	REVISIONS	APPROVED	DATE

10-001

RECEIVED

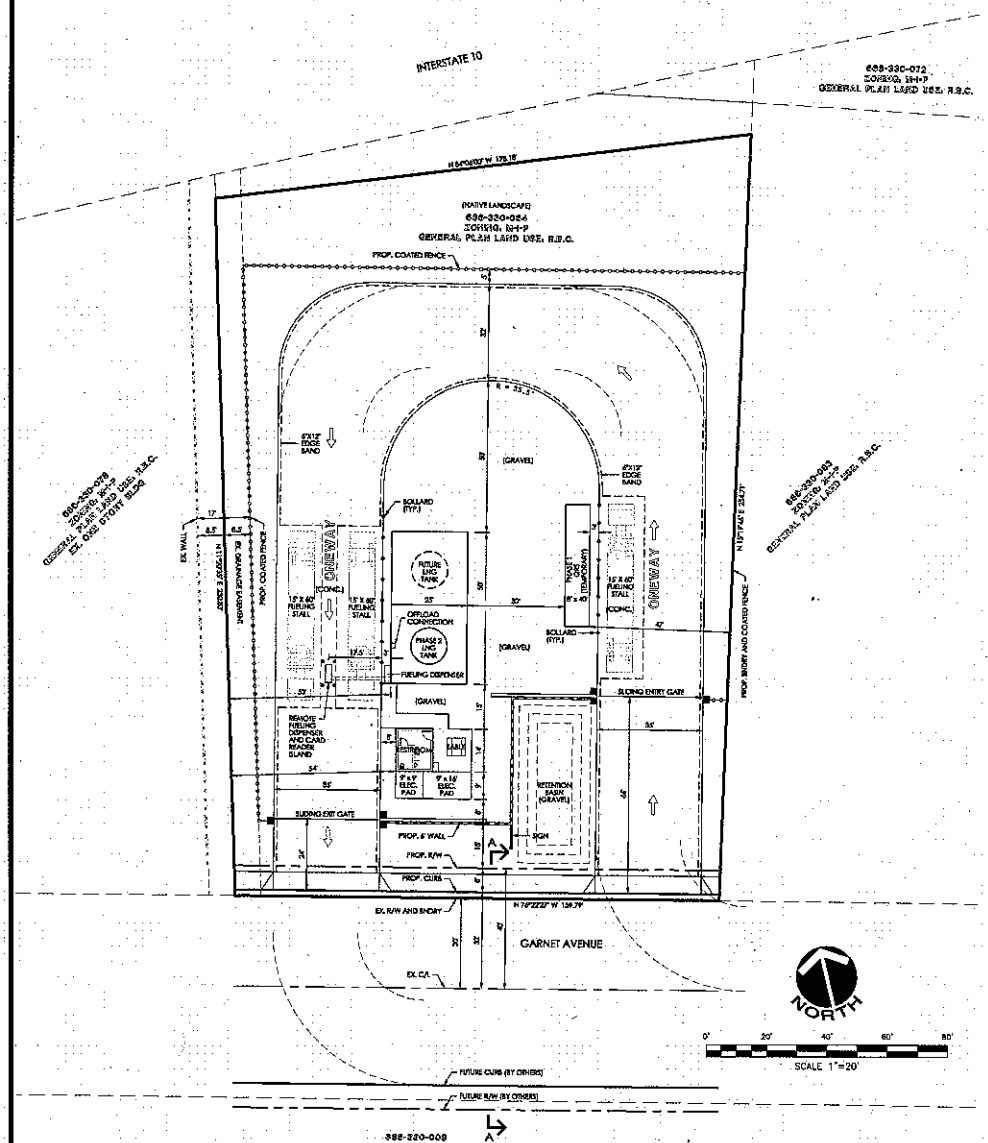
FEB 16 2010

PLANNING SERVICES DEPARTMENT

EXHIBIT DATE: FEBRUARY 16, 2010

IN THE CITY OF PALM SPRINGS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

CONDITIONAL USE PERMIT
SITE PLAN

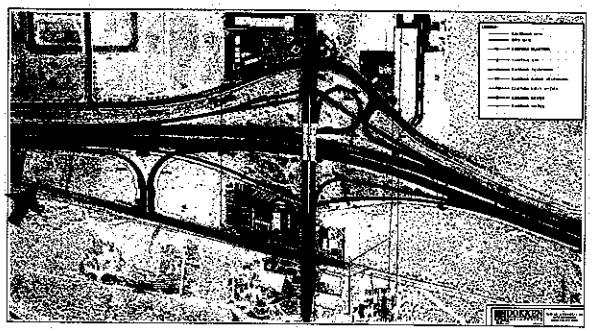


ABBREVIATIONS

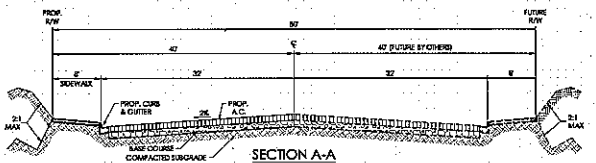
AC.	ACREAGE
APN	ASSESSORS PARCEL NUMBER
BNDRY	BOUNDARY
CL	CENTERLINE
CONC.	CONCRETE
ELEC.	ELECTRIC
EASMT.	EASEMENT
EX.	EXISTING
LNG	LIQUIFIED NATURAL GAS
MAX.	MAXIMUM
MIN.	MINIMUM
NO.	NUMBER
N.T.S.	NOT TO SCALE
P.A.	PROPERTY LINE
PROP.	PROPOSED
R/W	RIGHT OF WAY
S.F.	SQUARE FEET
TYP.	TYPICAL

LEGEND

- EXISTING CENTER LINE
- EXISTING EASEMENT
- EXISTING LOT LINE
- PROPOSED AND EXISTING BOUNDARY
- PROPOSED BOLLARD
- PROPOSED CURB
- PROPOSED EDGE BAND OR CONCRETE OR ASPHALT SEPARATION
- PROPOSED TRUCK TURNING RADIUS
- PROPOSED COATED FENCE
- PROPOSED R/W
- PROPOSED STRUCTURE
- PROPOSED MASONRY WALL



FUTURE INDIAN AVENUE / INTERSTATE 10 INTERCHANGE
N.T.S.



SECTION A-A
GARNET ROAD
N.T.S.

LEGAL DESCRIPTION

PARCEL 10, LOCATED IN SECTION 15, TOWNSHIP 3 SOUTH, RANGE 4 EAST, IN THE CITY OF PALM SPRINGS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, SAN BERNARDINO BASE AND MERIDIAN.

ASSESSORS PARCEL NUMBER

666-330-064

APPLICANT / OWNER / DEVELOPER

BORDER VALLEY TRADING
604 EAST MEAD ROAD
BRAWLEY, CALIFORNIA 92227
TELEPHONE: (760)344-6700
FAX: (760)320-9811

EXHIBIT PREPARER / ENGINEER

MSA CONSULTING, INC
34200 BOB HOPE DRIVE
RANCHO MIRAGE, CALIFORNIA 92270
TELEPHONE: (760)320-9811
FAX: (760)323-7893
JULIAN A. DE LA TORRE PE C43880 / EXP. 06/30/11

GENERAL NOTES

EXISTING AND PROPOSED GENERAL PLAN LAND USE: REGIONAL BUSINESS CENTER (R.B.C.)

EXISTING AND PROPOSED ZONING: PLANNED RESEARCH AND DEVELOPMENT ZONE (M-1-P)

GROSS ACREAGE: 0.94 ACRES / 40,813 S.F.

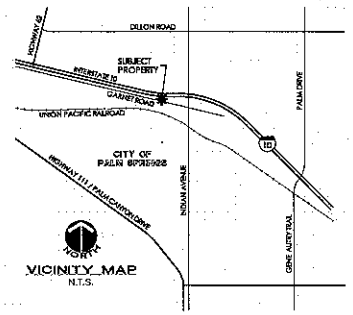
NET ACREAGE: 0.90 ACRES / 39,212 S.F. (ESTIMATED)

LAND USE BREAKDOWN:
LNG STRUCTURES: 1,570 S.F. (4%)
RESTROOM: 175 S.F. (1%)
DRIVE: 15,995 S.F. (41%)
HARDSCAPE: 600 S.F. (1%)
LANDSCAPE / OPENSPACE: 20,872 S.F. (53%)
NET ACREAGE: 39,212 S.F. (100%)

THE EXISTING BOUNDARY WAS DERIVED FROM THE RIVERSIDE COUNTY ASSESSOR'S PARCEL MAPS AND HAS NOT BEEN SURVEYED; ALL AREA CALCULATIONS AND PROPOSED GEOMETRY ARE SUBJECT TO CHANGE.

UTILITIES

ELECTRIC:	SOUTHERN CALIFORNIA EDISON	(800) 655-4555
GAS:	THE GAS COMPANY	(800) 427-2000
TELEPHONE:	VERIZON COMPANY	(800) 483-3000
WATER:	DESERT WATER AGENCY	(760) 323-4971
CABLE:	TIME WARNER CABLE	(760) 340-2225
SEWER:	DESERT WATER AGENCY	(760) 323-4971
USA:	UNDERGROUND SERVICE ALERT	(800) 227-2600



VICINITY MAP
N.T.S.

MSA CONSULTING, INC
PLANNING ■ CIVIL ENGINEERING ■ LAND SURVEYING
34200 BOB HOPE DRIVE ■ RANCHO MIRAGE ■ CA 92270
TELEPHONE (760) 320-9811 ■ FAX (760) 323-7893

DESIGN BY	DVD
DRAWN BY	DVD
CHECKED	MDR

D-OUTLN-DIM

SPECIFICATIONS

INNER

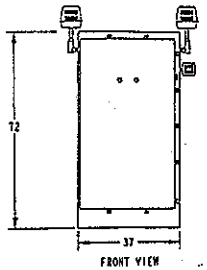
MAWP	250 psi
Gross Warm Capacity	6232 Gallons
Gross Cold Capacity	6183 Gallons
Net Cold Capacity	5875 Gallons
Ullage	5%
Inner Diameter	84"
ASME Design Code	Section VIII Div. 1, part UHA
Inner Material	SA 240 Type 304SS
Design Temperature	-320 to 100 Deg. F

OUTER

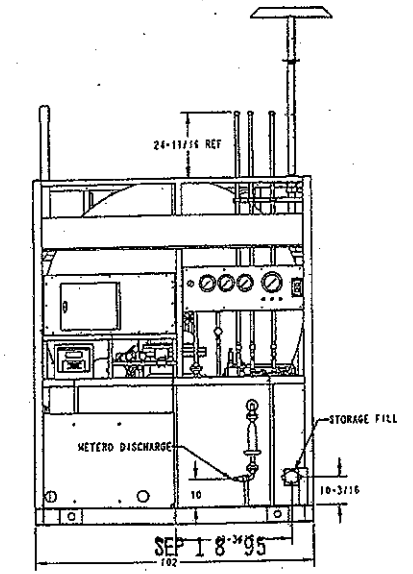
Design Standard	CGA-341
Collapse Pressure	30 psi minimum
Material	a-36 Carbon Steel
Diameter	96"

SYSTEM FEATURES

Insulation	Composite
NER %/Day (LNG)	0.20 % / Day
Installed Height	15' 6"
Installed Width	8' 6"
Installed Length	40'
Shipping Envelope	8'W X 10'-6"H X 40' L
Shipping Weight	42000 Pounds
Operating Weight	62500 Pounds



ELECTRICAL SERVICE CABINET
(TO BE REMOTELY POSITIONED)
230 3P 60 AMI SERVICE REQUIRED
ENCLOSURE 77X37X24



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MVE, INC.
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BORDER VALLEY TRADING CO.
LNG FUELING FACILITY
PALM SPRINGS, CALIFORNIA

PROPOSED PROJECT DESCRIPTION

THE USE OF NATURAL GAS AS A MOTOR FUEL

EXECUTIVE SUMMARY

Clean-burning natural gas as a replacement for diesel fuel in trucks using the I-10 corridor between Los Angeles and Phoenix has been long-advocated by the regional air districts and local governments. The ports of Los Angeles and Long Beach have restricted the use of many diesel trucks because of dirty emissions.

Border Valley Trading (BVT) is a Brawley-based grower and exporter of animal feed. In the past year, BVT has converted much of its fleet of long-haul trucks to liquefied natural gas (LNG). This conversion was predicated on being able to obtain LNG fuel at the SunLine fueling facility in Thousand Palms. Suddenly and unexpectedly, SunLine closed their LNG fueling service leaving no other fueling alternative east of Redlands, a distance too far from Brawley to operate.

To fill this void, BVT desires to design and construct an LNG fueling facility on land it owns near the intersection of Indian Canyon and the I-10 freeway. Initially (Phase I), they propose to install a temporary fueler, known as a QRS, for their exclusive use while design and construction of a permanent LNG fueling facility are underway. The QRS is a portable, skid mounted unit and can be installed on an engineered concrete pad in a matter of a few weeks. The completion of the permanent station (Phase II) could take a year to 15 months. When the permanent station is completed and operational, the QRS will be removed from the site.

The permanent station will consist of a 15,000-gallon bulk LNG storage tank, pumps and controls, and LNG dispensers. The permanent facility will be open to the public for retail sales of LNG in addition to servicing BVT vehicles. The permanent station will be designed and built to all applicable codes and standards and will be fully permitted by the Palm Springs Planning Department and others as needed.

The following describes both phases of the project in technical and developmental detail.

INTRODUCTION

Border Valley Trading Co. (BVT) whose offices are located in Brawley, California has converted most of their fleet of overland cargo haulers from diesel fuel to liquefied natural gas (LNG). Similarly, Hayday Farms, located in Blythe has also converted many of its vehicles to LNG. The remainder of the fleets will be converted within the next few months. This conversion has been in response to regulations and directives for vehicles operating in the Southern California air districts

and by the ports of Los Angeles and Long Beach. BVT desires to develop a permanent LNG station in the Coachella Valley for fueling of its LNG vehicles as well as other LNG vehicles that use the I-10 corridor between Phoenix and Los Angeles.

The early conversion of the diesel fleets to LNG was largely predicated on the availability of LNG fuel at the SunLine facility in 1000 Palms. Suddenly, in November 2008, Clean Energy, owner of the LNG fueling component at the SunLine yard, unexpectedly closed the LNG facility and removed all of their equipment. This action effectively removed all LNG fueling from the Coachella Valley with the exception of a small privately-operated facility at the Burrtec yard in Palm Desert. Thus both the Hayday and BVT have struggled to keep their LNG trucks on the Road

LNG fuel is available in the port areas and at a few locations along the I-10 corridor as far east as Redlands. There are no other LNG fueling facilities east of Redlands meaning that the Hayday and BVT trucks need to make the trip from Redlands to their respective home yards and back to Redlands. This has resulted in numerous rigs, particularly those from Brawley (a greater round-trip distance from Redlands than Blythe) running out of fuel when driving conditions are adverse. On some occasions, the drivers have dropped their loads and taken the tractor to Redlands to be fueled then return to pick up the load. The alternative has been costly towing of the rigs to Redlands for fueling.

To provide a solution to this problem, BVT intends to construct its own LNG fueling facility in the Coachella Valley. To reach this end, BVT has entered into a purchase agreement for a strategically located property situated in the City of Palm Springs, identified by APN 666-330-064. This property is located at the southwest corner of the intersection of Indian Canyon and the I-10 freeway.

The project will have two phases: the first involves the installation of a temporary, portable LNG fueling unit known as a QRS (Quick Response Station) to permit the fueling of vehicles immediately. The second phase, which will run concurrently, will entail the design and construction of a permanent LNG fueling facility incorporating an LNG storage tank, LNG dispensers, and other components needed for a fully-integrated station. Development of a permanent fueling facility on this site is expected to take many months, while the QRS can be installed and operational within several weeks. When the permanent station is operational, it is proposed to eliminate the QRS from service and remove it from the site.

The following paragraphs describe the various elements of the project

SITE SELECTION

As mentioned above, there are no other LNG fueling facilities available in the Coachella Valley. The location of the proposed site was selected because of its strategic location within the Coachella Valley area. The typical range of the BVT and Hayday trucks is about 275 to 300 miles depending upon driving conditions. From Redlands, Brawley is about 140 miles (280 miles round trip) meaning that trucks are always in danger of running out of fuel. The distance from Redlands to Blythe is more than 300 miles round trip and cannot be made without interim refueling. Both firms have installed temporary portable LNG fueling facilities in their yards which allows for an interim top-off to provide enough range. These are expensive to operate and do not provide enough fuel storage to allow for more than enough fuel to ensure that the vehicles can make it to Redlands.

By locating the fueling station at the site selected, trucks from both firms are able to obtain a full fill permitting them to drive to and from the ports (about 225 miles round trip) and also fill to permit a round trip to their respective locations (200 miles round trip to Brawley; 240 miles round trip to Blythe). Locating farther east or west along the I-10 corridor (for example Indio or Banning) is too far from the center point of the drives and is not acceptable.

Locating the fueling station on the I-10 corridor is essential. If too far from the freeway, access becomes more difficult. Further, it is intended to provide public access to the permanent station as part of the overall Interstate Clean Transportation Corridor (ICTC) concept of a series of LNG stations between Los Angeles and Phoenix on I-10.

The site selected is zoned for vehicle fueling and has excellent access to the freeway. Access will be further improved after the construction of the interchange improvements which are set to begin in August 2010.

A site parcel map, aerial photos, and property descriptions are attached.

PHASE I – QUICK RESPONSE STATION (QRS)

The following paragraphs present specific information about the QRS selected for this project. The unit is owned by Hayday and is currently in storage in Blythe. Including the development of site improvements, it can be installed in a matter of a few weeks. This will provide immediate relief to the fueling difficulties now experienced.

QRS-6000 – Overall Description

The temporary unit selected for temporary use while the permanent station is being designed, permitted and constructed is a skid-mounted LNG fueler, known as a QRS-6000. The QRS-6000 consists of a welded steel skid on which is mounted a double-walled cryogenic tank having a nominal LNG capacity of approximately 6,000 gallons. Other major equipment on the self-contained unit includes pumps, valving, vaporizers, gauges and controls, and other equipment used to dispense LNG directly to vehicles. Additional equipment includes a methane detection device, emergency stop devices, and lighting. Although the LNG skid and equipment are completely self-contained, it does require 480V power to operate the pumps on the unit. A source of compressed instrument air is also needed. Specific details of the unit's sub-systems are presented below.

As part of Phase I of the project, it is proposed to install the QRS-6000 skid as a temporary installation in accordance with Fire Department and Building Department regulations. Once placed, the QRS-6000 skid will not be moved until the permanent station is operational. The QRS-6000 will be periodically filled with LNG from a licensed over-the-road DOT tanker truck provided by either Applied LNG Technologies (ALT) or Clean Energy (CE). The frequency of LNG deliveries is expected that to be on the order of three to four times per week depending upon the use of LNG by the Hayday and BVT fleets. The refueling tanker has a nominal capacity of 10,000 gallons, and partial loads may be provided to the QRS-6000. Trained personnel will perform offloading of LNG into the QRS-6000. One of the attached photographs shows the tanker in position to off load LNG into the QRS-6000.

The use of the QRS-6000 is a temporary measure to allow for design, permitting, and construction of a permanent LNG station in the Coachella Valley area. It is expected that the permanent station could be up and running in 18-24 months, meaning that the QRS-6000 will be in use until about the end of 2011. At that time it will be removed from the site.

QRS-6000 – Design Details

The QRS-6000 is a self-contained unit requiring only a source of 240/480V electrical power and a source of compressed instrument air. Electrical power will be provided from a new electrical service, including a new transformer that will be developed on the site. The QRS-6000 is fitted with a quick-disconnection apparatus, essentially a "plug in". The new electrical service and switchboard will be located outside of the electrical exclusion zone; power will be routed to the QRS-6000 through sealed underground conduits. Instrument air from an auxiliary compressor, also located outside of the electrical exclusion zone and connected by underground piping, will be used to operate valves on the system. The QRS-6000 skid will be permanently grounded, this being accomplished with two ground rods.

Although the QRS-6000 is portable (it is skid mounted), the unit will be permanently installed in a dedicated location by bolting down to an engineered concrete foundation. The unit will be fitted with appropriate safety, security, and emergency measures. All on-board electrical equipment is either explosion proof or intrinsically safe.

The tank on the QRS-6000 is double-walled and vacuum-insulated and specifically designed for the storage of cryogenic liquids. It is fitted with safety vents and controls.

The QRS is fitted with a single LNG transfer pump located on the unit. The LNG pump is manually operated by trained operators. Once the dispensing nozzle is connected to the receiving vehicle, the pump is activated. The pump can transfer fuel at a maximum rate of about 40 gallons per minute.

The QRS-6000 is fitted with a methane detector located above the primary LNG transfer pump at the dispensing end of the unit. When the device detects methane in concentrations greater than 25% of the lower explosive limit (LEL), all electrical components are disabled, and all valves automatically default to the closed position.

Emergency stop devices (ESD) will be provided at appropriate locations at the site. Push off/pull to reset buttons are located at the rear of the QRS-6000 and at the remotely located electrical switchboard. When activated, the ESD shuts off all power to the unit. All valves are automatically closed by air pressure.

QRS-6000 – Installation and Operation

It is proposed to install the QRS-6000 on a reinforced concrete slab at the designated location on the property. Installation of the QRS-6000 including site development, security, safety, and other elements of the project will in accordance with the requirements of *National Fire Prevention Association (NFPA) 52 – Vehicular Fuel Systems Code (2010 Edition).* These include the hazardous exclusion zones as required by *NFPA 52*, spill containment, signage, lighting, emergency stops, fire extinguishers, and crash protection.

The primary tank on the QRS-6000 is fitted with an external welded steel containment vessel capable of containing the entire contents of the tank in the event of a catastrophic failure of the double-walled tank. This containment complies with the requirements of *NFPA 52, Section 12.2.3.5.1.* A separate containment berm will be constructed around the fueling end of the QRS-6000 to contain possible LNG spills that might occur during fueling or transfer operations. This berm will be sized and designed in accordance with *NFPA 52 Section 12.2.3.3.*

A concrete drive slab will be constructed adjacent to the QRS to be used by both the filling tanker truck and vehicles to be filled. The area around the QRS-6000 will be provided with fencing equipped with lockable, manually operated rolling gates. The QRS-6000 will be provided with crash protection in the form of K-rail barriers and/or bollards. Appropriate signage will be provided on the QRS itself and on the security fencing as required by code.

Two 20B fire extinguishers are mounted on the QRS-6000 itself. It is proposed to locate another near the facility control panel.

LNG-fueled vehicles will be filled directly from the QRS-6000 using the on-board transfer pump. The LNG tractors will be driven to the QRS-6000 where they will be fueled by trained fuelers employed by BVT. The LNG tractors are expected to each consume approximately 90 to 100 gallons of LNG each operating day. These units will be operated six days per week. Fuelers will utilize electronic card readers to gain access to the facility.

It is expected that the facility will be in use about 18 hours per day (about 6AM until midnight). Traffic during that time will be on an irregular basis resulting in probably no more than four or five vehicles during any one-hour period. Refueling cycle time (arrival to departure) is about 10 minutes per vehicle. QRS tank filling takes about one hour.

Adequate lighting will be provided in addition to the lights on the QRS-6000 itself for use during the hours of darkness. These auxiliary lights will be mounted on standards at the corners of the security fencing. They will be located outside of the hazardous electrical zone as defined in *NFPA 52 Table 12.2.2.4.* These lights will be controlled with photo sensors and will double as security lights for the facility when not in use. The lighting will conform to City of Palm Springs requirements to keep lighting contained to the site.

BVT will be responsible for all insurance and administrative elements of this project. BVT will contract for all routine and emergency maintenance and repairs to the QRS-6000. This will include work required for the LNG storage vessel, dispensing equipment, and emergency systems on the QRS-6000. Emergency Contact information will be posted at the fueling area and at the site entry.

Certain other features will be designed into the development of the QRS facility. In general, these will be constructed in such a manner as to be used for the permanent station. This includes the installation of a new electrical transformer of sufficient capacity to service both the QRS and the permanent electrical equipment. An electrical control panel will be similarly included.

Certain signage will be provided including both informational and safety signs. Informational signs located out of the fueling area, for example those used to identify the station, will be designed and installed in accordance with Palm Springs Planning Department directives.

Drive surfaces on the site will include concrete pads, and both asphalt paving and gravel. These will be designed and constructed so as to be suitable for both the temporary and permanent stations.

It is proposed to provide porta-potties during the operation of the QRS and during construction of the permanent facilities. Permanent restroom facilities will be installed as part of the permanent station.

PHASE II – PERMANENT STATION

A permanent LNG fueling station will be designed and installed as quickly as permitting, funding, and equipment delivery will allow. It is anticipated that this could take as long as two years, but because the design is very standard and the property not encumbered with difficult permitting or construction obstacles, it is more likely that the station can be installed within 12 to 15 months. The actual construction period, after long-term equipment is available for delivery, will be about three to four months. The following paragraphs describe the characteristics of the permanent station.

Permanent Station – Overall Description

The proposed permanent LNG fueling station will be of industry standard design and will incorporate standard equipment and infrastructure. The station will not incorporate liquefied to compressed natural gas (LCNG) components because there are several compressed natural gas (CNG) fueling facilities in the area.

The basic equipment includes as nominal 15,000-gallon cryogenic LNG storage tank, offloading pumps, a conditioning vaporizer, dispensing pumps, piping, LNG dispensers, and controls.

LNG Storage Tank. The LNG storage tank is a double-walled, thermally insulated tank. The inner tank is constructed of specialized cryogenic stainless steel while the outer tank is made from mild steel. The interstitial space between the two tanks is thermally-insulated using perlite (an inert naturally-occurring siliceous mineral) or a vacuum, depending upon the design selected. Generally, vacuum-insulated tanks are preferred. Thus the LNG tank can be considered as a large "Thermos" bottle. Typically a tank is between 12 and 15 feet in diameter and 35 to 45 feet high. They are manufactured in accordance with strict ASTM standards.

The LNG tank will be vertically-mounted in a containment structure designed to contain the entire volume of the tank in the event of a catastrophic spill or rupture of the tank. This is in accordance with the requirements of *NFPA 52*. The tank is fitted with mounting legs to permit connections to the bottom and with connections and vents. It will be installed on an engineered concrete foundation designed in accordance with all applicable codes and ordinances.

The exterior of the tank will be painted and may incorporate signage or a design, depending upon the conditions of approval.

Pumps. Two types of pumps are employed in the LNG fueling system. The first are used to transfer LNG from the delivery tanker truck to the storage tank; the second are used to supply LNG to the LNG dispensers. All pumps are designed and constructed for use with cryogenic liquids and usually include submerged suction to reduce cool-down times and to minimize heat introduction into the system. They are driven with explosion-proof electric motors and are often fitted with variable speed drives. Pump capacity varies depending upon the use, but generally the offload pumps will have a

capacity of about 120 gpm, while the dispensing pumps will be sized to allow a nominal 40 gpm flow rate. All pumps will be mounted on dedicated pump skids and equipped with necessary valves, safety connections, and monitors. Pumps are located adjacent to the LNG storage tank within the containment area.

If selected during the design, a multi-purpose pump that will provide offload capability and dispensing may be installed. This design is less flexible that using separate pumps, but is often used in stations that require relatively low fueling rates.

Vaporizer. A vaporizer is used in the LNG fueling system to provide added pressure to the LNG tank. When a new delivery of fuel is received, it is often much colder than the residual fuel in the LNG storage tank, and because of this will lower the internal pressure of the tank by cooling (thus reducing the vapor pressure) of the liquid in the tank. Optimal operation of the fueling system requires a prescribed nominal operating pressure in the tank and the vaporizer is used to develop that pressure.

Cold LNG is pumped through the vaporizer which consists of fin-tube piping exposed to the atmosphere. As the LNG passes through the vaporizer, its temperature is raised. This LNG is then returned to the LNG storage tank to raise the temperature and hence the pressure within the tank incrementally in accordance with the desired tank requirements. The vaporizer has no moving parts, and is installed adjacent to the LNG storage tank within the tank containment area.

Vacuum-Jacketed Piping. All piping connecting the system tank, pumps, and dispensers is double walled piping with an interstitial vacuum for insulation (VJ piping). The exception is the piping connecting the vaporizer as this flow is intended to absorb heat. VJ Piping is constructed from alloy steel suitable for the purpose. Valves and other fittings within the VJ piping may be mechanically insulated.

LNG Dispensers. Two types of LNG dispensers will be used for this project. Essentially they are identical, but one will be rated by the California Department of Agriculture as Weights and Measures certified for retail fuel sales. The other dispenser will be used solely for fueling BVT or Hayday vehicles. The units will be mounted on the side of the containment structure.
The LNG dispensers look very similar to a typical gasoline dispenser. They incorporate a cabinet with an electronic readout indicating gallons of fuel dispensed. The hose that connects to the vehicle to be fueled is a flexible insulated hose and is equipped with a breakaway design to prevent LNG release in the event of a "drive off". It incorporates a standard filling nozzle that securely locks to the vehicle being fueled during transfer of LNG. Each dispenser will have a "dummy" fueling receptacle to "park" the LNG fueling nozzle during periods of non-use.

Controls. The entire LNG fueling station is equipped with an array of operating and safety controls. The heart of the operating system is a programmable logic controller (PLC) used to monitor and control essentially all of the functions of the system. This includes temperature, pressures, flow rates, emergency conditions, and other operating variables. The PLC controller is connected by modem to operating personnel who can constantly check existing operating conditions as well as historical conditions. The PLC utilizes variable set points throughout the system that will adjust conditions, alert operating personnel, if needed, shut down the entire system.

The overall system employs several automatic safety devices. These are provided in accordance with *NFPA 52* and other codes and ordinances. A number of emergency stop devices (ESD) are incorporated at various places within the installation including at each dispenser, within and around the containment area, and at a remote location. In addition, fire-eyes are used to detect flame. These devices if activated, in conjunction with the operating controls, will immediately shut down all electrical systems, and cause all valves to close. The ESD will require a manual reset before the system operation can be restored. If the fire-eyes are activated, the fire department will automatically be summoned. In any case, the operations supervisor will be automatically alerted by modem. .

Access to the fueling facility will be by card reader. Authorized, non-public users will gain access using a proprietary authorization card that will activate the non-weights and measures dispenser. Public access users will be able to use a standard credit card such as Visa or MasterCard to gain access. Such users will have to enter a code that confirms that they are trained to operate the fueling equipment.

Utilities. The permanent station will require only the connection of 480-volt electrical power and a telephone interface for remote monitoring and emergency call out.

PROJECT DEVELOPMENT

The proposed project will be developed in two phases. The first will include all non-operational elements including grading and drainage, storm water retention, walls and fencing, landscaping, paving, lighting, utility connections, and signage. Phase I will also include the installation and commissioning of the QRS. Phase II will consist of the design and installation of the permanent LNG fueling station, restroom facilities, and, removal of the QRS.

A conceptual site layout for the two phases is presented as Figure A. This layout shows the location of the two fueling facilities: the QRS and the permanent station. It is proposed to immediately install the QRS on the engineering concrete pad as shown. Facilities constructed for Phase I such as lighting, fencing, walls, signage, etc. will, as much as is possible, be designed for continued use during Phase II.

Phase I Development

Prior to construction of improvements on the site, grading as needed will be conducted so as to provide level surfaces for the installation of the concrete equipment pads. This grading will also provide for site drainage. Cut and/or fill may be needed depending upon the results of a site survey. It is proposed to provide a storm water retention pond on the property as shown on the preliminary site layout. This area will contain calculated amounts of potential runoff as will be required by the permitting agencies.

Electrical connections to the site will be provided from the power distribution lines on the south side of Garnet Avenue. Power will be routed in a trench under Garnet Avenue and will daylight at a new concrete electrical equipment pad. The pad will be used to mount a transformer, a switch panel, and the system control panel. This equipment will be used, as much as possible to service both the QRS and, ultimately, the permanent station. Underground conduit stub-ups will be directed from the

electrical pad to the locations needed for both systems. Those needed for the permanent station will be capped until needed for installation of that facility.

An engineered concrete foundation will be provided for mounting the QRS. Because the QRS skid incorporates an integral containment capability, supplementary containment for the QRS will not be required, only a small contained area to contain spills that may occur during transfer or fueling operations as required by *NFPA 52*. A concrete drive pad will be constructed adjacent to the QRS for vehicles using the facility. It is on this pad that the spill containment area will be provided.

Engineered asphalt drive aprons will be provided to permit access from Garnet Avenue. These will be of sufficient width to accommodate the vehicles entering and exiting the site with minimum impact to other traffic on Garnet Avenue.

As shown on the proposed site layout, a concrete block wall will be erected on the south side of the QRS and the electrical equipment pads to shield this equipment from view from Garnet Avenue. This wall will also serve as the mounting point for security gates that will be installed. Security fencing will be installed to form the boundaries of the equipment enclosure.

Security and operation lights will be installed for nighttime operations around the QRS. Electrical stub ups for additional lighting required during Phase II will be provided.

Because the facility will not be open to the public during Phase I, restroom facilities will not be provided. During Phase II, however, permanent restroom facilities will be provided and will be constructed on the concrete pad used by the QRS during Phase I. Appropriate plumbing connections and provision for hookup to the proposed drain field or pit will be incorporated into the QRS pad design.

Modest landscaping of the site is proposed. This will consist of the use of drought and wind tolerant plants and extensive reliance on rocks, boulders and gravels.

Phase II Development

It is intended to keep the QRS fully operational during the construction of Phase II facilities. The proposed layout has been designed to allow of sufficient separation between the two units that construction activities will not be impeded nor will fueling at the QRS. Many of the improvements required for Phase II will have been incorporated into the construction during Phase I. This includes grading and soil compaction needed for the LNG tank and containment structure.

Construction of the Phase II improvements will include the containment structure used to hold the LNG storage tank and equipment (pumps, vaporizer, etc.). The structure will consist of an engineered concrete foundation and tank support structure. Concrete housekeeping pads will be used to mount the auxiliary equipment. The containment itself will be constructed of concrete masonry units that will provide sufficient volume to contain the contents of the tank in the event of a catastrophic tank failure. Although only a single tank is proposed at this time, provision in the form of provided volume and a second foundation will be included for the possible future addition of a second tank.

Following the civil construction of the tank pad and containment, the equipment will be installed and connected both mechanically and electrically.

Additional paving and the construction of a second concrete drive pad will be part of Phase II to accommodate vehicles on the north side of the containment and equipment area. Additional lighting will also be provided for operations and security.

PERMITTING

Permitting for the proposed facilities will consist of application for a conditional use permit (CUP) for the site, and all building and fire permits required. Following granting of the CUP, including any required provisions, design drawings initially for Phase I will be prepared and submitted to the appropriate permitting agencies. For this project, these agencies will be the Palm Springs Building Department and the Palm Springs Fire Department. The former will review the grading and drainage plans, and the civil, structural, electrical, and mechanical sheets. The latter will examine the plans for compliance with fire regulations, most notably *NFPA 52*. Where facilities are proposed to serve both phases (grading, electrical, fencing, etc.) these will be fully designed during Phase I.

Once Phase I is in construction and funding for Phase II has been secured, design and engineering for Phase II will commence. All drawings developed for this work will likewise be submitted for review and approval by the appropriate permitting agencies.

Field inspections and final project acceptance by the agencies for both phases will be required prior to start-up.

FLEETS SERVED

Initially, when only the QRS will be in operation, it will be used exclusively by the Hayday Farms and BVT fleets. Together these fleets now employ about 40 LNG trucks. This number may grow to about 50 after the QRS is in operation and before the permanent station has been commissioned. These trucks will fuel at the QRS station at random times during the day depending upon each truck's schedule. It is anticipated that not more than four or five vehicles will need to access the site during any given hour.

Following completion of the permanent station, it is anticipated that the usage will perhaps ultimately double because the station will be open to public users. Thus as many as 10 trucks per hour may need to use the permanent facility. It has been designed, however, so that these trucks can queue within the property rather than on Garnet Avenue.

PROJECT FUNDING

The overall proposed budget for this project is approximately $2.6 million. Of this approximately $250,000 represent land acquisition costs. In addition approximately $1 million has been identified as likely grants from public agencies including the California Energy Commission and the MSRC. BVT proposes to fund the remainder of the station costs.

PROJECT SCHEDULE

Figure B shows the important elements of the overall schedule describe below.

Depending upon the timing of funding being available for the project, the overall development schedule for the entire project, QRS and the permanent station, is expected to be about 14 months. The CUP process has already begun and is expected to take up to four months. Following, both the QRS and the permanent facilities construction plans will be finalized and submitted to the appropriate permitting agencies for review and approval.

Because of the simplicity of the QRS installation and the fact that standardized plans have already been completed, it is anticipated that the plans for this can be submitted within two or three weeks. Construction would begin immediately plans have been approved and will take approximately six weeks.

It will be necessary to solicit and accept proposals for the design and construction of the permanent station. This process, which will be initiated immediately, may take several weeks followed by the actual design of the facility. Design may take eight weeks. Construction of the permanent facility including will depend somewhat on the delivery of specialized equipment (most notably the LNG storage tank) and could about 30 weeks following the approval to begin construction although actual field construction will be about four months.

When the permanent station is operational, the QRS will be decommissioned and removed from the site.

Natural Gas Fueling Primer

Introduction

Natural gas (methane – CH_4), in both compressed and liquefied forms has become the most popular alternate fuel technology for many fleet operators, both large and small. (Hydrogen is another alternative fuel, but has not yet been popularly accepted). Natural gas powered vehicles are the predominant technology of choice for heavy-duty alternative fuel vehicle operators, and thus, the technology most widely available from vehicle and fuel station infrastructure suppliers. Natural gas-fueled vehicles provide similar power, torque and fuel range as conventionally-fueled vehicles, while providing significantly improved emissions benefits.

Natural gas exists in two forms as a vehicle fuel: compressed natural gas (CNG), which is natural gas compressed to pressures up to 3,600 psi, and liquefied natural gas (LNG), which is natural gas that has been cooled to a temperatures below minus 260 degrees Fahrenheit, converting it into a transportable liquid form. The type of fuel storage system on board the vehicle is only a function of carrying capacity. Whether stored on the vehicle as CNG or LNG, by the time the natural gas is burned in the engine, it has been converted to a low-pressure gaseous fuel.

In recent years, there has been a strong push to convert diesel or gasoline (conventional fuel) vehicles to either LNG or CNG primarily because natural gas burns much cleaner and substantially reduces the emission of harmful smog-forming exhaust gases and essentially eliminates the emission of particulate matter. In Southern California, the local air districts have mandated reduction in these emissions; the ports of Los Angeles and Long Beach have restricted the entry of vehicles that do not meet specific emission requirements or are powered by alternative fuels. Accordingly, the number of natural gas powered vehicles in the region has increased dramatically.

Natural gas is abundant in the United States and Canada and its use as a motor fuel is capable of greatly reducing the demand for imported oil for conventional fuels.

CNG vs. LNG

Generally, CNG is used in vehicle applications where there is greater flexibility with regard to weight, range and on-board tank storage issues. To hold the CNG, which is compressed to 3,600 psi, the on-board fuel tanks are high-pressure CNG storage containers. Often, multiple CNG storage tanks are required on a vehicle in order to provide sufficient on-board fuel capacity for a day's work. Medium- and heavy-duty vehicles equipped with multiple CNG storage tanks have an equivalent fuel capacity around 20 to 30 diesel gallons equivalents (DGE). In addition to requiring several locations on the vehicle for the mounting of these tanks, these multiple storage tanks can add up to approximately 2,000 pounds to the overall weight of the vehicle.

On a volume basis, LNG contains far more energy per gallon of storage capacity than CNG. Because of this greater storage density, LNG is typically the preferred form for vehicles with higher fuel demands. LNG fuel storage systems are ideal for vehicles with limited space for on-board fuel tanks, in applications that are weight sensitive, or for vehicles that have high daily fuel needs. On-board LNG fuel storage tanks are double-walled vacuum insulated vessels which are designed to maintain the LNG at temperatures below 250^{O}F without the need for active refrigeration. LNG tanks are essentially high-tech thermos bottles specifically designed for cryogenic natural gas. Typically a single LNG fuel storage tank can hold the equivalent of at least 50 gallons of diesel fuel while only adding a few hundred pounds to the overall weight of the vehicle. This single tank requires only a slightly larger space on the vehicle than does a typical 50- to 100-gallon diesel tank.

Natural Gas Vehicle Fueling Stations

While both are used to store and dispense natural gas vehicle fuel, LNG and CNG refueling station technologies are actually quite different from one another. Both have their advantages and disadvantages. In a general sense, CNG fueling stations are more common in light- and medium-duty vehicle applications, while LNG fueling stations more often serve medium- and heavy-duty vehicle applications. There are, of course, many exceptions to this rule, particularly in transit applications or for specialized fleets such as refuse collection trucks or street sweepers.

CNG fuel stations are high-pressure systems that receive gas from the local utility pipeline network (such as Southern California Gas Company). The pipeline gas is then compressed in large motor-driven compressors with motors generally between 125 horsepower and 500 horsepower. The gas is compressed and stored in high-pressure vessels (either tubes or spheres) at pressures up to 5,000 psi. The on-site high-pressure CNG storage capacity in a CNG station is typically between 100 to 300 useable diesel equivalent gallons (DGE).

The stored, high-pressure gas is metered through a CNG dispenser into the using vehicles. For a "fast fill" fueling operation (i.e. similar to the way traditional diesel and gasoline are fueled) the gas is reduced in pressure to that required by the vehicles, generally about 3,600 psi. Fast fill CNG stations are typically designed in to fill a typical vehicle in about five to ten minutes. By maintaining a large volume of high-pressure gas, it is possible to effect the rapid transfer of CNG fuel to vehicles without the use of the compressor. When the pressure of the on-site storage capacity is reduced, it is possible to fuel directly from the CNG compressor. After filling, the compressor will continue to run refilling the storage vessels.

CNG fuel systems also have the capability to provide time-filling of vehicles while they are parked overnight. A time fill operation allows for a vehicle, or a fleet of vehicles, to be "plugged in" to a CNG fueling hose to refuel over a set period of time (typically over night). While "plugged in" a smaller CNG compressor will dispense fuel to the vehicle(s) at a slow rate in order that the on-board CNG storage tank is full in the morning (or at the end of a set period of time). A time fill refueling station can provide significant labor saving costs over a large fleet as operators are not required to

wait the few minutes it is required to fast fill a vehicle. Instead, they simply park the vehicle, attach the fueling hose, and return when the vehicle is full. Typical time-filling may take several hours.

LNG fuel stations are liquid-based systems that use large bulk cryogenic storage tanks (again, big thermos bottles) to store fuel on site. LNG is delivered to the site from the point of production by large (up to 10,000-gallon capacity) tanker trucks much like conventional fuel is delivered to traditional fueling stations with large underground or aboveground storage tanks. From the bulk storage tanks, the LNG fuel is then dispensed to vehicles, as required, through specialized cryogenic liquid pumps and LNG fuel dispensers. Fuel is dispensed into vehicle on-board fuel tanks as a liquid in a fast-fill application, generally at rates of about 25 gallons of LNG per minute (equivalent to approximately 15 diesel gallons per minute).

As there is no active refrigeration within an LNG refueling station, the thermal efficiency of the double-walled vacuum insulated storage tanks used to contain the fuel is relied upon to keep the LNG from warming too quickly. While these storage systems are very efficient at keeping the cold in and the heat out, they cannot completely stop the LNG fuel inside the tank from gradually warming. As this LNG warms, it transitions from a liquid state back to its natural vapor state. This transition occurs at the fuel's boiling point. The boiling of LNG takes place in exactly the same fashion as boiling water; the only difference is that ambient temperatures are sufficient to cause the cryogenic liquid to reach a boiling state.

As LNG inside of a storage tank boils, the vapor pressure inside of the LNG storage tank will increase. Ultimately, if the pressure becomes too great, a safety relief valve will activate and the pressure will be allowed to escape. Of course, it is not just pressure that is allowed to escape to the atmosphere, but fuel.

Because LNG fuel will achieve a boiling state when stored and used as a vehicle fuel, it is generally required that a fueling station have a minimum daily fuel throughput of at least 800 LNG gallons. This is to ensure that the boil off (i.e. the portion of the fuel that returns to a vapor state) does not cause fuel venting due to increased pressures within the storage tank. With the use of 800 gallons or more of LNG per day, bulk loads of LNG will be delivered to the station at least every two weeks. These bulk deliveries of fresh and "cold" LNG tend to collapse vapors that build up inside the storage tank back to liquid fuel. More frequent deliveries reduce overall boil off and help to eliminate fuel venting. Because of the need to "use or lose the fuel," LNG fuel dispensing and vehicle systems are generally used in applications with high daily fuel demands and throughputs. Further, when planning to develop an LNG refueling facility, one must consider building up a "critical mass" of LNG fleet vehicles in order to achieve the minimum 800 gallons per day throughput needed to eliminate the threat of losing fuel to boil off and venting. Although there are no requirements prohibiting the practice of venting, not only does this lost fuel cost money, but natural gas is a powerful greenhouse gas that should not be vented to the atmosphere if it can be prevented.

LNG fuel systems may have the added advantage of being able to supply compressed, from liquefied natural gas, better known as LCNG, to fleet vehicles. LCNG is produced by compressing the liquid fuel and vaporizing it at a high pressure. The LCNG pumps used to compress the liquid fuel utilize small electric motors (25 – 50 horsepower) and very few moving parts. The advantage therefore offered by LCNG, when compared with traditional CNG, is that the compressed gas (i.e. the CNG) can be produced with significantly lower energy requirements when compared with a traditional CNG compressor that may require several hundred horsepower to produce the same goal quantity of CNG.

While LNG is typically more expensive than natural gas delivered in a pipeline, the long term benefits offered by LCNG systems are generally thought to outweigh the cost savings offered by pipeline natural gas. In particular, this system is possible for fueling stations located where no natural gas pipelines exist.

The flexibility offered by starting with an LNG fueling station and having the capability to add LCNG fueling is particularly important for vehicle deployment planning as it offers two options for the on-board fuel storage systems of any heavy-duty trucks that may need to fuel at the station. CNG can be provided for vehicle fueling from an LNG refueling station, whereas LNG cannot be provided for vehicle fueling station when starting with a traditional CNG refueling station.

Fueling of CNG and LNG vehicles from natural gas fueling stations is very similar to traditional fuels. Both employ the use of a fueling hose and nozzle attached to a typical dispenser and card reading system. The specialized nozzles are connected to the vehicle. Fueling times are also about the same; between three to 10-minutes depending on the size of the vehicle and amount of fuel required to be dispensed. Due to the cryogenic nature of the LNG fuel, each fueler is required to receive training and wear basic personal protective equipment in order that any leaking or splashed LNG does not come in contact with their skin. This protective equipment includes a basic face shield, a cryogenic apron and cryogenic gloves. Each LNG refueling station will typically maintain several sets of this personal protective gear on site.

The design and sizing of both CNG and LNG refueling stations is very dependent upon site specific conditions; the size, fuel demands and fueling windows of the fleet to be served, and the required energy inputs and operational preferences for each facility. It is important that stations not be undersized as inefficiencies will result within the fleet operation. At the same time, it is important not to oversize fueling station as boil-off and venting of fuel will occur with LNG stations and inefficient operations will result with CNG stations (i.e. constant stopping and starting of compressors, high energy bills, and high maintenance costs).