

ATTACHMENT A

Sacramento Natural Gas Storage Project CPCN Application (A.07-04-013) Review of Completeness

With Initial Responses by SNGS (referred to herein collectively as “Response”)

EXECUTIVE SUMMARY

- a) Please provide a statement regarding areas of controversy or areas to be resolved. Has any opposition to the project been expressed?

Response:

Two main issue areas have been identified in the course of the public outreach by SNGS: Storage Rights Compensation; and Public Safety.

- The compensation issue is outside the scope of the PEA. SNGS circulated an appraisal of storage rights to the City of Sacramento, the Power Inn Business and Transportation Association and AGENA (Homeowners Association), and is engaged in discussions with the storage rights owners.
- SNGS has conducted two major community meetings, to which some 1,600 been held invitations were sent out to homeowners, business owners and other community residents both on and adjacent to the defined project area. The second meeting was dedicated solely to the issue of safety and included a panel consisting of:
 - The former Fire Chief from the County, Emergency Services Officer to City of Sacramento;
 - Representative of the California Division of Oil Gas and Geothermal Resources;
 - Consultant to the city on the project safety (geological & reservoir); and
 - Fire Marshall, City of Sacramento.

In addition, the former City Fire Chief appeared as a citizen and spoke to the safety of the project. All of the above addressed project safety and the community group acknowledged that all questions were answered to their satisfaction.

- On July 16, 2007, SNGS filed in A.07-04-013 proceeding, as a supplement to the PEA, a report prepared by International Gas Consulting (Houston, Texas) and entitled: “Safety Record Study of Underground Gas Storage in Depleted Gas Reservoirs: A Safe Industry in the Past, Present and Future.” In addition to having been filed with the CPUC, that report has been distributed to local interested groups.

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- SNGS subsequently commissioned a further safety history study focused on natural gas storage facilities in California: R.K. Weatherwax and M.R. Weatherwax, *California Natural Gas Storage Facilities: A Contemporary History of Incidents* (August __, 2007). That study report is provided as **Attachment 1** to this Response.
 - Only one limited protest has been filed in the A07-04-013 proceeding; that protest by PG&E concerns interconnection and tariff matters. SNGS is continuing discussions with PG&E to address those issues, and anticipates filing an amended application in August to present the outcomes of those discussions.
 - There has been no expressed opposition to the project. Strong support has been expressed from the City of Sacramento, the Sacramento Municipal Utility District (SMUD), and various other interested entities.
- b) Please provide all agency and public involvement contacts and correspondence to date, including names, addresses, phone numbers and e-mail addresses. In addition to property owners within and adjacent to the project, please list all other contacts.

Response:

- A summary of the outreach by SNGS to political and community leaders is provided in the Section IV.B.1 of the Application. Further information concerning the outreach, together with contact information, is provided in **Attachment 2** to this Response.

1.0 PURPOSE AND NEED

- a) SNGS refers to the California Public Utilities Commission and the California Energy Commission's stated need for natural gas storage projects in California. Please provide further detail regarding the project objectives pertaining to the proposed location and benefits both from a regional and statewide perspective.

Response:

- The necessity for the proposed project is discussed in Section IV.A. of the Application.

2.0 PROJECT DESCRIPTION

2.1 Site Description

- a) Section 2.1 describes interconnections between the SNGS storage facility and PG&E Line 108 and between the SNGS storage facility and PG&E Line 400/401. These

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pipelines are not labeled or shown on the subsequent maps (i.e. Figures 2-2, 2-4, or 2-8). Please provide the following information so that each project component can be accurately described:

- i. The location of PG&E's Line 400/401 and Line 108.

Response:

- PG&E Line 400/401 is shown in the map provided as Exhibit 4 to the Application. The interconnection with PG&E Line 400/401 will be by way of the existing interconnection between SMUD Line 700 and PG&E Line 400/401 near Willows. That existing interconnection is shown on the SMUD Pipeline Map provided as **Attachment 3** to this Response. SNGS will lease capacity from SMUD in its Line 700. All gas delivered to PG&E via this interconnection will be by exchange.
 - As a result of further discussions with PG&E concerning the interconnections with PG&E Line 108 and the PG&E Mather Distribution Feeder Main, SNGS has decided to withdraw its proposal to make those interconnections. In an amendment to its Application, which SNGS anticipates it will file during or before the first week in September 2007, SNGS will describe a proposed interconnection with PG&E Line 172 in West Sacramento, California.
- ii. Confirm that the only new pipe that will be installed is shown on Figure 2-2 in orange.

Response:

- New pipe will be installed between the proposed wellhead site and the proposed compressor station and between the proposed compressor station and SMUD Line 700, as shown on PEA Figure 2-2 in orange color.
 - In its amendment to the Application, SNGS will propose a new interconnection between SMUD Line 700 and PG&E Line 172 in West Sacramento. SNGS will provide the details of that proposed interconnection when it files the amendment. This proposed interconnection will provide a point of physical delivery of gas into the PG&E system, in addition to the delivery by exchange at the interconnection of SMUD Line 700 with PG&E Line 400/401.
- iii. Confirm that the pipeline will have a loop on either side of Caroline Road from Elder Creek Road to the compressor station and that two lines run from the compressor station to the existing pipelines on Fruitridge Road as shown on Figure 2-2. Or, if the orange lines show the two possible pipeline routes (using either 1 or 2 HDDs), clearly label as such.

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Response:

- SNGS is not proposing to build a “looped” pipeline on both sides of Caroline Road. The orange line segment shown on each side of Caroline Drive on Figure 2.2 between Elder Creek road and Depot Park indicate alternative pipeline routings. Upon completion of right-of-way discussions and final engineering, a final decision will be made on whether the single, 16-inch pipe will be located on the east or the west side of Caroline Drive.
- iv. Show to scale project limits for the compressor station and wellhead site so that the exact limits of work can be deciphered.

Response:

- Scaled, dimensioned engineering drawings of the Wellhead and the Compressor Station sites were provided as Figures 2.5 and 2.7, respectively, in the PEA.
 - A revised and updated Plot Plan of the Wellhead Site, drawn to scale, is provided as **Attachment 4** to this Response.
- v. Please provide a graphic that shows the limits of the Florin Gas Field, with the project components labeled for reference.
- vi. The above requested graphical data may be provided electronically in GIS format.

Response:

- A graphic of the portion of the Florin Gas Field that will be used for storage by SNGS has been provided as **Attachment 5** to this Response. The graphic is not currently available in GIS format.

2.2 Project Background

- a) It is not clear how the project is tied into PG&E’s Line 108 and whether this will require an additional interconnect. A schematic of the pipelines described in the third paragraph of Section 2.2, including what is existing and what will be constructed as an interconnect, would clarify the project components that are being constructed as part of this project.

Response:

- In its amendment to the Application, SNGS will withdraw its proposal to interconnect with PG&E Line 108 (see further response following 2.1.a.i., above).

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2.3 Facility Route Selection and Evaluation Process

- a) Figure 2-4 depicts a green box on the east side of Caroline Road, near the SMUD interconnect. A green box is also depicted immediately east of the proposed wellhead site. Are these proposed workspaces? If so, provide the dimensions of the workspaces and draw to scale on the graphic.

Response:

- Figure 2-4 (“Compressor Station and Pipeline Alignment Alternatives”) depict a green box on the east side of Caroline road, near the SMUD interconnect, and another green box immediately to the east of the proposed wellhead site. These green boxes do not indicate proposed workspaces; rather, they depict alternative sites, as indicated by the Figure title. These alternative sites were only shown in response to the standard practice of indicating to the CPUC that alternatives were considered for sites and pipeline alignments, whenever possible.

2.4 Project Components

- a) **Wellhead Site:** Section 2.4.1 describes a horizontal vessel water separator at the wellhead site that would be approximately 8 feet by 20 feet and include a water tank for temporary storage.
- i. Figure 2-5 depicts the water separator to be 3 feet in diameter by 15 feet high. Please update drawing or text as appropriate.

Response:

- The water separator has been removed from the preliminary design, as is shown in the updated Plot Plan of the Wellhead Site (**Attachment 4**).
- ii. Figure 2-5 shows 5 water tanks measuring 12 inches in diameter by 10 feet high. Section 2.4.1 describes one water tank. Please confirm the dimensions and number of equipment described in Section 2.4.1 and in Figure 2-5.

Response:

- Five (5) tanks, each twelve (12) feet in diameter and ten (10) feet in height will be provided, as is shown in the updated Plot Plan of the Wellhead Site (**Attachment 4**).
- iii. Illustrate and further describe proposed water and sewer lines proposed for wellhead construction and operation.

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Response:

- The water and sewer lines will be located along the north edge of the property. The lines will tie in to the lines of the City of Sacramento located in Power Inn Road, and will be installed at the start of the project. Both lines will extend to the property directly to the east and will be capped at that point for later use of that adjacent property owner. The water line will be an 8-inch line into the wellhead site, and will be extended to a fire hydrant by the front gate. The main west-east water line will run to the edge of the property to the east and will be a 4-inch line. An extension will be run to a hose bib adjacent to the fire hydrant. The three (3) maps presented in **Attachment 6** to this Response show the lines across the property and the interconnection locations at Power Inn Road.

- b) **Compressor Station:** Section 2.4.2 describes the electric power supply in the second paragraph. Would a new powerline need to be construction to supply the needed power, or will it be brought in from an adjacent distribution line? If a new line is needed, are the impacts associated with above ground or below ground installation within the project limits shown on Figure 2-7?

Response:

- Depot Park (landlord) will provide power, including necessary transformers and incoming lines via existing infrastructure at the proposed compressor station site.
- c) **Morrison Creek Cross-tie Metering Equipment:** For the Morrison Creek Cross-tie Metering Equipment, please provide the following additional information:
- i. Provide the proposed workspace limits for this component of the project. If the limits of work are an existing fenceline, show the fenceline on the figure or graphic.
 - ii. Is additional above ground pipe required to tie into the proposed gas conditioning equipment? A schematic showing what is existing and what will be installed should be included to accurately describe the proposed work at this site.
 - iii. Confirm that all work at the Morrison Creek Cross-tie will be above ground and within the existing fenced limits.
 - iv. Describe the type of equipment that will be used to complete the work and approximate duration.
 - v. What are the patrol, maintenance, or inspection requirements during the operation and maintenance phase for the metering and gas conditioning equipment?

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Response:

- As a result of further discussions with PG&E concerning the proposed interconnection with PG&E Line 108 at the Morrison Creek Cross-tie, SNGS has decided to withdraw its proposal to make that interconnection. In an amendment to its Application, which SNGS anticipates it will file during or before the first week in September 2007, SNGS will describe an interconnection with PG&E Line 172 in West Sacramento, California.

2.5 Construction Methods

- a) **Wellhead Construction:** Are there any additional workspace needs associated with the installation of the water and sewer lines described in Section 2.5.1, first paragraph, or will all the work be conducted within the workspace shown on Figure 2-4?

Response:

- All of the work associated with the construction of the water and sewer lines will be done on the Wellhead Site, as shown on the scaled and dimensioned engineering drawing provided at PEA Figure 2-5 and in the additional maps provided as **Attachment 6** to this Response.
- b) **Pipeline Construction Methods:** In order to qualify and quantify temporary impacts associated with construction equipment, please add the estimated number of each piece of equipment that will be used. Since construction of the pipelines, compressor station, and wellhead each use unique equipment and at separate locations, Table 2-1 should be divided by project component. Also, confirm the use and number of the following: stringing trucks, drill rig (HDD), drill rig (wells), boring machines (horizontal for roads and railroad), stationary pumps, stationary generators, bending machine, X-ray trucks that have not been included in the table.

Response:

- An augmented version of Table 2-1 is provided below showing estimates of construction equipment requirements by project component. To further explain the information in terms of the overall project, the following explanatory comments by equipment type are provided.
 - Water Truck – A single water truck will be adequate for dust control for all aspects of the project.

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- Dump Trucks will be required for 3 days total for bringing crushed rock onto the project sites.
- Boring Rig will be needed for a week in each of two locations.
- Grader – A single grader will be utilized for a few days at each location.
- Roller/Compactor – A single roller will be utilized for a few days in each location.
- Cranes – A crane will be utilized about 1 day a week at the drill site. A crane will be utilized to unload pipe for the pipeline. Finally a crane will be utilized for the unloading of heavy equipment at the compressor station.
- Vacuum Trucks – A single vacuum truck will likely suffice for all aspects of the project.
- Logging Trucks – These will be on site at various stages in drilling of wells.
- X-ray truck – A single X-ray unit will check all high pressure pipe weld at all 3 locations.
- Welder Trucks – Two welding trucks will suffice for all aspects of the project.

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Equipment Requirements by Construction Component			
	Wellhead Site	Pipeline	Comp. Station
Water Truck	1	1	1
Backhoe	1	3	1
Dump Trucks	3	1	NA
Forklift	1	1	1
Boring Rig (HDD)	NA	1	NA
Grader	NA	1	1
Roller/Compactor	1	1	NA
Cranes	1	NA	2
Flatbed Trucks	1	1	1
Pickup Trucks	1	1	2
Side boom	NA	1	NA
Vacuum Trucks	1	NA	NA
Drill Rig (HDD)	1	NA	NA
Logging Trucks	1	NA	NA
X ray Trucks	NA	1	1
Welders Trucks	2	6	2
Stationary Pumps	NA	2	NA
Stationary Generators	NA	1	NA
Bending Machines	NA	1	NA
Air Compressors	1	2	1
Flat Bed Semis	25	1	3

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The workspace for the HDD, including any false ROW requirements for the pull-back area should be shown and described so that temporary impacts associated with the HDD can be defined and assessed.

Response:

- Workspace for the Horizontal Directional Drilling, including pull-back areas, will be specified once the pipeline right-of-way and engineering work has been completed.

- c) **Best Management Practices:** Have the engineering and geology studies required by DOGGR and described on page 2-20, last paragraph, been completed? If so, are copies available for review?

Response:

- The engineering and geology studies required by the DOGGR are anticipated to be completed in September 2007. The application to the DOGGR to establish the Florin Field as a Gas Storage Project will be filed subsequently. The DOGGR has indicated that they will require a month for review and approval.

- c) **Workforce:** Please estimate the maximum number of workers that could be working on the project on any given day. It is assumed that the 150-200 employees described would likely not occur at the same time. Please confirm.

Response:

- The following table provides an estimate of workforce requirements by project component, on a daily basis. Manpower will vary over the course of construction of the Compressor Station component. The Wellhead Site and Pipeline components will experience more level manpower requirements. For the purposes of the information presented in the following table, SNGS has assumed that work at all locations will begin simultaneously in the first week of construction.

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PROJECTED CONSTRUCTION EMPLOYEES ON SITE

Week	Wellsite	Pipeline	Compressor Station	TOTAL
1	12	10	25	47
2	12	10	25	47
3	12	10	25	47
4	12	10	25	47
5	30	20	30	80
6	30	20	30	80
7	30	20	30	80
8	30	20	30	80
9	30	20	30	80
10	30	20	30	80
11	30	20	40	90
12	30	20	40	90
13	8		40	90
14	8		40	90
15	8		40	48
16	8		40	48
17	8		40	48
18	8		40	48
19	8		40	48
20	8		40	48
21	3		40	40
22	3		40	40
23	3		40	40
24	3		40	40
25	3		40	40

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PROJECTED CONSTRUCTION EMPLOYEES ON SITE

Week	Wellsite	Pipeline	Compressor Station	TOTAL
26	3		40	40
27	3		25	25
28	3		25	25
29	3		30	30
30	3		30	30
31	3		20	20
32	3		10	10

2.6 Operation and Maintenance

- a) In Section 2.6, if a leak occurs and releases odorized gas into the atmosphere, the leak would be repaired as soon as practical. What interim steps would be taken to stop the leak that have been included into the design of the project (i.e. remote or hand-operated valves, etc.)?

Response:

- In the event of a leak at the Compressor Station, the section of piping containing the leak will be isolated by automatic and/or hand-operated valves, the minimum portion of the system will be blown down, and appropriate repairs will be made. A combination of automated and manual valves will be utilized, depending on the specific section of facility affected. Specific procedures will be set forth in an emergency plan to be prepared in accordance with 49 C.F.R. § 192.615.
- b) Please provide additional detail on the operational phase monitoring and safety equipment associated with the project. (See questions under Section 3.11 for more specific requests regarding safety.)

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Response:

- The plant and facilities will be equipped with automated controls and safety systems, including fire and gas detection, emergency shutdown systems, fire extinguishers, and any other safety systems deemed necessary and prudent, as determined by applicable codes, standards, industry practices, and the “HazOps” analysis to be performed in connection with the final design engineering. Additional details are provided in the responses to questions in Section 3.11, below.

3.0 ENVIRONMENTAL ANALYSIS

3.1 Aesthetics

- a) **Wellhead Site:** Single family housing near northwest corner of wellhead site was underway in November 2006. Has construction of this residential community been completed? Are the dwellings occupied? What are the views of the wellhead site from these new residences?

Response:

- Construction of houses near the northwest corner of the wellhead site has been completed and the houses are occupied. The views from the new houses would be that shown in Image “b” in Figure 3.2-1; however, these homes do not face Power Inn Road and therefore would not directly look out onto the wellhead site.
- b) **Figure 3.2-1:** Looks like graphic has been cut off in the PDF version of PEA. Please confirm. Also, Viewpoints E and F are not plotted on map. Please provide.

Response:

- A revised version of Figure 3.2-1 is provided as **Attachment 7** to this Response. Viewpoints E and F are in the lower left hand corner.
- c) **Impact Assessment Methods:** Paragraph 1, Section 3.2.4 indicates that “site plans for the project facilities and pipe alignments” were used to evaluate potential effects on surrounding visual character. Please provide the following:
- i. Site plan for the Morrison Creek Cross-tie (not provided in Chapter 2, Project Description).

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Response:

- The proposal for an interconnection with PG&E Line 108 at the Morrison Creek Cross-tie will be withdrawn by the amendment to the Application that SNGS plans to file during or before the first week of September 2007.
- iii. Correct elevations of proposed facilities at Wellhead Site should be confirmed. Text describes wellheads extending 6 feet above ground, with visual screening provided by 8-foot masonry wall. However, Figure 2-5 shows an H₂O separator and H₂O tanks with heights of 15 feet and 10 feet, respectively. Confirm equipment heights and correct graphics/text as appropriate.

Response:

- Elevations of the Wellhead Site are confirmed as follows. Maximum height of equipment at the Wellhead Site is 12 feet, as explained under Section 2.4.a.ii, above. Given the distance from the eight-foot high masonry wall to the equipment, and the angle of the line of sight from a visual receptor in the residential area, the equipment will be shielded from view by the wall.

3.2 Air Quality

a) Project Description

- i. Figure 2-7 (page 2-10) shows an emergency generator at the northwest corner of the compressor station. No description of the emergency generator is provided in the PEA. What is its estimated rating (kilowatts or horsepower)? Will it be fueled with diesel fuel or natural gas? How many hours per day and per year will it be

Response:

- The preliminary design calls for a 150 KW natural gas fired emergency generator. The normal exercise cycle would run the generator approximately 1 – 2 hours per month.
- ii. The project description (page 2-12) does not include a discussion of the dehydration system or reboilers. Because this equipment is the primary source of emissions from the compressor station, it should be described in sufficient detail to estimate the emissions, including but not limited to the following:
- process description and schematic;
 - heat input rating of reboilers; and
 - daily processing rate of dehydration equipment.

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Response:

- Equipment and process descriptions of the dehydration system are provided in **Attachment 8** to this Response. The processing rate of the equipment will range from 0 to 200 MMcfd.

b) Impact Assessment Results

- i. The information in Table 3.3-2 will need to be updated. For example, the National Ambient Air Quality Standard for ozone has been revoked (therefore, Note f. is incorrect) and the California Air Resources Board (CARB) has adopted an 8-hour standard for ozone.

Response:

- An update of Table 3.3-2 is provided as **Attachment 9** to this Response.
- i. *Pages 3.3-14 to 15:* The maximum estimated construction emissions of oxides of nitrogen are just below the Sacramento Metropolitan Air Quality Management District's (SMAQMD) significance threshold of 85 pounds per day. Upon review of the URBEMIS2002 output in the PEA, we found that the operating hours for most of the "grading" equipment was changed from the default value of 8 hours per day to 5 hours per day (the drill rigs are shown as operating 24 hours per day). No justification is given for these operating hours. Similarly, some of the building construction equipment and asphalt paving equipment are shown to be operated less than 8 hours per day with no justification.

Response:

- While the default value for hours of equipment operation is eight hours, construction equipment is not typically on and operating during the full course of an eight-hour workday. These values were therefore changed to provide more realistic estimates of the hours that equipment would be operating, and thus producing actual emissions of criteria pollutants.
- ii. Are the emissions for trenching to install the pipelines accounted for in the PEA? Although trenching is discussed in general, the exact construction details, such as length of construction time, are not included in the project description or air quality section of the PEA.

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Response:

- Trenching activities to install the pipeline were included in the construction emissions projections as part of the Site Grading phase. The construction emissions modeling for site grading assumed five months for grading and trenching activities to take place.

- iii. Kirby Hills emission data is used in the PEA; however, project-specific information (i.e. equipment, sensitive receptors) needs to be provided, along with supporting calculations, to conclude that the emissions would be the same. If basic equipment and their corresponding emissions are the same for both projects, this should be indicated.

Response:

- The requested data will be provided in a subsequent submission anticipated to be completed during September 2007.

- iv. The air quality section of PEA indicates a “thermal oxidizer”, but it is not described elsewhere in the PEA. What is the purpose of the thermal oxidizer? What is its rating (million Btu per hour or standard cubic feet per hour)? If the thermal oxidizer is used to flare natural gas during routine events (e.g., disposal of gas during maintenance operations), then the emissions associated with flaring should be reported.

Response:

- The reference to “thermal oxidizer” at page 3.3-14 of the PEA (in the discussion of “Operational Emissions”) is an oversight. The design calls for a JATCO BTEX Eliminator System, which is a natural air cooled heat exchanger condensing system used to capture and recycle BTEX and VOC’s from the dehydrator still column. Condensed liquids are collected in the skid mounted JATCO Tank and automatically transferred to storage. The residual VOC vapors are sent to the reboiler main burner. The manufacturer states that this process results in an overall reduction of BTEX and VOC emissions by 99.8%. The condensed liquids will be transported and disposed of by a licensed and approved waste processor.

- v. *Page 3.3-17:* Use of the Kirby Hills project in lieu of providing project-specific estimates for the assessment of health impacts is not adequate for the Initial Study. In addition to potentially different emissions, another concern is that the area surrounding the SNGS facility appears to have relatively close residential uses to the west of the compression station. A project-specific health risk

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assessment, including Toxic Air Contaminant (TAC) calculations is needed to determine the affects of the project on nearby residents, schools, and businesses.

Response:

- A project-specific analysis will be provided in a subsequent submission anticipated to be completed during September 2007.
- vi. Please quantify and provide greenhouse gas emissions.

Response:

- The requested information will be provided in a subsequent submission anticipated to be completed during September 2007.

3.3 Biological Resources

a) **Environmental Setting**

- i. Please provide the limits of all jurisdictional wetlands and waterbodies within and adjacent to the proposed project areas.

Response:

- Delineations of jurisdictional waters are scheduled to be completed by the end of September 2007.
- ii. Please provide results on any protocol-level surveys for special-status species potentially occurring within the proposed project areas. If protocol-level surveys have not been conducted, please provide a schedule for when these surveys will be complete.

Response:

- Protocol surveys have not yet been conducted; the proposed mitigation measures require pre-construction surveys, which will occur before construction. Protocol level surveys for vernal pool crustaceans will not occur, as they have been recorded in the project area and SNGS therefore will be assuming presence in suitable habitat.

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b) **Impact Assessment Results**

- i. Table 3.4-1 identifies a “low” likelihood for giant garter snake to exist. Under BIO-3 (page 3.4-20) the PEA states that it is “unlikely” for garter snakes to occur and, therefore, no impact is expected. Please verify potential occurrence for giant garter snake.

Response:

- The “low” likelihood listed for giant garter snake in Table 3.4-1 was an error and should have been an "unlikely" listing. A corrected Table 3.4-1 is provided as **Attachment 10** to this Response.
- ii. Mitigation is provided for impacts to burrowing owls and their nests, but not for breeding habitat as required by CDFG. What mitigation is proposed for impacts to burrowing owl breeding habitat?

Response:

- There will be a temporary, one-season exclusion of burrowing owls to avoid construction-related disturbance during the nesting season. This exclusion approach is consistent with CDFG guidelines. The proposed SNGS facility is different than most land development projects in that it will not permanently destroy nesting habitat. The CDFG guidelines assume that impacts are permanent, which is why it recommends permanent mitigation, e.g. the construction of artificial burrows.

3.4 **Cultural Resources**

- a) The information relating to cultural resources provided in the PEA is inadequate in that it does not provide sufficient baseline information needed to determine if the project would have an impact on archaeological and/or historic resources. Many of the technical studies (archaeological surveys) cited in the PEA that are within, or within a ¼ mile proximity to, the project area are in excess of 20 years old. While professional archaeological survey methods have changed little in the past two decades, there is the possibility that some of these technical studies may (1) not have used methodologies consistent with current archaeological professional standards, and/or (2) may have “passed over” potentially unique historic archaeological resources that were not 50 years of age at the time of those studies. It was also noted in the PEA that there are significant portions of the project area and/or pipeline alignment and alternatives that have not been subject to any archaeological survey.

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- b) A qualified archaeologist who meets the Secretary of Interior's Standards for Archaeology (Archaeologist) needs to define the vertical and horizontal archaeological study area for the proposes of CEQA. The Archaeologist will need to conduct a peer review of all previous archaeological technical studies within the project study area and determine if the methodologies used are consistent with today's professional practice standards. In particular, a review of how the potential for buried archaeological resources were addressed in a geomorphology section (if any) of the technical reports needs to be conducted.
- c) Any areas of the project site, pipeline route, and/or alternative pipeline routes that have not been subject to previous archaeological survey or have been determined by a qualified archaeologist to require re-survey due to inadequate methodologies should be subjected to a new pedestrian archaeological reconnaissance survey.
- d) A technical archaeological survey report should be prepared that documents (1) a detailed definition and map depicting the vertical and horizontal study area for potentially ground disturbing activities including pipelines, wellheads, compression station, staging area(s), and directional drilling preparation areas, (2) detailed peer review of previous technical studies, (3) professionally defensible justification for not resurveying areas that were previously surveyed, (4) a discussion and assessment of the potential for buried archaeological deposits at the maximum depth to be impacted by project trenching and directional drilling activities, (5) a thorough discussion of the methods and results of the previous cultural resource studies that were conducted at the proposed compressor station on the former Sacramento Army Depot site, and (6) report on the results of a new pedestrian archaeological reconnaissance survey of the remaining unsurveyed and/or resurveyed lands to determine if unique archaeological resources are present in the study area.

Response

- [The requests for information track the mitigation measures set forth in the PEA. This information will be developed as a part of the National Historic Preserve Act Section 106 analysis, which is anticipated to be completed in October 2007.](#)
- e) Copies of the November 3, 2006 North Central Information Center Record Search, a sample Native American consultation letter and mailing list, and the requested technical archaeological survey report will need to provided to the CPUC for an independent third-party review.

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- The requested materials are provided as **Attachment 11** to the request.

3.5 Energy and Mineral Resources

No additional information needed at this time.

3.6 Geology, Soils, and Paleontology

- a) Subsurface borehole and/or seismic data of the Florin Gas Field is needed to determine the existing physical condition of the reservoir and surrounding strata. Provide subsurface structures/stratigraphy database and a detailed description of existing subsurface reservoir conditions for use in evaluation/confirmation of reservoir integrity.

Response

- The reservoir has been studied to determine its integrity and suitability for storage by:
 - John Matthews, Reservoir Engineer, in Sacramento
 - Rich Boyd, gas and oil Geologist, in Sacramento
 - Ryder Scott, the premier reservoir modeling and one of the worlds top reservoir-engineering firms, in Houston.
- Each of these experts has provided positive reports of the reservoir integrity and its capacity to receive, store and release gas. In the delineation of the structure they have utilized seven seismic lines, logs from the five wells that produced gas in the 1980's, as well as logs from 3 adjacent wells that were "dry holes" in the delineation of the structure.
- The reservoir is a combination water and depletion drive field with a thick shale body forming a "reservoir cap." The reservoir is shaped like an inverted saucer that contains a porous sandstone structure. It presently contains about 5 Bcf of residual gas. This gas will be utilized as the "Cushion" gas in the future. In addition to this residual gas, the reservoir has some brackish water that will subside as gas for storage, i.e., working gas, is injected.

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- The following listed materials are provided collectively as **Attachment 12** to this Response to characterize the subsurface structures/stratigraphy database and subsurface reservoir conditions.
 - Model Depiction of Reservoir
 - Map of Seismic Lines
 - Boyd, R., “Florin Gas Field”
 - Mathews, J., Report on Reservoir Data
 - Ryder Scott, Simulation (07/19/2007)

- The following listed additional materials are not available in digital form but can be provided in paper form if that is considered to be necessary.
 - Well histories for all wells
 - Well logs for all wells
 - Seismic Lines
 - Production data

- b) Provide a baseline of the existing reservoir conditions prior to injection of natural gas, and what effect(s) depletion of historic natural gas may have had on the reservoir.

Response

- See preceding response.
- c) Additional data is needed to ensure that subsidence has not occurred that could have resulted in fractured sandstone and/or shale cap rock. A more detailed description is needed of how the natural gas will be injected and how it relates to replacement of water and perseveration of reservoir integrity. Provide copies of the engineering plan, geology plan and injection plan.

Response

- SNGS will conduct coring analysis in connection with the drilling and the first well and will develop further data on that basis. It is worth noting in this context that there have been no reported encounters of fracturing in the other depleted reservoirs that have been utilized for natural gas storage projects in California.

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- Ryder Scott is developing the plan for well completions and bottom hole locations. This is being done utilizing the model they have constructed to assure that wells are properly located and completed, including whether they are horizontal or vertical in direction and the plan for a gravel pack. When this is completed, together with Halliburton they will prepare the plan for drilling and for initial injection of gas into the reservoir.
 - The plan for drilling and injection will be utilized in preparation of the application to the California Division of Oil, Gas and Geothermal Resources (DOGGR) for conversion of the field from production to storage utilization and for the required application to DOGGR for authorization for the drilling of each well.
 - SNGS anticipates completing the application to the DOGGR for the conversion of the field in early September 2007. SNGS plans to prepare the applications for the well drilling permits in Spring 2008, a month or so before each well is drilled.
- c) Please provide any geotechnical studies that have been conducted for the wellhead, compressor station and pipeline routes.

Response

- Geotechnical studies are planned to be conducted early in September 2007 to support the final engineering designs for each site. The studies will be provided upon completion.

3.7 Hydrology and Water Quality

- a) What is the status of the studies described on pages 3.8-35 to 3.8-39 that are intended to determine and mitigate the potential for aquifer contamination?

Response

- The referenced studies are planned to be completed in time to support the filing with DOGGR September 2007 of an application to convert the field to use for storage of natural gas. The application materials will be provided.

3.8 Land Use

- a) Figure 3.9-1 legend is illegible.

Response

- A revised Figure 3.9-1 is provided as **Attachment 13** to this Response.

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- b) Morrison Creek Cross-tie is not identified in land use designations and zoning maps (Figures 3.9-1 or 3.9-2) nor is it included in discussion of Existing Conditions (i.e, land use designation onsite and adjacent). Please provide.

Response

- As a result of further discussions with PG&E concerning the interconnections with PG&E Line 108 and the PG&E Mather Distribution Feeder Main, SNGS has decided to withdraw its proposal to make those interconnections. In an amendment to its Application, which SNGS anticipates it will file during or before the first week in September 2007, SNGS will describe a proposed interconnection with PG&E Line 172 in West Sacramento, California.

- c) Existing conditions for pipeline connections and HDD work areas are not included in text of document. Please provide.

Response

- Existing conditions of the pipeline alignment are described on page 2-13 of the PEA. The area of the proposed interconnect to SMUD Line at Fruitridge Road is a City street (Elder Creek Road); the area of the proposed HDD under Elder Creek Road is vacant, industrial land; the area of the proposed HDD under the Morrison Creek ditch is vacant, industrial land.

- d) UPRR is not identified in any graphics. Please provide graphic that clearly labels the location of the UPRR within the vicinity of the project. Provide discussion of potential impacts to UPRR operations during construction. Also, discuss whether or not UPRR right-of-way acquisition would be required.

Response

- The Union Pacific Railroad line exists in the area of the project along what has been labeled as “Caroline Road” and is shown on the revised Figure 2.2 provided as **Attachment 14** to this Response. As it is not anticipated that any UPRR right-of-way will be required, and SNGS intends to utilize a HDD under the railroad line, it is anticipated that SNGS’s construction operations will have no impact on UPRR operations.

- e) Provide location and description for all sensitive land uses (schools, residences, health care, etc.) within one-mile of proposed project.

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Response

- Sensitive land uses located within one mile of the proposed project include residential uses and school sites west of Power Inn Road, a north-south arterial road located immediately west of the wellhead site, which separates industrial uses on the east side of the road from residential uses, school uses, parks, and commercial areas on the west of the road.
 - The wellhead site is proposed to contain six gas wells, one water injection well, and one observation well, which would be positioned on the eastern side of the site. The nearest residential units immediately west of the wellhead site across Power Inn Road would be approximately 475 feet from the wells. The closest residential use to the compressor station site would be along Power Inn Road near Lemon Hill Avenue, with residents approximately 2,250 feet from the proposed site. There are intervening buildings and a railroad located between the compressor station and the closest residences.
 - The schools within one mile of the project site, including the proposed pipeline alignments, are: Ethel Phillips Elementary School at 2930 21st Avenue; Earl Warren Elementary School at 5420 Lowell Street; Elder Creek Elementary at 7934 Lemon Hill Avenue; Camelia Elementary School at 6600 Cougar Drive; Samuel Kennedy Elementary School at 7037 Briggs Drive; David Reese Elementary School at 7600 Lindale Drive; and James Rutter Middle School at 7350 Palmer House Drive. The Sensitive Uses Figure provided as **Attachment 15** to this Response shows the location of the schools in relation to the project elements. Ethel Phillips Elementary is located approximately 3,500 feet from the northernmost portion of the pipeline alignment; Earl Warren Elementary is located approximately 2,500 feet from the pipeline alignment. Elder Creek Elementary is located approximately 1,500 feet from the proposed compressor station and pipeline alignment. Camelia Elementary School is located approximately 2,500 feet from the proposed pipeline alignment along Power Inn Road and approximately 3,000 feet from the wellhead site. Samuel Kennedy Elementary is located approximately 2,000 feet from the wellhead site. David Reese Elementary is approximately 4,000 feet southwest of the proposed wellhead site; James Rutter Middle School is located approximately 4,250 feet from the wellhead site. There are no schools within one-quarter mile (1,320 feet) of the proposed project.
- f) Describe and provide graphic illustrating any proposed or planned land uses within one-mile of proposed project.

Response

- See **Attachment 13** to this Response.

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3.9 Noise

- a) *Page 3.10-2, Table 3.10.-1:* Noise measurements were taken for 10 minutes durations. Longer duration (at least 24-hours) noise level measurements would be required to assess both the daytime and nighttime existing ambient noise levels at existing noise sensitive receptor locations.

Response

- Additional noise measurements have been made and are reported in the table provided as **Attachment 16** to this Response.

- b) *Page 3.10-10:* Please provide a complete inventory of compressor station and wellhead equipment that generates noise, including manufacturers' noise levels (if possible). Otherwise, provide power, speed (rpm) and capacity information for all planned noise generation equipment.

Response

- The major noise sources are as follows:

<u>Source</u>	<u>Estimated Noise</u>
Electric motor/Compressor:	95 dBA at 3 feet
Fin-fan coolers:	85 dBA at 3 feet
Glycol regenerator:	85 dBA at 3 feet

3.10 Population and Housing

No additional information required at this time.

3.11 Public Health and Safety

a) Project Description

- i. Additional information is needed on the pipeline ROW limits and centerline in order to conduct the quantitative risk assessment. Please provide preliminary pipeline alignment drawings for the proposed and alternative pipeline routes. These drawings should include an aerial photograph depicting the proposed

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pipeline alignment within approximately 300-feet on either side of the proposed routes.

Response

- The pipeline right-of-way routing, limits and centerline determinations are not yet completed. Final pipeline alignment information, including an aerial photograph of the alignment, will be provided in a later submission planned to be completed in October 2007.

- ii. Please provide the maximum, normal, and maximum operating parameters for all of the project components. At a minimum, the operating parameters should include pressure, temperature, and flow rates.

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Response

- Operating Parameters for the project components are as follow. Missing information will be provided when available.

	<u>Pressure</u> (psig)	<u>Temperature</u> (Fahrenheit)	<u>Flow Rate(s)</u> (mmcf/day)
SMUD Line 700			
Maximum	787.5	67	220
Normal	700	63	135
Minimum	580	58	125
SNGS Line to Compressor Station			
Maximum	TBD	TBD	200
Normal	TBD	TBD	Varies
Minimum	TBD	TBD	0
Compressor Station			
Maximum	1750	120	200
Normal	Varies	100	Varies
Minimum	250	70	0
SNGS Line to Wellheads			
Maximum	TBD	TBD	200
Normal	TBD	TBD	Varies
Minimum	TBD	TBD	0
Reservoir			
Maximum	1848	98	200
Normal	Varies	93	Varies
Minimum	225	115	0

- iii. The Project Description discusses the use of SMUD Line 700 to transport natural gas to PG&E Lines 400/401 and 108. Please describe any operational or other changes that may be required to SMUD Line 700 to accommodate the transportation of this gas. For example:
- What is the current normal and maximum operating pressure? Will the normal and maximum operating pressures change if SNGS ships over this line?

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Response

- Please see the table above for operating pressures of Line 700. These operating pressures will not change as a result of SNGS shipping through this pipeline.
 - What is the current normal and maximum flow rate? Will the normal and maximum flow rates change if SNGS ships over this line?

Response

- Please see the table above for current flow rates in Line 700. The “normal” flow rate will increase when SNGS ships through this pipeline, but the resultant flow rate will not exceed the maximum operating flow rate of the pipeline.
 - Are there any improvements or upgrades required to SMUD Line 700 to accommodate SNGS shipments? If so, please describe.

Response

- No improvements or upgrades to Line 700 will be required to accommodate SNGS shipments.
 - When was SMUD Line 700 constructed? What is the diameter, wall thickness, pipe grade, coating type, results of pipeline integrity monitoring, general condition, etc.?

Response

- SMUD Line 700, from Winters, California to the Carson Ice Plant area in Sacramento, California, was constructed in 1996; Line 700A, from the Carson Ice Plant area north to the PG&E plant area, was also built at that time; and Line 700B, from the Carson Ice Plant area to the Consumnes Plant was built in 2005. Line 700 and Line 700A are 20-inch diameter pipes, and Line 700B is a 24-inch diameter pipe. The wall thicknesses of the pipe are 0.344 inch in general and .0375 inch at roads and railroad crossings. Pipe at railroad crossings is cased. Pipe grade is APL 5L X-42. The pipe coating is FBE 100% (Fusion Bonded Epoxy). Pipeline integrity test results have been excellent according to SMUD. The pipeline is under constant electronic monitoring and is visually inspected according to FERC requirements.
 - If there are significant changes in operating conditions required of the SMUD Line 700, please provide alignment sheets and operational/design data for the portion of the system to be used.

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Response

- No changes in operating conditions will be required of the SMUD Line 700, therefore there will be no new alignment sheets or operational/design data to be provided.
- iv. Please provide a copy of any qualitative or quantitative risk assessment which may have been conducted to assess potential risks to the public resulting from unintentional releases and subsequent fires and explosions. Please also provide the significance criteria used for evaluating individual and societal risks.

Response

- SNGS has engaged Sierra Energy and Risk Assessment, Inc. (per Robert K. Weatherwax) to perform a qualitative and quantitative risk assessment to assess potential risks to the public resulting from the SNGS project. The assessments will be completed following completion of the final engineering design (including the “HazOps” study to be performed by the systems engineering firm in determining the final engineering design), which is anticipated to be available in October 2007. The assessments will provide statements of criteria used for evaluating risks.
- v. Page 2-12, “A portable electric drive compressor would be brought onto the compressor station site two to three months before the system is active...” Please describe any other temporary components that may be required to “prime” the storage facility. For example:
- Will there be any temporary piping or pipelines?
 - Will all other facilities be complete, except for the permanent compressors during “priming”?
 - Will all leak detection and other safety systems be operative during this temporary situation? If not, please provide a description of those systems that will not be in place.

Response

- SNGS has determined that no temporary compression or “priming” of the facility will be needed.
- vi. Page 2-21, please provide a detailed description of the proposed leak detection system, automated systems, shut-down system and other controls being proposed.

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Response

- See corresponding Response elements under 3.11.b.ii below.

b) Existing Conditions

- i. Please provide copies of the referenced Phase I Environmental Site Assessments listed below:
 - Kleinfelder, Phase I Environmental Site Assessment, 6881 Power Inn Road, Sacramento, California, January 26, 2006.
 - National Assessment Corporation, Phase I Environmental Site Assessment Report Depot Park 16 Business Park Way, Sacramento, California 95927, June 14, 2004.

Response

- The Kleinfelder Phase I Environmental Site Assessment was provided as Exhibit 6 to Application 07-04-013. The Phase I Environmental Site Assessment prepared by National Assessment Corporation is provided as **Attachment 17** to this Response.
- ii. Please provide a detailed description of the proposed pipeline components. For example:
 - What are the proposed wall thicknesses, pipe grades, external coating types, etc.?

Response

- The requested information will be determined in the final engineering design process; the information is anticipated to be provided in October 2007.
 - How and where will the tie-ins will be made to the existing lines in Fruitridge Road? Will these connections be made in vaults beneath the street? Please provide conceptual drawings of the tie-in facilities to each line.

Response

- The tie-in to SMUD Line 700A will be made with a non-vaulted “hot-tap” below Fruitridge road. Final engineering of the tie-ins is expected to be completed in October 2007.

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- Provide a description of the proposed supervisory control and data acquisition system (SCADA). What type of hardware and software will be used? How will the system be configured?

Response

- An Allen-Bradley PLC system will be installed at the facilities for system controls. In general each skid mounted unit (compressor, dehydration unit, etc.) will have a unit control panel (UCP) which controls the individual unit, i.e. starts, stops and monitors. These UCP's will be tied into a station control panel (SCP) which controls the over all operation of the facility. A representative example of a control philosophy and cause-and-affect chart is included in **Attachment 18** to this Response.
- Provide a description of the proposed pipeline leak detection system. What type of software will be used? What is the sensitivity and anticipated performance of the system (e.g., time to alarm for various leak flow rates)?

Response

- The requested information will be determined in the final engineering design process; the information is anticipated to be provided in October 2007.
- Describe any remotely operated or automatically operated valves or automated pipeline control systems. These should include any remotely or automatically operated valves, emergency blow-down (de-pressurization) facilities, etc.

Response

- See **Attachment 17** for representative valves and control philosophy. Final design details will be determined in the final engineering design process; the information is anticipated to be provided in October 2007.
- Describe the operating and emergency response procedures for the following situations: electrical power loss, loss of communications, leak response, fire response, explosion response, emergency shutdown, and any other situations deemed critical.

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Response

- Written Operating and Maintenance procedures, damage prevention procedures, and emergency response procedures will be developed prior to commencement of operations in accordance with the requirements of 49 CFR § 192.615 *et seq.*
 - What, if any, measures are proposed beyond those required by 49 CFR 192 to minimize the likelihood of leaks from the major causes (e.g., external corrosion, internal corrosion, 3rd party damage, operating error, design flaw, equipment failure, weld failure, etc.)?

Response

- The Hanover Manufacturing and Design Standards listed in **Attachment 18** to this Response will be utilized.
 - What type of cathodic protection system (impressed current or sacrificial anodes) will be used? If an impressed current system is planned, where will the rectifier be located?

Response

- The method of cathodic protection will be determined as part of the final pipeline engineering package, expected to be completed in October 2007.
 - How and where will internal corrosion be monitored and controlled?

Response

- Written Operating and Maintenance procedures, damage prevention procedures, and emergency response procedures will be developed prior to commencement of operations in accordance with the requirements of 49 CFR § 192.615 *et seq.*
 - Describe any remotely operated or automated pipeline control systems. These should include remotely/automatically operated valves, emergency blow-down (de-pressurization) facilities, etc.

Response

- SMUD and PG&E will be responsible for remotely operated pipeline valves and controls at the interconnections. Please see preceding responses concerning control systems to be incorporated into the SNGS facilities design.

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- iii. Please provide a detailed descriptions of the Compressor Station, Wellhead Site, and Morrison Creek Cross-tie Station. For example:
- What safety measures will be incorporated into the design of the compressor building? Will all or part of the compressor building requirements of 49 CFR 192 be incorporated into the design of this building? Will the building occupancy be classified as F-1 or H, in accordance with the California Building Code (CBC)? Will all applicable design requirements and safety systems of the CBC be included in the building design?

Response

- All applicable codes and industry standards will be followed, including 49 CFR 192 and the manufacturing and design standards set forth in **Attachment 18**. The building is classified by CBC as a Group H, Division 2.
- Please provide a description of the proposed compressor station safety equipment. For example, will motion detectors, release monitors, fire detection equipment, security cameras, etc. be installed to monitor this location? Please explain the extent of any such equipment both inside the compressor building, as well as outside the building.

Response

- A combination of fire and gas detection, site access controls, and camera systems will be utilized to secure the compression site. It is expected the fire and gas detection will be installed inside the compressor building. Further details of these systems will be determined in the final engineering design process; the information is anticipated to be provided in October 2007.
- What safety systems are proposed to protect the public at the wellhead and compressor sites (e.g., fire or blast walls, sound walls, etc.)?

Response

- The wellhead site will be isolated from the public by a combination of solid masonry, chain link and barbed wire fencing. Access will be controlled through locked/limited access gates. Cameras will also be utilized to monitor the site. Further details of these systems will be determined in the final engineering design process; the information is anticipated to be provided in October 2007.
- What are the normal and maximum operating pressures, flow rates, and temperatures for the facilities.

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Response

- The normal range of pressures expected in the station is: 250 – 1750 psig
- Flow rates will range from zero to 200 MMscfd (on withdrawal)
- Expected gas temperature range is 70F to 120 F. (The gas temperature in the compressor cylinders can reach temperatures to 350F, but is cooled before entering the facility piping.)
- Describe the control systems for each site.

Response

- An Allen-Bradley PLC system will be installed at the facilities for system controls. In general each skid mounted unit (compressor, dehydration unit, etc.) will have a unit control panel (UCP) which controls the individual unit, i.e. starts, stops and monitors. These UCP's will be tied into a station control panel (SCP) which controls the over all operation of the facility. A representative example of a control philosophy and cause-and-affect chart is included in **Attachment 19** to the Response. Final details of these systems will be determined in the final engineering design process; the information is anticipated to be provided in October 2007.
- Describe the over-pressure control system for each facility.

Response

- The station control panel (SCP) will monitor pressures throughout the facility. Should an over-pressure set point be exceeded the SCP will initiate the appropriate sequence to protect the facility from over pressuring. Should the SCP or control equipment fail to reduce the pressure, then the autonomous Pressure Safety Valves (PSV's) will vent gas to protect the facility from over pressuring.
- Describe the emergency shutdown system for each facility.

Response

- The ESD is performed by the SCP. The SCP is programmed to initiate an ESD sequence in each UCP. Each UCP is programmed to shut down the individual piece of equipment it operates, in a safe and expeditious manner, when an ESD signal is received. Final details of this system will be determined in the final engineering design process; the information is anticipated to be provided in October 2007.
- Describe the operating and emergency response procedures for the following situations: electrical power loss, loss of communications, leak response, fire response, explosion response, and emergency shutdown.

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Please describe any secondary or redundant power, communications, or control systems.

Response

- The control systems will have individual battery back-ups. Additionally, an emergency generator will be installed to power critical control and emergency circuits and limited yard lighting.
- Provide information on the reliability and failure rate for the proposed compressors and other major equipment. Please describe typical compressor failures, especially those that may result in the release of natural gas.

Response

- The run time reliability of the electric driven reciprocating compressors is expected to be between 98% and 99.9%. Most typical compressor failures do not result in unintended gas release. The most typical failure is a compressor discharge valve failure. This usually results in an alarm and a shutdown. The valve can then be repaired in a timely manner as required.
- c) **Impact Assessment Results:** Page 3.12-13 of the PEA states, “There are no schools within one-quarter mile of the proposed project, therefore, there would be no safety hazards associated with hazardous emissions within one-quarter mile of an existing or proposed school...” Please provide the results of any release modeling and subsequent fire and explosion analysis to support this conclusion.

Response

- The conclusion that the proposed SNGS facilities would not present any “safety hazards . . . within one-quarter mile of an existing or proposed school” is based on the fact that there are no existing or proposed schools located within one-quarter mile of the proposed SNGS facilities; accordingly, no release modeling was necessary in support of the conclusion.

3.12 Public Services and Utilities

- a) *Page 3.13-13 (PSU-1, Other Public Facilities):* Are there any known utilities, such as other high-pressure natural gas lines in the proposed rights-of-way? Would horizontal boring be required under existing utilities that would result in additional workspace requirements not shown on Figure 2-2?

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Response

- There are no known utilities in the proposed rights-of-way. Preliminary engineering indicates that the required horizontal boring will not require any additional workspace other than as shown on Figure 2-2.

- b) Will the pipeline alignment be within the UPRR right-of-way? (See also deficiency request 3.8 regarding UPRR.)

Response

- The pipeline alignment will not be within the UPRR right-of-way.

3.13 Transportation and Circulation

- a) Under TRA-4, the impact analysis assumes the roadway closures where pipe is installed along the roadside would be “limited” because it would not be in the road itself. What would the workspace needs be during trench excavation, spoil stockpiling, pipe installation, etc.? Would these operations require lane closure?

Response

- Roadway closure of Fruitridge Road, as discussed in TRA-4 was deemed to be “limited.” The connecting pipe will approach from the south and will be perpendicular to SMUD Line 700A, approaching from Depot Park property. Therefore, the workspace for trench excavation, spoil stockpiling, pipe installation, etc., would be on Depot Park property and would not require lane closure.

4.0 ALTERNATIVES

- a) Provide description and illustration of any other abandoned storage fields considered for the project and why these fields were rejected. If other fields were not evaluated describe why not.

Response

- The project developers believe there is a significant need for additional, strategically located natural gas storage in California. The need for additional storage is reflected in the Governor’s Energy Policy as well as in policy statements of both the California Energy Commission and the California Public Utilities Commission.
- The developers determined to identify locations at the end-of-the-pipe that could be stranded in instances of supply cut off up-stream and would required storage for heating and lighting. Sacramento is clearly one of those locations.

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- Five major criteria were utilized in selection of the Florin Field:
 - Size – The Reservoir needs to be able to contain about 5 to 10 Bcf of “working gas.” This is the gas that customers store. It can’t be less than 5 as the overall cost of the project is such that the investors would not recover their investment. Any size over about 10 Bcf will require such a large volume of cushion gas at currently about \$7,000,000 per Bcf that the project could not pay for itself.
 - Depth – The reservoir preferably should be less than about 4’000 feet sub sea. The greater the depth the higher the cost of wells, maintenance, and operation.
 - Geological Formation – The geological structure needs to be porous so that it will accept gas into storage and release that gas when required. It is helpful if it has a “water drive” for pressure maintenance. It needs a strong “Cap Rock” to assure the containment within the structure. Preferably it should not be significantly faulted in an active fault zone. And finally, it should be relatively cohesive as opposed to spread out over a large geographical area.
 - Location – The field should be located in reasonable locus to major pipelines.
 - Environmental Issues – Preferably the surface facilities and pipelines can be located so that they do not impinge upon sensitive wild lands, water ways or other habitat. And the facilities should be locatable so as not to negatively impact air, noise, or visual factors in residents living conditions.
- The following chart lists the gas fields in Sacramento County and shows the criteria applied and the results of the SNGS evaluation by field.

Sacramento County Gas Fields

Field	Size	Depth	Geological	Location	Environmental Issues
Sacramento Airport Gas	Large	Good	Difficult	Poor	Yes
Freeport Gas	Small	Deep	Okay	Good	Okay
Florin Gas	Good	Good	Good	Good	Residential
Stone Lake Gas	Small	Deep	Very Faulted	Poor	Yes
Poppy Ridge Gas	Small	Deep	Okay	Poor	Yes
Snodgrass Slough Gas	Small	Deep	Unknown	Poor	Yes
Thornton	Very Large	Good	Okay	Poor	Yes

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APPENDICES

- a) Please submit Appendix A electronically in Word or Excel.

Response

- SNGS is providing an updated list identifying the owners of properties overlying the portion of the Florin Gas Field proposed to be utilized for the SNGS Project. That list is contained in the Excel file provided as **Attachment 20** to this Response. The “Pipeline Right-of-Way Worksheet” remains as set forth in Appendix A to the PEA.

- b) Please confirm that the property owners listed in the table only include property owners above the Florin Gas Field (i.e. the list does not contain adjacent property owners).

Response

- The table provided in **Attachment 20** to this Response includes only owners of properties overlying the portion of the Florin Gas Field proposed to be utilized for the SNGS Project.