



Central Valley Gas Storage LLC
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June 24, 2016

Mr. Kenneth Bruno, Program Manager
Gas Safety and Reliability Branch
Safety and Enforcement Division (SED)
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Regarding: General Order 112 Gas Inspection of Central Valley Gas Storage
(GI-2016-01-CVS-01B & 06) Letter issued May 27, 2016

Dear Mr. Bruno:

Central Valley Gas Storage, LLC (CVGS) continues to place the safety of the public and its workforce as its top priority and endeavors to operate and maintain its gas pipeline facilities at standards that meet or exceed the requirements of California Public Utilities Commission General Order (GO) 112. Our management team at CVGS values the SED inspection process as an opportunity to improve our practices and records with the benefit of your findings and recommendations, and we appreciated being able to interact with your SED auditors during the January 2016 inspection of CVGS.

We have carefully reviewed the Summary of Inspection Findings and respond to each of the individual items as follows, including the described enhancements to CVGS documentation.

I. 1. Title 49 Code of Federal Regulations (CFR) §192.739(a)

SED reviewed CVGS's Pressure Control Valve (PCV) records and noted that CVGS performed the inspection and testing of West Main monitor, PCV 0083 & East Main monitor, PCV 0093, on 7/11/14 and subsequently, inspected the same monitors on 11/11/15 which exceeded 15 months allowed time frame between the inspections.

Please provide SED with a copy of preventive and mitigative (P&M) measures taken to address this deficiency.

CVGS acknowledges that its 2015 inspection and testing of the referenced PCVs was at a time that exceeded the interval allowed in §192.739(a). CVGS uses an Enterprise Asset Management (EAM) system to assign and track pipeline safety compliance activities and while the work order related to the PCVs was properly assigned, it was not completed as scheduled and thus the allowed interval was exceeded by one month. CVGS has initiated two measures to facilitate timely completion of assigned compliance activities and deter further instances of this type of

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deficiency. First, CVGS held a training session for its operations staff that reinforced the importance of getting safety inspections done in the proper time frame. Attached (see Exhibit 1) is a sign-in sheet documenting staff attendance at the training session. Secondly, CVGS established a compliance work order in EAM for its Operations Manager to review open (assigned but not yet completed) pipeline safety compliance work orders each month to ensure that uncompleted activities are reviewed by the Manager before the allowed interval is exceeded. A copy of the new EAM work order is attached as Exhibit 2.

2. Title 49 CFR §192.745(a)

As part of the review of CVGS's Flow Control Valve (FCV) records, SED noted that CVGS did not inspect and partially operate Flow Control Valves (FCV) 0082, FCV 0092, and PIT 1012 once a year.

During the close out meeting, CVGS provided a copy of 2015 inspection record of PIT 1012. However, SED did not find any other records for FCVs 0082, 0092, and PIT 1012 inspections conducted since the beginning of the operation in 2012.

SED determined that CVGS must conduct inspection and testing of FCV devices 0082, 0092, and PIT 1012 once a year not exceeding 15 months as required by §§ 192.739 (a) and 192.745 (a).

Please provide SED with a copy of corrective actions and P&M measures taken to address this deficiency along with the inspection records.

FCV 0082 and FCV 0092 are flow control valves used to vary flow rates and pressures within the storage facility. Positioning signals are sent to the valves to achieve and maintain the desired set points. These FCVs are used as "operating valves"; that is, they are designated as process non-emergency valves used to facilitate normal daily operations within the facility. Designating these FCVs as operational valves does not pose a safety threat to the public, our employees, nor to the system as described below.

To satisfy the requirements of §192.745 (a), the Company had designated other valves to be used during an emergency. See Exhibit 3, titled CVGS Emergency Valve Diagram, which shows the name and location of the emergency valves. Additionally, on December 27, 2012, CVGS first submitted to the CPUC a Valve Location Plan consistent with the requirements of California Public Utilities Code §957. The current version of the CVGS Valve Location Plan is included as Exhibit 4. Both exhibits clearly identify the emergency valves subject to the annual inspection requirements of §192.745 (a).

We maintain that these operational valves were not required to be designated as emergency valves to meet the requirements of code; however, we recognize that it is good operating practice to perform periodic maintenance on these valves. As such, we have added them to our annual inspection program as "operational non-emergency valves". Inspection forms for FVC 0082 and FCV 0092 are attached as Exhibit 5 and Exhibit 6.

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With regard to the valve you refer to as PIT 1012 (which CVGS identifies as BV-1012), CVGS had not designated that valve as an emergency valve until September of 2014, when plans were made to automate the valve for remote operation from the CVGS control room. Upon its designation as an emergency valve, CVGS began inspecting PIT 1012 once a year not exceeding 15 months in accordance with § 192.745 (a) and will continue to do so.

Hopefully, this response addresses the concern raised in the audit and will allow closure of the inspection with regard to this item.

II. 1. Set point strategy for OPP devices

On January 26 & 27, 2016, SED observed CVGS personnel exercise the FCVs 0082 & 0092 in the field and also examined records of pressure set points determined for both FCVs.

SED found that pressure control monitors PCV 0083 and PCV 0093, and flow control valves FCV0082 and FCV 0092 pressure set points are the same. On the west run, FCV 0082 and PCV 0083 (downstream monitor) have been set at 1100 psig. On the east run, FCV 0092 and PCV 0093 (downstream monitor) have also been set at 1100 psig, which is the MAOP and the process shut down (PSD) pressure set point.

SED determined that the current CVGS configuration would not allow the control devices to limit pressure until it reaches the MAOP and PSD pressure of 1100 psig. Additionally, downstream control devices are typically given higher set points than the upstream set points so that in case the upstream devices do not function (i.e., FCVs 0082 & 0092 fail open), the downstream monitors would take over to prevent over pressurization before it reaches the MAOP plus the excess allowed by Part 192.201.

SED determined that CVGS needs to examine the current pressure set point strategy for its OPP devices and make adjustments to the pressure set points accordingly.

The set points for PCV 0083 and PCV 0093 have been adjusted from 1100 psig to 1122 psig. See Exhibit 7.

2. Incorrect Procedure Reference on Work Order Form

CVGS's "Valve-Overpressure Shut-In, Compliance and Inspection Work Order" form refers to Procedure 310 from the PSOM, version- 4/19/11. However, this procedure does not exist in the newer version.

CVGS should revise the work order form with valid and correct references from the current PSOM.

CVGS has revised the Work Order to reflect the proper procedure. Attached (see Exhibit 8) is a copy of the Work Order as revised.

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3. Abnormal Operations Report for 4Q 2014 Leak Repair

§192.605 (c) (4) requires that operators periodically review company personnel responses to abnormal operating conditions to determine the effectiveness of the response procedures and take corrective action where deficiencies are found.

SED reviewed CVGS's policy for investigating Abnormal Operating Conditions (AOCs) and the Abnormal Operations Reports (AORs) written according to the policy. AORs contain analysis of the type, description, and probable cause of AOC events and the remedial actions taken. Additionally, AORs specify whether the personnel response was appropriate, whether the procedures for responding to, investigating and correcting the cause of the condition were effective, and any recommended changes to improve effectiveness of procedures. SED reviewed the CVGS AORs and found that they met the intent of the code section.

However, SED is concerned that CVGS should have created an AOR for a leak event that was reported to the CPUC for the 4th quarter of 2014. SED noted that on 11/12/2014, CVGS discovered a leak at a welded nipple and collar and took corrective actions by replacing the nipple and the collar after blowing down the compressor to facilitate the repair. CVGS determined the cause of failure to be defective material. CVGS then took a preventive action to change all existing similar parts in its system to prevent similar failures. Even though SED found CVGS's corrective and preventive actions highly satisfactory, CVGS should have also created an AOR to document the findings and preventive actions taken.

SED also suggests that CVGS should consider adding a section to its AOR to describe any preventive actions planned/taken if appropriate for the type of AOC examined.

CVGS believes that it did create an AOR for the 4th quarter 2014 leak event, but the report apparently was not retained and CVGS was not able to produce the report at the time of the January 2016 inspection. Attached is an AOR (see Exhibit 9) that was re-created following the January inspection to reflect the 4th Quarter 2014 event and actions for more complete CVGS records. For documenting future events, CVGS also has modified the AOC form (see Exhibit 10) to include a description of preventive actions taken or planned to minimize future AOC's.

4. Specification of Quarterly Review

§192.605 (b)(8) requires operators to periodically review the work done by operator personnel to determine the effectiveness and adequacy of the procedures used in normal operation and maintenance and modifying the procedure when deficiencies are found.

CVGS personnel explained that CVGS has been conducting annual reviews of the performance for the last three years, and starting from 2015 AGL decided that these reviews would be done quarterly. SED also noted that CVGS has been performing these reviews for each type of procedure to make sure that employees understand the procedures and apply them correctly. SED recommends the CVGS add the new quarterly review requirement in its O&M Manual.

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CVGS has revised its O&M Manual to incorporate this recommendation. Attached (see Exhibit 11) is the revised Procedure 17.01.6 that shows "periodically" has been changed to "quarterly" review.

5. Update of O&M Plan to reflect AGL Resources Corporate Documentation

SED noted that CVGS reviewed its O&M Plan on the following dates: 11/8/13, 11/26/14, and 11/18/2015. Even though there were no changes noted as a result of the 2015 review, CVGS representatives informed SED that they were in the process of making significant changes to the plan.

Please provide us an updated version of CVGS O&M Plan once it is completed.

Currently CVGS has a third party contractor reviewing the current CVGS O&M plan against the AGL Resources Operations Procedure Manual (OPM) document that CVGS is contemplating changing to in order to ensure that the corporate documentation complies with G.O.112 requirements. Once the review is completed, CVGS will submit the OPM to the CPUC for review.

6. Anti-Drug and Alcohol Misuse Prevention Plan

SED reviewed CVGS- AGL Anti-Drug and Alcohol Misuse Prevention Plan, (Revision 11/1/2011) and found that the current Plan is missing provisions for one item required by CFR 49 Part 40.

CVGS-AGL's current written Plan does not state the time frame for which the laboratory must retain the required records. However, SED noted that CVGS's Designated Employer Representative was aware of this deficiency in the Plan and would include a statement to cover the requirement in the next Plan revision.

Please provide SED with an updated version of the Anti-Drug and Alcohol Misuse Prevention Plan and specify the section added to the plan to address the deficiency related to the record keeping requirement.

This omission has been remedied and §40.109 was included in Appendix D of the AGL Anti-Drug and Alcohol Misuse Prevention Plan for PHMSA Employees.

Appendix D - Laboratory Procedures now includes reference to §40.109 and required record retention of employee urine specimens for a minimum of two years.

Attached (see Exhibit 12) is a copy of the approved revised Appendix D. CVGS would be glad to provide the entire Anti-Drug and Alcohol Misuse Prevention Plan that includes this Appendix D revision if you would prefer to review the entire document instead.

In summary, CVGS continues to apply what it learns from its performance to improve its processes and documentation. CVGS appreciates the thorough review of its facilities and documentation by the SED

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audit team and looks forward to continuing our constructive relationship with SED in accomplishing the top priority of maintaining safe and reliable operations. We believe that the actions we have taken to address these audit findings demonstrate that CVGS continues to be responsive to safety concerns. I trust that the actions documented in this response are suitable to resolve the areas of probable violations and observations that were noted.

To the extent that the exceptions noted by SED do not immediately or significantly impact the safety of the public or the CVGS workforce, CVGS respectfully requests that GSRB consider CVGS' overall approach to safety, our level of cooperation, and our timely and thorough response in resolving exceptions, as SED determines any follow-up actions pursuant to Commission Resolution ALJ-274.

Please contact me at 630-388-2010 if you have any questions about this response or require additional information.

Sincerely,



Timothy J. Hermann
Vice President
Storage and Peaking Operations

Exhibits attached

cc: John Boehme; Kathleen Clausen; Robert Cornell; Leticia Quezada; Mark Stephens
Fred Hanes – CPUC; Banu Acimis - CPUC

Exhibit 1



FORM OM100-20 – TRAINING OR SAFETY MEETING ATTENDANCE

Date(s): 6/8/16 Trainer / Leader: Mark Stephens

Title: EAM Review • Review of ACC's • Quarterly Procedure Review

Course Title: EAM Review • Review of ACC's • Quarterly Procedure Review

Course ID: EAM Review • Review of ACC's • Quarterly Procedure Review

Handwritten notes: Not to Exceed Parameters and Open Work Orders

Table with 4 columns: Employee Name (Printed), Employee No., Code*, Signature. Rows 1-19.

*Codes: P – Present; V = Vacation; S = Sick; W = Working; I = Off work due to injury/illness

Exhibit 2

19540 (CVGS) Workorder to review status of Workorder
Released
CVGS Central Valley Gas Storage

06/08/2016
MP

MARK STEPHENS

COMPLIANCE (CVGS)
CVGS (CVGS)

Compliance and Inspection, Safety, CRM
Central Valley Gas Storage

MSTEPHENS [06/14/2016 12:28]:

Monthly Supervisor is to go through all Open/Past Due Work Orders highlighting those having to do with compliance specifically those needing to be completed every 12 months not to exceed 15 months

10 SUPV 1 1 CV-0000 Signature Page

MSTEPHENS [Jun 9, 2016 3:26:23 PM]:

Reviewed By _____

Signature _____

Date _____

Exhibit 3

CVGS

Emergency Valve Diagram

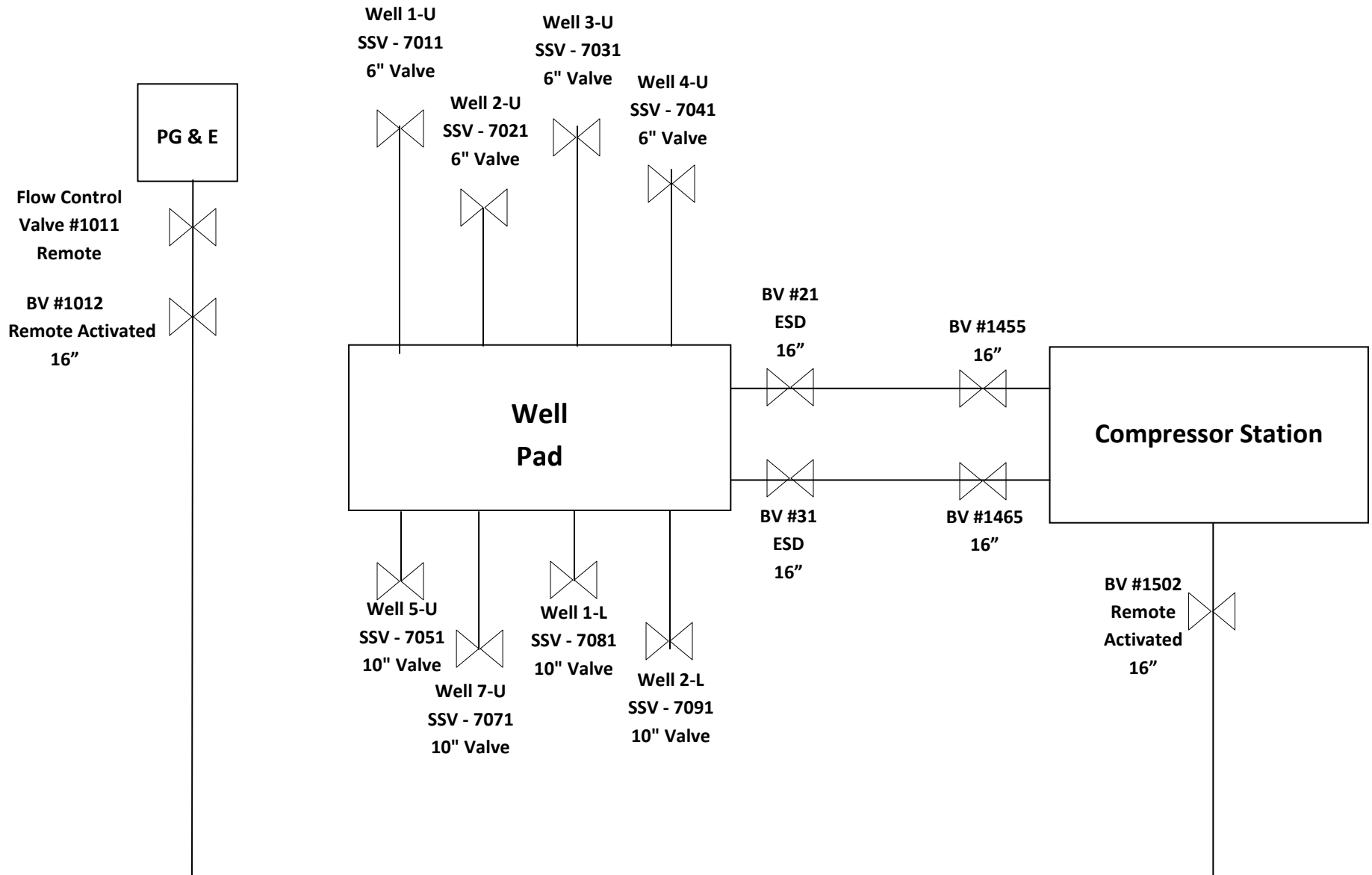


Exhibit 4



Central Valley Gas Storage

An AGL Resources Company

Valve Location Plan

December 2012 Version



CVGS Valve Location Plan

Table of Contents

- **Plan Submittal Letter – Dec 2012**
- **Record of Revisions**
- **Automated Block Valve Listing**
- **Map**
- **Valve Diagrams**
- **Segment Blow-down Calculations**
- **Integrity Management Plan Update**



Central Valley Gas Storage

An AGL Resources Company

Central Valley Gas Storage LLC
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December 27, 2012

California Public Utilities Commission
505 Van Ness Ave
San Francisco, CA 94610

Subject: Central Valley Gas Storage Valve Location Plan

In response to an e-mail received from Sunil Shori at the California Public Utilities Commission dated December 11, 2012, Central Valley Gas Storage (CVGS) hereby submits documents comprising its Valve Location Plan consistent with the requirements of California Public Utilities Code §957.

The contents of the CVGS Plan are as follows:

- An Automated Block Valve Listing of automated valves controlling every CVGS pipeline segment, including the locations (by milepoint) and the operating mode of each valve. Note that the entire CVGS pipeline system was installed after September 2010. Automated valves at either end of the CVGS 24" pipeline and both 16" gathering lines were included in the original CVGS design to facilitate line isolation for both emergency shut down and routine maintenance activities.
- A map showing the layout of the CVGS pipeline system including the length of each pipeline segment and the three locations where automated valves can isolate a CVGS pipeline segment. The map documents that the 24" pipeline from the CVGS Compressor Station is 14.6 miles (77,063 feet) in length and both of the 16" gathering lines from the CVGS Well Pad to the CVGS Compressor Station are 0.47 miles (2,481 feet) in length. Note that there are no areas along any CVGS pipeline segment that constitute a High Consequence Area or are categorized as a Class 3 or 4 location. All areas along the CVGS pipeline system are categorized as a Class 1 location.
- Valve diagrams for each of the three locations where automated valves can isolate a CVGS pipeline segment: (1) the CVGS Compressor Station, (2) the CVGS Well Pad, and (3) the PG&E Interconnect Area. These diagrams have already been submitted to the CPUC as part of the Emergency Response Plan included in the CVGS Safety Plan. On this version the valves referenced on the Automated Block Valve Listing are identified using color-coded ovals.
- Since CVGS has no areas along any pipeline segment that constitute a High Consequence Area or that are categorized as a Class 3 or 4 location, there will be no cases of an open break in the pipeline occurring near any Class 3, 4, or High Consequence Area location. Nonetheless, CVGS is including calculations showing the time that would be required to blow-down each pipeline segment, assuming a full open break in the pipeline, via venting through the breach and any other measures CVGS procedures would allow to be used for venting purposes. On the 24-inch pipeline from its compressor station to the PG&E interconnect area, automated valves are designed to actuate automatically when a loss of pressure is detected in the pipeline and the calculation shows the time required for blow-down following this occurrence. On each of the 16-inch gathering lines from the well pad to the compressor station, the valves require operator actuation via remote control and the calculation also includes the estimated time necessary for an operator to make determinations related to valve closures and initiate the closure of the last valve necessary for isolation of the breach. CVGS also has included estimates for the time necessary

to blow-down the 24-inch line through installed blow-down vents instead of through a full-open breach.

- A revision to Element 1 (page 10) of the CVGS Integrity Management Plan which clarifies that CVGS will evaluate the need for additional automated valve installations at the same time it completes its annual evaluation to determine if High Consequence Areas are present.

There are no portions of any CVGS pipeline segment that traverse an active seismic earthquake fault. The CPUC previously reviewed the application of CVGS, including the analysis of seismic information. In 2010, the CPUC issued a Mitigated Negative Declaration (MND) in which it and its consultants concluded on Page 5.7-9:

"Active faults that have potential for future surface rupture are designated as Alquist-Priolo Earthquake Fault Zones by the California Geological Survey. There are no Alquist-Priolo Earthquake Fault Zones crossing the project area (California Geological Survey 2009). The only earthquake in the Sacramento Valley known to have resulted in surface rupture occurred in neighboring Butte County."

"The closest Holocene active fault, the Bartlett Springs Fault, is located approximately 33 miles west of the proposed metering station site."

Because there are no areas along any CVGS pipeline segment that constitute a High Consequence Area or are categorized as a Class 3 or 4 location and because there are no portions of any CVGS pipeline segment that traverse an active seismic earthquake fault, CVGS has no plans at this time to install additional automated valves on any of its pipeline segments. If the annual review conducted by CVGS identifies a High Consequence Area, CVGS will review this Valve Location Plan and submit modifications with additional valve installations as necessary at locations suitable to protect the public.

CVGS has no other concerns or suggestions related to automated valve installations at this time.

Sincerely,



John Boehme
Manager Regulatory Affairs -
Storage and Fuels (North/West)
AGL Resources



Central Valley Gas Storage

An AGL Resources Company

CVGS Valve Location Plan – Record of Revisions/Annual Review

Date	Description of Change	Section of Plan	Other Comments
9/15/14	Added Table of Contents page		
9/15/14	Added Record of Revisions page		
9/15/14	Removed Tower Vales from List	Block Valve List	Replaced by BV 1455 & 65
9/15/14	Added BV-1455 & BV-1465	Block Valve List	Newly actuated Valves
9/15/14	Added BV-1012	Block Valve List	To be actuated in 11/14
9/15/14	Modified Valve Diagrams	Valve Diagrams	To illustrate changes to Valve Diagram

Review Conducted by:

Brian Hackney – Manager of Storage Operations, CVGS

Signature

Date

9/15/14



Central Valley Gas Storage

An AGL Resources Company

Automated Block Valve Listing

Automated Block Valve Listing

CVGS Automated Block Valves	Valve Number	Mile Point	Operating Mode	Purpose
Compressor Station				
Line 401 16" Valve	BV-1502	0.00	Automatic	Isolate 24" Pipeline to PG&E Interconnect Area
Line A 16" ESD Block Valve	BV-1465	0.00	Automatic	Isolate 16" Gathering line A to Well Pad (Lower Sands)
Line B 16" Valve	BV-1455	0.00	Automatic	Isolate 16" Gathering line B to Well Pad (Upper Sands)
Well Pad				
Lower Sand ESD 16" Block Valve	BV-0021	.47(GL)	Automatic	Isolate Gathering Line A to Compressor Station
Upper Sand ESD 16" Block Valve	BV-0031	.47 (GL)	Automatic	Isolate Gathering Line B to Compressor Station
PG&E Interconnect Area				
Line 401 12" Control Valve	PCV-1011	14.6 (PL)	Automatic	Isolate 24" Pipeline to Compressor Station
Line 401 16" ESD Block Valve*	BV-1012	14.6 (PL)	Automatic	Isolate 24" Pipeline to Compressor Station

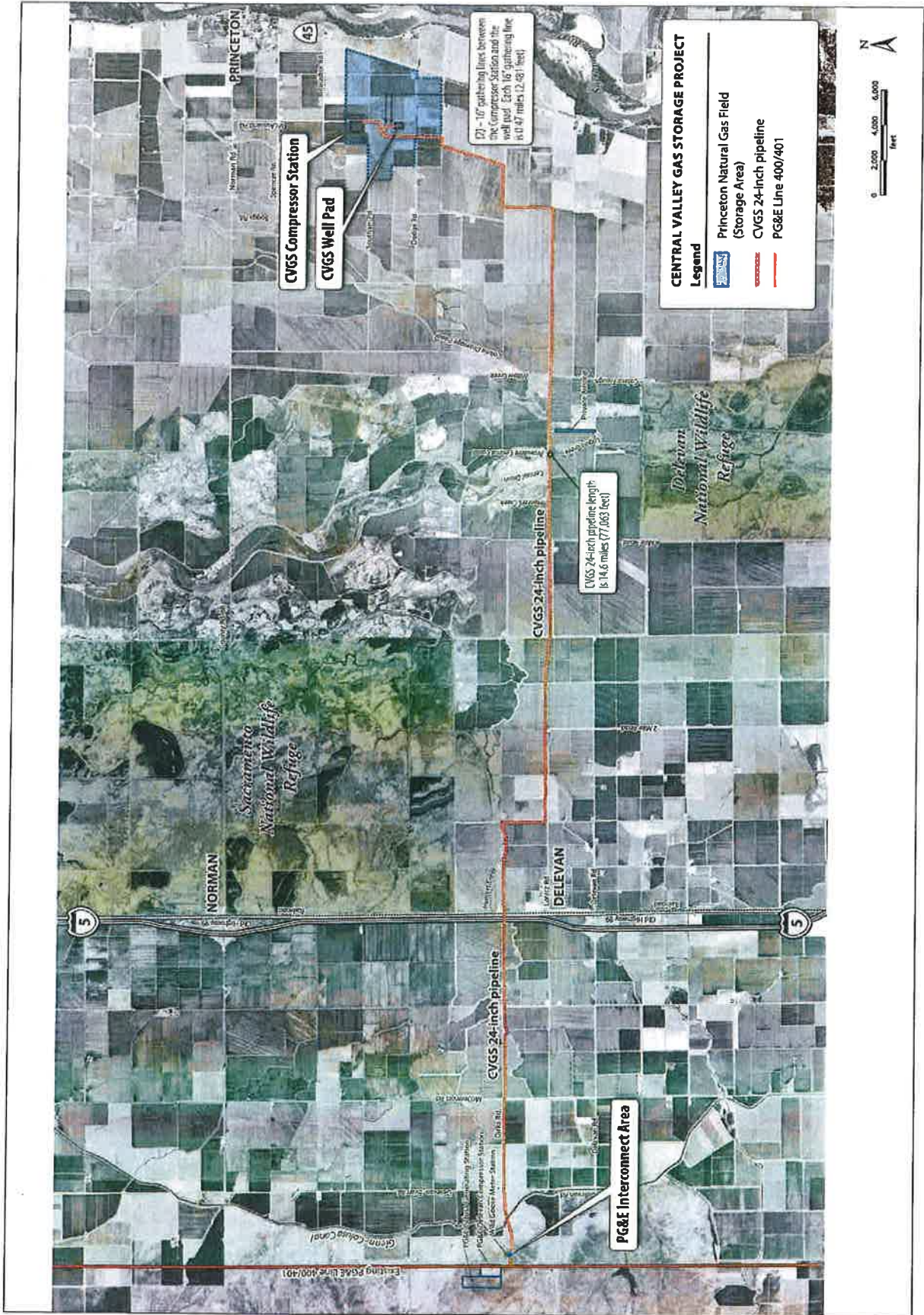
*Currently a manually actuated valve, scheduled to be actuated in November 2014



Central Valley Gas Storage

An AGL Resources Company

Map



Central Valley Natural Gas Facility Pipeline System



Central Valley Gas Storage
An AGL Resources Company

Valve Diagrams

RAE-5010/5020/5030
COMPRESSOR ENGINES
CAT 3312 TALE
3550 BHP (EA)
1000 PPM

CAE-5010/5020/5030
RECIPROCATING
GAS COMPRESSORS
APPROX 1000
62 MMSCFD (EA)

HAL-2010/2020/2030
GAS COOLERS
20T APPROX 10
114F AMBIENT

MBU-1610/1620/1630
BLOWDOWN SILENCERS
60 MGA @ 100 FEET

FAG-0080/0090
BI-DIRECTIONAL
REGULATOR RUNS

FAU-0060/0070
BI-DIRECTIONAL
METER RUNS

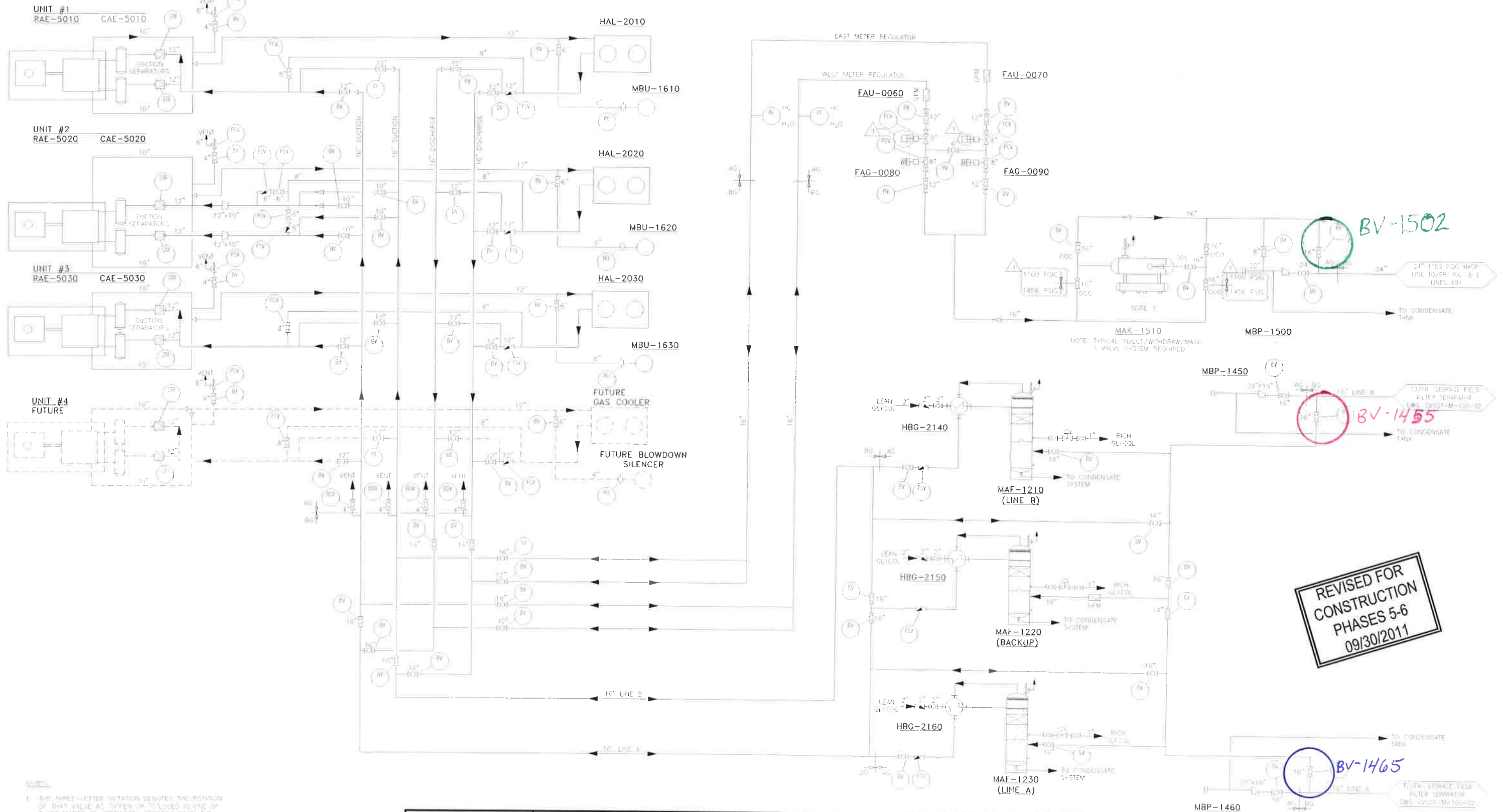
HBG-2140/2150/2160
GLYCOL/GAS
HEAT EXCHANGERS
100 MMSCFD (EA)

MAF-1210/1220/1230
GLYCOL ABSORBERS
100 MMSCFD
1540 MAF

MAK-1510
FILTER SEPARATOR

MBP-1500
PIG LAUNCHER/
RECEIVER

MBP-1450/1460
SPHERE RECEIVERS



NOTE:
1) THE THREE-LETTER NOTATION DENOTES THE POSITION OF THAT VALVE AS OPEN OR CLOSED IN ONE OF THREE MODES OF OPERATION STARTING FROM THE LEFT THE 3 MODES ARE: SUCCTION, WITHDRAWAL & BY-PASS MODES.

DESIGNED IN ACCORDANCE WITH TITLE 49-PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND GPTC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION
PREPARED BY:
ENEngineering
7135 JANES AVENUE
WOODRIDGE, IL 60517
TEL 630-353-4000
FAX 630-353-7777
WWW.ENENGINEERING.COM

REV LEVEL	DATE	BY	DESCRIPTION	MR	MPM	CK	APP
1	09/30/11	CLA	REVISED FOR CONSTRUCTION				
0	07/22/11	TSR	ISSUED FOR CONSTRUCTION				
F	03/16/11	RSR	RE-ISSUED FOR BID				
E	01/28/11	AGM	ISSUED FOR BID				



CENTRAL VALLEY GAS STORAGE
HIGH PRESSURE GAS
PROCESS FLOW DIAGRAM
COMPRESSOR STATION SITE

COLUSA COUNTY CALIFORNIA
DATE: 04/05/10 SCALE: NONE DRAWN BY: TSR LOC NO: DRAWING NUMBER: CVG1-M-100 SHEET NO: 01 REV: 1

QAX-7170
PRODUCED WATER
DISPOSAL WELL

PAT-6070/6080
WATER INJECTION PUMPS
MFG.: FLOWSERVE
SIZE: 90 GPM @ 30 PSIG
MAWP: 230 PSIG

PAT-6200
FREEZE PROTECTION PUMP
MFG.: TBD
SIZE: TBD
MAWP: TBD

MAJ-1420/1430
WATER INJECTION FILTERS
MFG.: DOLLINGER
SIZE: 90 GPM @ 5 PSIG
MAWP: 275 PSIG @ 0-200°F
EFF: 98% > 8 MICRON

AAJ-3200
PRODUCED WATER STORAGE TANK
MFG.: PSF
SIZE: 130,000 GAL
MAWP: 1 PSIG @ 0-120°F
3 PSIG MAEP
DESIGN: SINGLE WALL

MBD-1260 THRU 1320
WELLHEAD SEPARATORS
UPPER SAND
MFG.: PECO
SIZE: 25 MMSCFD
MAWP: 1540 PSIG @ 120°F
EFF: 98% > 10 MICRON

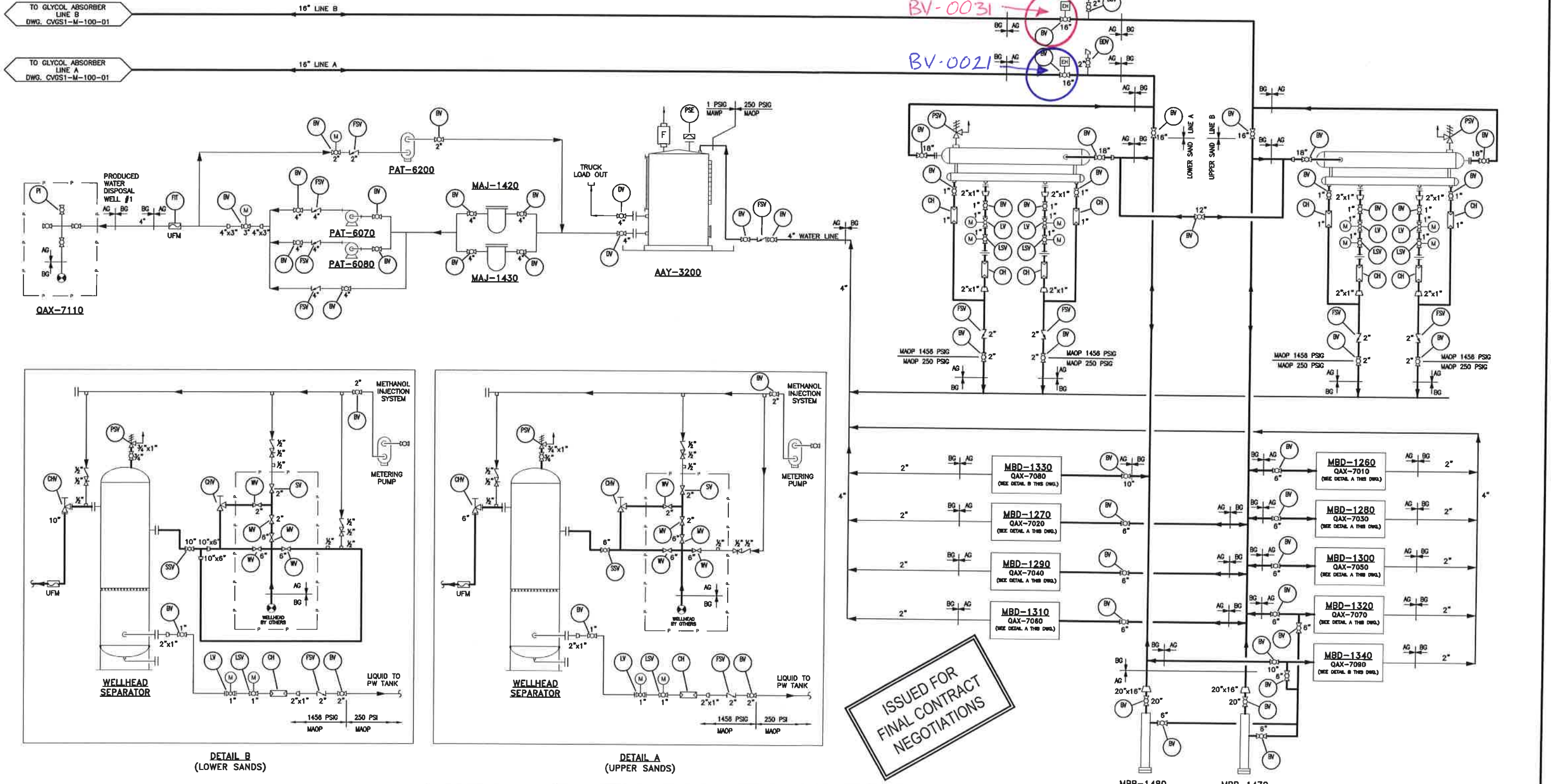
MAK-1250
FILTER SEPARATOR
LINE A
MFG.: PECO
SIZE: 150 MMSCFD
MAWP: 1540 PSIG @ 150°F
EFF: 99.98% > 1 MICRON

MBP-1470/1480
SHPERE LAUNCHERS
UPPER SAND/LOWER SAND
OD: 20"
LENGTH:
MAWP: 1456 PSIG

MAK-1240
FILTER SEPARATOR
LINE B
MFG.: PECO
SIZE: 150 MMSCFD
MAWP: 1540 PSIG @ 150°F
EFF: 99.98% > 1 MICRON

MBD-1330 AND 1340
WELLHEAD SEPARATORS
LOWER SAND
MFG.: PECO
SIZE: 60 MMSCFD
MAWP: 1540 PSIG @ 120°F
EFF: 99% > 10 MICRON

QAX-7010 THRU 7090
WELLHEADS
MFG.: SHAFFER
API: 3000#/5000# 6"x7"x2 1/2"



ISSUED FOR FINAL CONTRACT NEGOTIATIONS

DESIGNED IN ACCORDANCE WITH TITLE 49 PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND GPTC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.

PREPARED BY:
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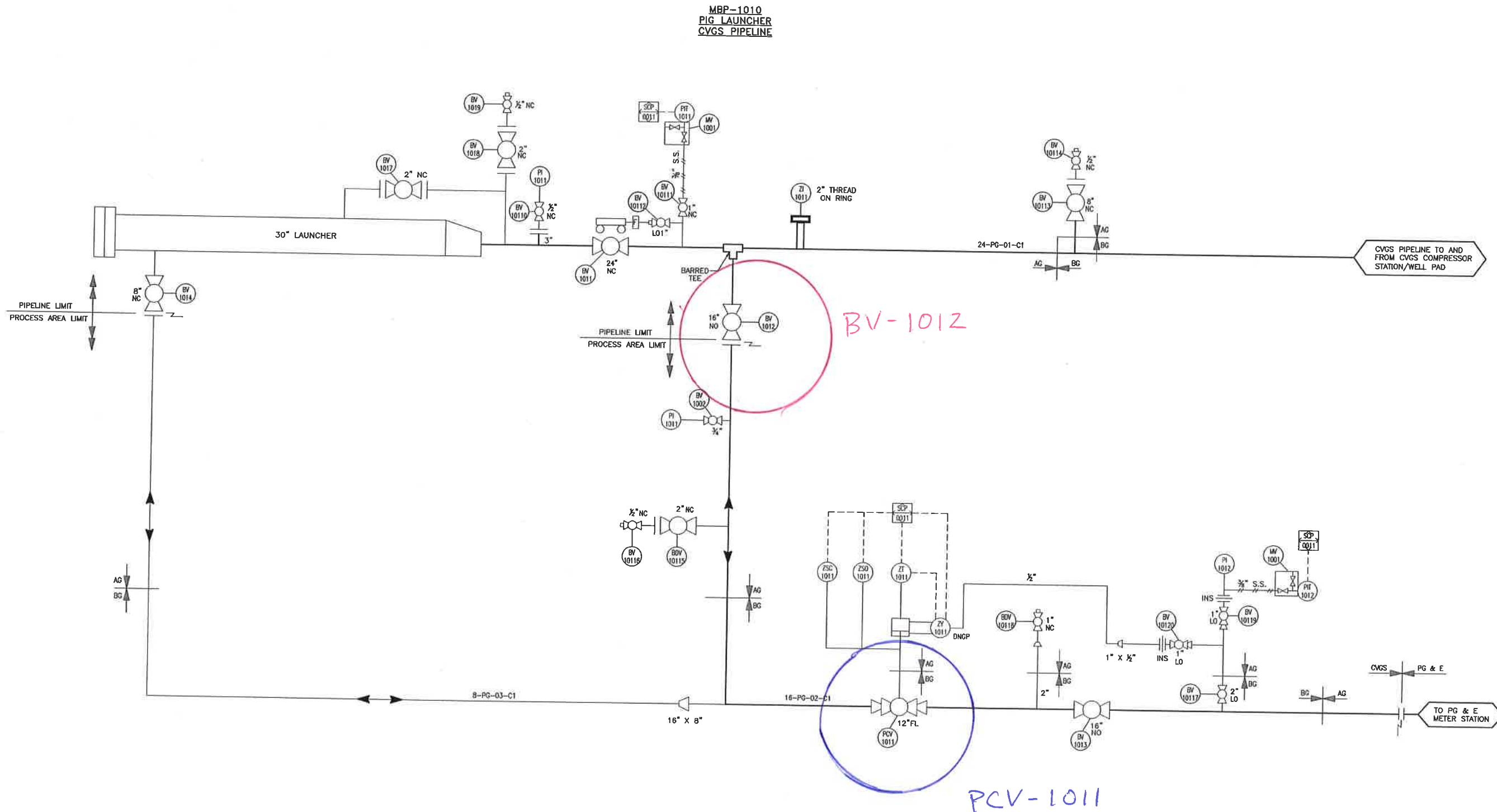
REV LEVEL	DATE	BY	DESCRIPTION	MR	MPM	CK	APP.
D	08/12/11	AGM	ISSUED FOR FINAL CONTRACT NEGOTIATIONS				



CENTRAL VALLEY GAS STORAGE
HIGH PRESSURE GAS AND PRODUCED WATER
PROCESS FLOW DIAGRAM
WELL PAD SITE

COLUMBIA COUNTY CALIFORNIA

DATE: 07/02/09 SCALE: NONE DRAWN BY: TSR CHECKED BY: [] DRAWING NUMBER: CVGS1-M-100 SHEET NO: 02 OF 02



DESIGNED IN ACCORDANCE WITH TITLE 49-PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND GPTC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION

PREPARED BY:
ENEngineering
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 WOODRIDGE, IL, 60517
 TEL 830-353-4000
 FAX 830-353-7777
 WWW.ENENGINEERING.COM



REV LEVEL	DATE	BY	DESCRIPTION	CK	APP.
0	08/11/11	HP	ISSUED FOR CONSTRUCTION		PCG
REVISIONS					



ISSUED FOR CONSTRUCTION
08/11/2011

CENTRAL VALLEY GAS STORAGE
 HIGH PRESSURE GAS
 L-401 METER STATION LAUNCHER/RECEIVER
 PIPING AND INSTRUMENT DIAGRAM

COLUSA COUNTY		DATE: 08/14/10		SCALE: NONE	DRAWN BY: HP(ENE)	LOC. NO: -	DRAWING NUMBER: CVGS2-M-100	SHEET NO: 00	REV: 0
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Segment Blow-down Calculations

Segment Blow-down Calculations

Central Valley Gas Storage has utilized modeling simulation software to estimate the time required to bring pressure down in each of its pipeline segments in the event of a full-open break. The results of the simulations are presented below:

Scenario 1: Rupture of the 24" line between the CVGS Compressor Station and the PG&E Interconnect Area

Parameters:

Pipeline Length:	77,063' (~14.6 miles)
Pipeline Diameter:	24" diameter
Pipeline Wall Thickness:	primarily 0.312"
MAOP:	1,100 psi

Assumptions:

1. Pipeline pressure is kept at 1,100 psig while the isolation valves are closing (20 seconds) after the remote sensing device initiates the shut down process, then the source of pressure is shut off.
2. Blow down is through a full 24" cut opening in the pipe (full pipe rupture).

Results: 21 minutes

Scenario 2: Rupture of either 16" line between the CVGS Compressor Station and the CVGS Well Pad

Parameters:

Pipeline Length:	2,481' (~0.47 miles)
Pipeline Diameter:	16" diameter
Pipeline Wall Thickness:	0.500"
MAOP:	1,456 psi

Assumptions:

1. Pipeline pressure remains at 1456 psig for 5 minutes to allow the operator to react to the line rupture and to trigger the isolation valves to operate and fully close.
2. Blow down is through a full 16" opening (full pipe rupture)
3. The 16" lines are tied together and operating in common so both lines are blown-down. (Time would be reduced if the lines are operating separately.)

Results: 5.3 minutes (including operator reaction time)

In addition to calculating the time required to vent natural gas in the event of a full-open breach, Central Valley Gas Storage has calculated the time required to bring pressure in its 24" pipeline down to atmospheric levels using 8" blow-down vents at the CVGS compressor station and/or the PG&E Interconnect Area. In the event that the pipeline wall is punctured in a manner that does not constitute a full-open break, this is a more likely scenario. Note that these 8" ball valves require manual operation, so there will be time required for operator recognition and in the case of the valve at the PG&E Interconnect, time required for travel to the PG&E Interconnect site.

Scenario 3: Puncture of the 24" line between the CVGS Compressor Station and the PG&E Interconnect Area – Blow-down through one 8" vent.

Parameters:

Pipeline Length:	77,063' (~14.6 miles)
Pipeline Diameter:	24" diameter
Pipeline Wall Thickness:	primarily 0.312"
MAOP:	1,100 psi

Assumptions:

1. Pipeline pressure is kept at 1,100 psig while the isolation valves are closing (20 seconds) after the remote sensing device initiates the shut down process, then the source of pressure is shut off.
2. Blow down is through the 8" ball-valve vent at the CVGS compressor station.

Results: 141 minutes

Scenario 4: Puncture of the 24" line between the CVGS Compressor Station and the PG&E Interconnect Area – Blow-down through two 8" vents

Parameters:

Pipeline Length:	77,063' (~14.6 miles)
Pipeline Diameter:	24" diameter
Pipeline Wall Thickness:	primarily 0.312"
MAOP:	1,100 psi

Assumptions:

1. Pipeline pressure is kept at 1,100 psig while the isolation valves are closing (20 seconds) after the remote sensing device initiates the shut down process, then the source of pressure is shut off.
2. Blow down is through both the 8" ball-valve vent at the CVGS compressor station and the 8" ball-valve vent at the PG&E Interconnect Area.

Results: 67 minutes

Integrity Management Plan Update

CVGS
Gas Integrity Management Plan
Element #1: ID of Pipeline Segments Impacting HCAs

Ref: 49 CFR 192.901- 915

Updated: December 2012

Requirements If There are No HCAs:

CVGS is not required to develop an integrity management program if there are no high consequence areas on its system. But, CVGS must complete an evaluation to determine that no high consequence areas exist, and this evaluation must be maintained and available for inspection. Even if no HCAs exist, however, there are some requirements in Subpart O with which CVGS must comply. These requirements include the following:

- 1) Once per calendar year not to exceed 18 months, CVGS will evaluate its pipeline to determine if new HCAs have been created. Changes along the pipeline route, including housing construction and creation of new facilities meeting criteria in the definition of identified sites could cause HCAs to come into existence. CVGS will demonstrate that it has periodically evaluated its pipeline to assure that there continue to be no HCAs. As part of this evaluation, CVGS will determine if installation of additional automated sectionalizing block valves would be prudent to enhance the safety of the public in light of any such changes along the pipeline route.
- 2) For transmission pipelines operating below 30 percent of SMYS in class 3 or 4 locations but not in an HCA, enhanced protection against third-party damage will be implemented in accordance with 192.935(d).
- 3) CVGS will submit semi-annual "performance measure" reports in accordance with 192.945(a) indicating that there are no HCAs on its system.

If the periodic evaluation identifies that a new HCA exists, then CVGS will prepare an integrity management plan and meet all the requirements of subpart O.

[FAQ #150]

How CVGS Will Address Idle and Out of Service Lines (Not Fully Abandoned):

In-service idle pipe (i.e., that contains gas, but is not presently being used to transport gas) represents a potential hazard to public health and the environment, even though idle. If such pipe leaks or ruptures, an explosion could result. Leaks may go undetected for some time, since idle pipe may not be covered by operator's SCADA systems. For these reasons, CVGS will meet all requirements and deadlines for pipe that contains gas.

Exhibit 5



(AGL Resources Companies)

Revised on:

Created on: 3/06/13

FORM OM500-05 – SAFETY DEVICE TEST: REPORT FORM

Location: CVGS	Over Pressure Protection Devices	Date: 06/14/16
Device: FCV0082	Recommended or Required Setting	Date Inspected: 06/14/16 Inspected By: PM
DGNP Electronic Board Settings		
Programming Section	Description	Value
	Dead Band	0.6%
	Input Select	4-20mA
	Positioner Action	Open in increase
Valve Action	Loss of Signal	Fail Open
Pneumatic Parameters		Setting
Power Gas		100 PSI
DNGP Solenoid Valve Exhaust Metering Valve		Not installed
DNGP Failure Mode Test. (Pull 4-20mA wire & verify Fail Mode)		Fail Open
DNGP Calibration and Ramp Test Command		Worker Valve Feedback Signal Result
4 mA Opening		3.99 mA =100% close
8 mA Opening		7.98 mA =25% open
12 mA Opening		11.98mA =50% open
16 mA Opening		15.97mA =75% open
20 mA Opening		20.01mA =100% open
16 mA Opening		15.97mA =75% open
12 mA Opening		11.98mA =50% open
8 mA Opening		7.98 mA =25% open
4 mA Opening		3.99 mA =100% close
Valve Condition Checks		Results
Stem Leakage		No leaks
Seat Leakage		Not tested
Actuator Leakage		No leaks
Actuator Action		Smooth no sticking
Valve Action		Smooth no sticking
Closed mA Reading		3.99 mA
Open mA Reading		20.01 mA
FCV Control shut in Pressure. (valve close at any given PSI set point)		ok



(AGL Resources Companies)

Revised on:

Created on: 3/06/13

FORM OM500-05 – SAFETY DEVICE TEST: REPORT FORM

<input checked="" type="checkbox"/> Completed	<input checked="" type="checkbox"/> Due in 12 months	<input type="checkbox"/> Not applicable
Certified Correct by Supervisor	MARK STEPHENS	
	(printed name)	(signature)

Exhibit 6



(AGL Resources Companies)

Revised on:

Created on: 3/06/13

FORM OM500-05 – SAFETY DEVICE TEST: REPORT FORM

Location: CVGS	Over Pressure Protection Devices	Date: 06/10/16
Device: FCV0092	Recommended or Required Setting	Date Inspected: 06/10/16 Inspected By: PM
DGNP Electronic Board Settings		
Programming Section	Description	Value
	Dead Band	0.6%
	Input Select	4-20mA
	Positioner Action	Open in increase
Valve Action	Loss of Signal	Fail Open
Pneumatic Parameters		Setting
Power Gas		100 PSI
DNGP Solenoid Valve Exhaust Metering Valve		Not installed
DNGP Failure Mode Test. (Pull 4-20mA wire & verify Fail Mode)		Fail Open
DNGP Calibration and Ramp Test Command		Worker Valve Feedback Signal Result
4 mA Opening		3.97 mA =100% close
8 mA Opening		7.97 mA =25% open
12 mA Opening		11.98 mA =50% open
16 mA Opening		15.97 mA =75% open
20 mA Opening		19.99 mA =100% open
16 mA Opening		15.97mA =75% open
12 mA Opening		11.98mA =50% open
8 mA Opening		7.97 mA =25% open
4 mA Opening		3.97 mA =100% close
Valve Condition Checks		Results
Stem Leakage		No leaks
Seat Leakage		Not tested
Actuator Leakage		No leaks
Actuator Action		Smooth no sticking
Valve Action		Smooth no sticking
Closed mA Reading		3.97 mA
Open mA Reading		19.99 mA
FCV Control shut in Pressure. (valve close at any given psi set point)		1030 PSI



(AGL Resources Companies)

Revised on:

Created on: 3/06/13

FORM OM500-05 – SAFETY DEVICE TEST: REPORT FORM

<input checked="" type="checkbox"/> Completed	<input checked="" type="checkbox"/> Due in 12 months	<input type="checkbox"/> Not applicable
Certified Correct by Supervisor	MARK STEPHENS	
	(printed name)	(signature)

Exhibit 7



(AGL Resources Companies)

COPY

Revised on:

Created on: 3/06/13

FORM OM500-05 – SAFETY DEVICE TEST: REPORT FORM


Location: CVGS		Over Pressure Protection Devices			Date: 03/03/16	
Device		Recommended or Required Setting	As Found	As Left	Date Inspected	Inspected By
West Main PCV PC 0083		1122 close PCV 0083	1100	1122	03/03/2016	PM
East Main PCV PC 0093		1122 close PCV 0093	1100	1122	03/03/2016	PM
PC 0083 and PC 0093 were re-adjusted from 1100 psi set point to 1122 per CPUC recommendation after the January 25 th 2016 Audit						
<input type="checkbox"/> Completed		<input checked="" type="checkbox"/> Due in 12 months		<input type="checkbox"/> Not applicable		
Certified Correct by Supervisor		Mark Stephens			 3/4/2016	
		(printed name)			(signature)	

Exhibit 8

16880 (CVGS) A-Valve - Overpressure Shut-In
Completed
CVGS Central Valley Gas Storage
CV-0310.00 A-Valve - Overpressure Shut-In

03/01/2015
PM

MARK STEPHENS

VALVE - OVERPRESSURE SHUT-IN (CVGS)
COMPLIANCE (CVGS)
CVGS (CVGS)

Valve - Overpressure Shut-In
Compliance and Inspection, Safety, CRM
Central Valley Gas Storage

PMBEUKEU [01/25/2016 08:20]:

Done on 6/15/2015

10 CONT 0 1 CV-0310.00 A-Valve - Overpressure Shut-In

MSTEPHENS [Jun 8, 2016 10:41:42 AM]:

Inspect valves listed in Form OM500-05 using Procedure 7.01 and 7.02 that are equipped to close and prevent overpressuring. Inspection should include condition of the operator assembly, proper lubrication and packing of all moving parts. Verify the overpressure device set point and blow down the valve body.

DEVICE: VOS DOT REF: 49 CFR Part 192.739 and .745

INTERVAL: At least once each calendar year, not to exceed 15 months.

- () USE PERSONAL PROTECTIVE EQUIPMENT (PPE)
- () FOLLOW PROPER LOCKOUT/TAGOUT PROCEDURE
- () Personnel performing this Task must Qualified to do so.
- () Print this WO Attach form OM500-05 and file in CVGS Compliance folder 481

Exhibit 9

COPY

FORM OM1900-18- ABNORMAL OPERATIONS REPORT

Event Title: Unit #2 cracked nipple **Event Date:** 11/12/2014
Event Time: 3:10 pm

Type of Event: (check at least one)

- Pressure Increase or Decrease Outside Normal Operating Limits
(exceeding MAOP or Low Suction Trip)
- Widespread Loss of Communications
- Operation of Relief Valve or Regulator Failure
- Excess Hydrogen Sulfide, Abnormal Odorant Levels
- Unintended Closure of Valves or Unintended Plant / Station Shutdown
- Other Abnormal Conditions

Note: Do not use this form for reporting leaks. Use the Initial Incident Report form to report leaks.

NOTE: Under "Description of Events," include information from responsible departments, such as Communication's assessment of problem and extent, Measurement's calculations of gas loss, etc.

Description of Events: Found leak on 3/4" nipple on unit #2 suction line, Contacted control room and informed of leak, Unit was not in operation at time, had 682 psi on unit. CCAPCD notified of blow down

Who was contacted: Daniel Perez, Brian Hackney **Time:** 3:15 pm

Department/Location: Plant Manager

Facility Name/Location/Company: Central Valley Gas Storage

Contacted by: Bill Wolf **Title:** Plant Operator

Department/Location: Operations **Date:** 11/12/14

Investigation of probable cause: Found gas leak from cracked nipple on suction line of unit #2

Remedial Action Taken: Initiated a unit blowdown for safety, Unit out of service pending repair.

NOTE: Original form lost - rewright form per CPUC inspector's OK

Report completed by: Bill Wolf **Title:** Plant Operator

Department: Operations **Date:** 1/29/2016

Review of Personnel Response and Determination of Effectiveness of the Procedures:

Did personnel respond appropriately to the event? YES NO If NO, please explain: _____

Were the procedures for responding to, investigating, and correcting the cause of the condition effective?
 YES NO. If NO, please recommend suggested changes to improve effectiveness of procedures:

NOTE: This form is to be completed by the Director, Regional Operations and then sent to the Vice President, Midstream Services, for review. Retain record in the Location File for 5 years.

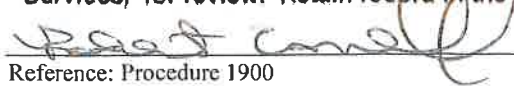


Exhibit 10



FORM OM1900-18– ABNORMAL OPERATIONS REPORT

Event Title:	Event Date:
	Event Time:
<p>Type of Event: <i>(check at least one)</i></p> <p><input type="checkbox"/> Pressure Increase or Decrease Outside Normal Operating Limits <i>(exceeding MAOP or Low Suction Trip)</i></p> <p><input type="checkbox"/> Widespread Loss of Communications</p> <p><input type="checkbox"/> Operation of Relief Valve or Regulator Failure</p> <p><input type="checkbox"/> Excess Hydrogen Sulfide, Abnormal Odorant Levels</p> <p><input type="checkbox"/> Unintended Closure of Valves or Unintended Plant / Station Shutdown</p> <p><input type="checkbox"/> Other Abnormal Conditions</p>	
<p>Note: Do not use this form for reporting leaks. Use the Initial Incident Report form to report leaks.</p>	
<p>NOTE: Under “Description of Events,” include information from responsible departments, such as Communication’s assessment of problem and extent, Measurement’s calculations of gas loss, etc.</p>	
Description of Events:	
Who was contacted:	Time:
Department/Location:	
Facility Name/Location/Company:	
Contacted by:	Title:
Department/Location:	Date:
Investigation of probable cause:	
Remedial Action Taken:	
Preventive Actions Planned/ Taken:	
Report completed by:	Title:
Department:	Date:

Review of Personnel Response and Determination of Effectiveness of the Procedures:

Did personnel respond appropriately to the event? YES NO If NO, please explain: _____

Were the procedures for responding to, investigating, and correcting the cause of the condition effective?
 YES NO. If NO, please recommend suggested changes to improve effectiveness of procedures:

NOTE: This form is to be completed by the *Director, Regional Operations* and then sent to the *Vice President, Midstream Services*, for review. Retain record in the *Location File* for 5 years.

Exhibit 11

CVGS 24" Gas Transmission Pipeline

Pipeline Specific O&M (PSOM)

Procedure #17

Ref: 49 CFR 192

Updated: June 2016

requirements. In addition, section 3.06 of the O&M Manual shall be used as a guide when developing the PSOM.

17.01.3 Responsibility for Implementation

The (500) _____ is responsible for implementation of this procedure.

17.01.4 Scope and Policy

This Operating & Maintenance (O&M) Plan for the CVGS gas transmission pipeline in Princeton, California has been prepared by its operator, CVGS, in compliance with the regulatory requirements of Pipeline and Hazardous Materials Safety Administration (PHMSA) according to 49 CFR Parts 191, Parts 192 and California Public Utilities Commission (CPUC) General Order #112-E.

It is the policy of CVGS to strive for the safety of life, protection of the environment, and protection of property. This PSOM provides a comprehensive operating guide for the CVGS gas transmission pipeline in Princeton, California. The plan defines the roles and responsibilities and lines of authority of operations personnel. Procedures for the safe operation and maintenance of the pipelines during both normal and abnormal operating conditions are also provided. The DOT Emergency Response Plan establishes written procedures to minimize the hazard resulting from an emergency (e.g., gas release, fire, explosion, natural disaster).

17.01.5 ANNUAL REVIEW of PSOM

This PSOM section of the O&M Manual shall be reviewed annually, not to exceed 15 months, for completeness and accuracy by the (501) _____. The plan shall be revised as necessary, and personnel shall be made aware of these changes, as required. All approved revisions/updates shall be distributed to holders of the Operating & Maintenance Plan by email or equivalent. The notice provided in section 17.02 may be used for distributions of updated PSOM procedures. All revisions shall be documented in O&M record of revisions tab or equivalent.

17.01.6 Quarterly REVIEW OF WORK PERFORMED BY OPERATORS [192.605(b)(8)]

CVGS 24" Gas Transmission Pipeline

Pipeline Specific O&M (PSOM)

Procedure #17

Ref: 49 CFR 192

Updated: June 2016

It is the primary responsibility of the (503)_____ to review the work performed by operators **quarterly**. The intent of this review is to determine the effectiveness of the procedures used in normal operations and maintenance and modifying the procedures when deficiencies are found. Use "Review Work Performed by Operator" form or equivalent to document this review.

17.01.7 Training

Training will be conducted for following personnel performing pipeline activities covered by this O&M Manual:

- New employees
- Change in job assignment or transfer
- Reasonable cause (see company OQ plan)
- Management of change (see company OQ plan)

Use training registration form or equivalent to document this training.

Exhibit 12

APPENDIX D - LABORATORY PROCEDURES

Updated 2016

WHEN AND HOW MUST A LABORATORY DISCLOSE STATISTICAL SUMMARIES AND OTHER INFORMATION IT MAINTAINS.

Ref. §40.111

- (a) As a laboratory, you must transmit an aggregate statistical summary, by employer, of the data listed in Appendix B to this part to the employer on a semi-annual basis.
 - (1) The summary must not reveal the identity of any employee.
 - (2) In order to avoid sending data from which it is likely that information about an employee's test result can be readily inferred, you must not send a summary if the employer has fewer than five aggregate tests results.
 - (3) The summary must be sent by January 20 of each year for July 1 through December 31 of the prior year.
 - (4) The summary must also be sent by July 20 of each year for January 1 through June 30 of the current year.
- (b) When the employer requests a summary in response to an inspection, audit, or review by a DOT agency, you must provide it unless the employer had fewer than five aggregate test results. In that case, you must send the employer a report indicating that not enough testing was conducted to warrant a summary. You may transmit the summary or report by hard copy, fax, or other electronic means.
- (c) You must also release information to appropriate parties as provided in §§40.329 and 40.331.
- (d) As a laboratory, you must transmit an aggregate statistical summary of the data listed in Appendix C to this part to DOT on a semi-annual basis. The summary must be sent by January 31 of each year for July 1 through December 31 of the prior year; it must be sent by July 31 of each year for January 1 through June 30 of the current year.

WHAT DOCUMENTATION MUST A LABORATORY KEEP, AND FOR HOW LONG?

Ref. §40.109

- (a) As a laboratory, you must retain all records pertaining to each employee urine specimen for a minimum of two years.
- (b) As a laboratory, you must also keep for two years employer-specific data required in §40.111.
- (c) Within the two-year period, the MRO, the employee, the employer, or a DOT agency may request in writing that you retain the records for an additional period of time (e.g., for the purpose of preserving evidence for litigation or a safety investigation). If you receive such a request, you must comply with it. If you do not receive such a request, you may discard the records at the end of the two-year period.

HOW LABORATORIES PROCESS INCOMING SPECIMENS

Ref. §40.83

Laboratories must do the following when they receive a DOT specimen:

- (a) They are authorized to receive only the laboratory copy of the CCF. They are not authorized to receive other copies of the CCF nor any copies of the alcohol testing form.
- (b) They must comply with applicable provisions of the HHS Guidelines concerning accessioning and processing urine drug specimens.
- (c) They must inspect each specimen and CCF for the following –fatal flaws:
 - (1) The specimen ID numbers on the specimen bottle and the CCF do not match;
 - (2) The specimen bottle seal is broken or shows evidence of tampering, unless a split specimen can be redesignated (see paragraph (h) of this section);
 - (3) The collector's printed name and signature are omitted from the CCF; and
 - (4) There is an insufficient amount of urine in the primary bottle for analysis, unless the specimens can be redesignated (see paragraph (h) of this section).
- (d) When a laboratory finds a specimen meeting the criteria of paragraph (c) of this section, it must

- document its findings and stop the testing process. The laboratory reports the result in accordance with §40.97(a)(3).
- (e) Laboratories must inspect each CCF for the presence of the collector's signature on the certification statement in Step 4 of the CCF. Upon finding that the signature is omitted, the laboratory is to document the flaw and continue the testing process.
- (1) In such a case, the laboratory must retain the specimen for a minimum of 5 business days from the date on which it initiated action to correct the flaw.
 - (2) It must then attempt to correct the flaw by following the procedures of §40.205(b)(1).
 - (3) If the flaw is not corrected, the laboratory reports the result as rejected for testing in accordance with §40.97(a)(3).
- (f) If the laboratory determines that the specimen temperature was not checked and the "Remarks" line did not contain an entry regarding the temperature being outside of range, the laboratory must then attempt to correct the problem by following the procedures of §40.208.
- (1) In such a case, the laboratory must continue its efforts to correct the problem for five business days, before it reports the result.
 - (2) When the laboratory has obtained the correction, or five business days have elapsed, the laboratory reports the result in accordance with §40.97(a).
- (g) If the laboratory determines that a CCF that fails to meet the requirements of §40.45(a) (e.g., a non-federal form or an expired federal form was used for the collection), the laboratory must attempt to correct the use of the improper form by following the procedures of §40.205(b)(2).
- (1) In such a case, the laboratory must retain the specimen for a minimum of 5 business days from the date on which it initiated action to correct the problem.
 - (2) If the problem(s) is not corrected, the laboratory must reject the test and report the result in accordance with Sec. 40.97(a)(3).
- (h) If the CCF is marked indicating that a split-specimen collection was collected and if the split specimen does not accompany the primary, has leaked, or is otherwise unavailable for testing, the laboratory must still test the primary specimen and follow appropriate procedures outlined in §40.175(b) regarding the unavailability of the split specimen for testing.
- (1) The primary specimen and the split specimen can be re-designated (i.e., Bottle B is redesignated as Bottle A, and vice-versa) if:
 - (i) The primary specimen appears to have leaked out of its sealed bottle and the laboratory believes a sufficient amount of urine exists in the split specimen to conduct all appropriate primary laboratory testing; or
 - (ii) The primary specimen is labeled as Bottle B, and the split specimen as Bottle A; or
 - (iii) The laboratory opens the split specimen instead of the primary specimen, the primary specimen remains sealed, and the laboratory believes a sufficient amount of urine exists in the split specimen to conduct all appropriate primary laboratory testing; or
 - (iv) The primary specimen seal is broken but the split specimen remains sealed and the laboratory believes a sufficient amount of urine exists in the split specimen to conduct all appropriate primary laboratory testing.
 - (2) In situations outlined in paragraph (g)(1) of this section, the laboratory shall mark through the -A|| and write -B,|| then initial and date the change. A corresponding change shall be made to the other bottle by marking through the -B|| and writing -A,| and initialing and dating the change.
 - (i) A notation shall be made on Copy 1 of the CCF (Step 5a) and on any laboratory internal chain of custody documents, as appropriate, for any fatal or correctable flaw.

WHICH DRUGS THE LABORATORIES TEST FOR

Ref. §40.85

Laboratories must test for the following five drugs or classes of drugs in a DOT drug test.

Laboratories must not test –DOT specimens¹ for any other drugs.

- (a) Marijuana metabolites.
- (b) cocaine metabolites.
- (c) Amphetamines.
- (d) Opiate metabolites.
- (e) Phencyclidine (PCP).

CUTOFF CONCENTRATIONS FOR INITIAL AND CONFIRMATION TESTS

Ref. §40.87

- (a) As a laboratory, you must use the cutoff concentrations displayed in the following table for initial and confirmatory drug tests. All cutoff concentrations are expressed in nanograms per milliliter (ng/mL). The table follows:

Initial test analyte	Initial test cutoff concentration	Confirmatory test analyte	Confirmatory test cutoff concentration
Marijuana metabolites	50 ng/mL	THCA ¹	15 ng/mL
Cocaine metabolites	150 ng/mL	Benzoyllecgonine	100 ng/mL
Opiate metabolites			
Codeine/Morphine ²	2000 ng/mL	Codeine	2000 ng/mL
		Morphine	2000 ng/mL
6-Acetylmorphine	10 ng/mL	6-Acetylmorphine	10 ng/mL
Phencyclidine	25 ng/mL	Phencyclidine	25 ng/mL
Amphetamines ³			
AMP/MAMP ⁴	500 ng/mL	Amphetamine	250 ng/mL
		Methamphetamine ⁵	250 ng/mL
MDMA ⁶			
	500 ng/mL	MDMA	250 ng/mL
		MDA ⁷	250 ng/mL
		MDEA ⁸	250 ng/mL

¹Delta-9-tetrahydrocannabinol-9-carboxylic acid (THCA).

²Morphine is the target analyte for codeine/morphine testing.

³Either a single initial test kit or multiple initial test kits may be used provided the single test kit detects each target analyte independently at the specified cutoff.

⁴Methamphetamine is the target analyte for amphetamine/methamphetamine testing.

⁵To be reported positive for methamphetamine, a specimen must also contain amphetamine at a concentration equal to or greater than 100 ng/mL.

⁶Methylenedioxyamphetamine (MDMA).

⁷Methylenedioxyamphetamine (MDA).

⁸Methylenedioxyethylamphetamine (MDEA).

- (b) On an initial drug test, you must report a result below the cutoff concentration as negative. If the result is at or above the cutoff concentration, you must conduct a confirmation test.
- (c) On a confirmation drug test, you must report a result below the cutoff concentration as negative and a result at or above the cutoff concentration as confirmed positive.
- (d) You must report quantitative values for morphine or codeine at 15,000 ng/mL or above.