Department of Conservation, Division of Oil, Gas, and Geothermal Resources
STATE OIL AND GAS SUPERVISOR
801 K Street, MS 24-03 (Legal Office)
Sacramento, California 95814-3530
Telephone (916) 323-6733
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STATE OF CALIFORNIA
NATURAL RESOURCES AGENCY
DEPARTMENT OF CONSERVATION
DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

CONSENT ORDER 1126-C
(RE: REMEDIAL ORDER NO. 1126)

Dated: September 5, 2018
Operator: Wild Goose Storage, LLC (W2360)
The State Oil and Gas Supervisor (Supervisor), Kenneth A. Harris Jr., acting through the Division of Oil, Gas, and Geothermal Resources (Division) hereby delineates, and Wild Goose Storage, LLC (Operator) hereby agrees to, the terms of this Consent Order which resolves Remedial Order No. 1126 (dated July 24, 2018; Exhibit A, incorporated herein) and Operator’s related appeal (dated August 6, 2018; Exhibit B; incorporated herein).

I. Operator’s Required Actions

Operator is required to:

1) Run a noise and temperature log prior to pulling tubing from “Wild Goose Gas Unit 2” 24 HZ (Well) by September 30, 2018. In the shallow section where damage may have occurred (approximately 600 feet True Vertical Depth Subsea), Operator shall arrange for a reduced logging speed (less than 100 feet per minute) for better characterization of the section.

2) Inspect the Well by running the following logs with no tubing in the Well by October 31, 2018, to assess mechanical integrity of the casing:

   a. Multi-Arm Caliper Inspection, with a minimum of 32 arms; and

   b. High-resolution Vertilog (or similar magnetic-flux tool).

3) Conduct pressure testing to assess the mechanical integrity of the casing. The testing shall be digitally recorded and shall begin at least at 115 percent (%) of the maximum allowable operating pressure (MAOP) (see additional notes below for new MAOP requirement.) A passing pressure test is a pressure loss not exceeding 10% in the first 30 minutes and does not show more than a 2% decline from the pressure after the first 30 minutes in the second 30 minutes.

4) Monitor wellhead pressure of the Well on a daily basis and provide the results to the Division (via electronic mail to dogdist6@conservation.ca.gov) no later than Monday morning for the previous week;

   and/or:

5) In the event that well work will not commence within 30 days, Operator shall pull the tubing and set a mechanical bridge plug above the liner hanger of the Well pending when initial work will commence with proper permits.

CONSENT ORDER 1126-C (RE: REMEDIAL ORDER NO. 1126)
NOTE: In addition, for well "Wild Goose Gas Unit 2" 24 HZ (Project No. 84000002) only, Operator will now be required to test at 1898 pounds per square inch (psi) = 115% of new 1650 psi MAOP. The Division has agreed to lower the MAOP to 1650 psi with an addendum to the Project Approval Letter (PAL) to be effected through a parallel process. The Division will endeavor to update the existing PAL for Project No. 84000002 to reflect this change as soon as the due process is completed.

Wild Goose Storage, LLC, by the signature of its authorized representative below, attests that it has reviewed the terms set forth above, that it had an opportunity to discuss the terms with its counsel, and that after such review and discussion agrees to all of the above terms, including modification of the PAL for Project No. 84000002. In addition, Wild Goose Storage, LLC agrees that its appeal of Remedial Order No. 1126 is resolved and understands that this Consent Order is a final order that is not subject to an appeal through the Division’s administrative process.

Wild Goose Storage, LLC

By: [Signature]
Mathieu Fournier
Vice President
Engineering & Operations

Approved as to Form by:

By: [Signature]
Jason A. Dubchak
Vice President - Legal & Regulatory Counsel for Wild Goose Storage, LLC

Dated: September 5, 2018

CONSENT ORDER 1126-C (RE: REMEDIAL ORDER NO. 1126)
By agreeing to, and completing, the requirements herein, and executing where indicated, Operator will obviate the need for Remedial Order No. 1126 and, therefore, the remedial measures listed in Remedial Order No. 1126 are no longer required. As such, the Supervisor’s execution below indicates the Supervisor is withdrawing Order No. 1126.

Dated: 9/5/2018

Kenneth A. Harris Jr.
State Oil and Gas Supervisor

II. Potential Actions to Enforce This Consent Order

In addition to being subject to Supervisor-initiated work and tax liens under PRC section 3226, Operator’s failure to comply with Section I (Operator’s Required Actions) of this Consent Order could subject Operator to further enforcement action. For example, the Supervisor could deny approval of proposed well operations until compliance is achieved, or order the plugging and abandonment of wells (PRC, sections 3203, subd. (c), and 3237, subd. (a)(3)(C)).

In addition, PRC section 3236.5 authorizes the Supervisor to impose a civil penalty on a person who violates any provision in Chapter 1 of Division 3 of the PRC or any regulation that implements those statutes, and the Supervisor may in the future impose a civil penalty based on the facts and omissions underlying this Consent Order.

Further, PRC section 3236 makes it a misdemeanor for any person who violates, fails, neglects, or refuses to comply with any of the provisions of the oil and gas law. The misdemeanor is punishable by a fine of not less than one hundred dollars ($100) nor more than one thousand dollars ($1,000), or by imprisonment not exceeding six months, or by both the fine and imprisonment for each separate offense. PRC section 3359 makes it a misdemeanor to fail or neglect to comply with an order of the Supervisor. Each day’s further failure, refusal, or neglect is a separate and distinct offense (PRC, section 3359).
STATE OF CALIFORNIA
NATURAL RESOURCES AGENCY
DEPARTMENT OF CONSERVATION
DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

REMEDIAL ORDER TO:
VERIFY AND MAINTAIN PRESSURE CONTROL

NO. 1126
Dated: July 24, 2018
Operator: Wild Goose Storage LLC (W2360)

BY
Kenneth A. Harris Jr.
STATE OIL AND GAS SUPERVISOR
I. Introduction

The State Oil and Gas Supervisor (Supervisor), acting through the Division of Oil, Gas, and Geothermal Resources (Division) and under the authority of Division 3 of the Public Resources Code (PRC; commencing with PRC section 3000) and title 14 of the California Code of Regulations (Regulations), may order tests and remedial work concerning oil and natural gas field operations which, in his judgment, are necessary to prevent damage to life, health, property, and natural resources (See PRC sections 3106 and 3224). The Supervisor is to ensure that “no damage occurs to the environment by reason of injection and withdrawal of gas” in underground gas storage facilities (PRC section 3404.5). To that end, the Supervisor may request from the operator any data that are pertinent and necessary for the Division, and its District Deputy, to properly evaluate underground injection projects (See, e.g., Cal. Code Regs., tit. 14, sections 1724.6 and 1724.7, subd. (e)). The operator must maintain those data and make them available to Division personnel to show, among other things, that no damage to life, health, property, or natural resources is occurring by reason of the project (Cal. Code Regs., tit. 14, section 1724.10, subd. (h)).

Based on the Division’s records, at all times relevant to this order, Wild Goose Storage LLC (Operator) is the current natural gas storage operator ("Operator" as defined in PRC section 3009) who has the Division’s approval to operate Wild Goose Gas Storage, Project No. 84000002. On June 8, 2018, the Division was notified of an incident referenced in California Office of Emergency Services (Cal OES) report number 18-3746 where the Operator lost control of well “Wild Goose Gas Unit 2” 24 HZ (the Well) resulting in an uncontrolled release of natural gas, damage to the blowout preventer equipment being used for the workover, and alleged injuries to personnel on site. Following initial remedial actions, the Operator placed the Well in an interim “static” condition by filling with fluid and restoring the wellhead after ceasing workover operations. This interim static condition must be maintained for continued safety. As such, the Division hereby orders the Operator to verify and maintain pressure control of the Well.
Therefore, pursuant to PRC sections 3013, 3106, 3224, and 3226, and as set forth below, the Supervisor is ordering Operator to adhere to the items identified in section IV below (Operator’s Required Actions).

II. Definitions

PRC section 3008, subdivision (a), defines “Well” to include “... any well drilled for the purpose of injecting fluids or gas for stimulating oil or gas recovery. . .”

PRC section 3009 defines “Operator” to mean “a person who, by virtue of ownership, or under the authority of a lease or any other agreement, has the right to drill, operate, maintain, or control a well or production facility.”

III. State Oil and Gas Supervisor and Division Authority

PRC section 3013 states that the oil and gas law (Division 3 of the PRC, commencing with section 3000) “shall be liberally construed to meet its purposes” and grants the Supervisor “all powers” that may be necessary to carry out those purposes.

PRC section 3106, subdivision (a), authorizes the Supervisor to “supervise the drilling, operation, maintenance, and abandonment of wells and the operation, maintenance, and removal or abandonment of tanks and facilities attendant to oil and gas production ... so as to prevent, as far as possible, damage to life, health, property, and natural resources.”

PRC section 3224 mandates that the Supervisor “order such tests or remedial work as in his judgment are necessary to prevent damage to life, health, property, and natural resources; to protect oil and gas deposits from damage by underground water; or to prevent the escape of water into underground formations, or to prevent the infiltration of detrimental substances into underground or surface water suitable for irrigation or domestic purposes, to the best interests of the neighboring property owners and the public.”

PRC section 3226 authorizes the Supervisor, based on the Supervisor’s final or affirmed order, to appoint agents who may enter the well premises and perform necessary work if the operator did not complete the work as ordered. Any amount the Supervisor expends to complete the necessary work constitutes a lien against the operator’s real or personal property according to PRC section 3423.
IV. Operator’s Required Actions

Based on the above, and pursuant to PRC sections 3013, 3106, 3224, and 3226, the Supervisor hereby orders Operator to verify and maintain pressure control of the Well under Project No. 84000002. Specifically, Operator is required to:

1. Measure the fluid level in the tubing and casing of the Well on a daily basis, refilling as necessary to ensure the Well is full each day.

2. Monitor wellhead pressure of the Well on a daily basis.

3. Estimate reservoir pressure at the level of perforations based on activity of the facility each day.

4. Digitally record daily fluid levels, amount and density of fluid required to fill the Well, and maximum daily wellhead and estimated reservoir pressures.

5. Provide these data on a weekly basis to the Division.

All of actions specified above must be implemented immediately. Additional safety measures may be required depending on daily fluid level and pressure readings.

V. Operator’s Appeal Rights

Operator may appeal this Order by filing a timely, written, notice of appeal with the Director as described in Article 6 (Appeals and Review) of Division 3 of the PRC, commencing with PRC section 3350. (PRC, section 3225, subd. (d)) A written notice of appeal may be mailed to the following address:

Department of Conservation
Director’s Office of Appeals
801 K Street, MS 24-03 (Legal Office, Chief Counsel)
Sacramento, California 95814-3530

If Operator does not submit a timely, written, notice of appeal, Operator waives the right to challenge this Order and this Order will become a final order. At such time, pursuant to PRC section 3226, the Division may contract for the performance of all work required in this Order within 30 days of the Order. Any costs incurred by the Supervisor to obtain compliance with
this Order will constitute a lien against Operator’s real or personal property per PRC section 3423.

If Operator submits a timely, written notice of appeal, it, and interested parties, will receive notice of the appeal hearing date, time, and place. Following the hearing, Operator will receive a written decision that affirms, sets aside, or modifies the appealed order.

VI. **Other Potential Actions to Enforce This Order**

Failing to comply with Section IV (Operator’s Required Actions) of this Order could subject Operator to further enforcement action. For example, the Supervisor could deny approval of proposed well operations until compliance is achieved, or order the plugging and abandonment of wells (PRC, sections 3203, subd. (c), and 3237, subd. (a)(3)(C)).

In addition, PRC section 3236.5 authorizes the Supervisor to impose a civil penalty on a person who violates any provision in Chapter 1 of Division 3 of the PRC or any regulation that implements those statutes, and the Supervisor may in the future impose a civil penalty based on the facts and omissions underlying this emergency order.

Further, PRC section 3236 makes it a misdemeanor for any person who violates, fails, neglects, or refuses to comply with any of the provisions of the oil and gas law. The misdemeanor is punishable by a fine of not less than one hundred dollars ($100) nor more than one thousand dollars ($1,000), or by imprisonment not exceeding six months, or by both the fine and imprisonment for each separate offense. PRC section 3359 makes it a misdemeanor to fail or neglect to comply with an order of the Supervisor. Each day’s further failure, refusal, or neglect is a separate and distinct offense (PRC, section 3359).

**DATED: July 24, 2018**

Kenneth A. Harris Jr.
State Oil and Gas Supervisor

See attached PROOF OF SERVICE for distribution list
PROOF OF SERVICE BY CERTIFIED U.S. MAIL

I declare that I am employed in the County of Sacramento, California. I am over the age of 18 and not a party to the within captioned cause. My business address is 801 K Street, MS 18-05, Sacramento, California 95814. On July 24, 2018, I served the following document(s):

REMEDIAL ORDER TO: VERIFY AND MAINTAIN PRESSURE CONTROL, ORDER NO. 1126 WILD GOOSE STORAGE LLC (W2360)

by enclosing them in an envelope and placing the envelope for collection and mailing by certified U.S. mail on the date and at the below listed address(es) following our ordinary business practices. I am readily familiar with this business’s practice for collecting and processing correspondence for mailing. On the same day that correspondence is placed for collection and mailing, it is deposited in the ordinary course of business with the United States Postal Service in a sealed envelope with postage fully prepaid.

I served the documents on the person or persons below, as follows:

Mr. Pat Baynard, Agent
Wild Goose Storage LLC
P.O. Box 8
Gridley, CA 95948
Cert. mail: 7014 2120 0000 5989 3669

Operator
Wild Goose Storage LLC
P.O. Box 8
Gridley, CA 95948
Cert. mail: 7014 2120 0000 5989 3676

I declare under penalty of perjury of the laws of the State of California that the foregoing is true and correct, and that this declaration was executed on July 24, 2018, at Sacramento, CA.

[Signature]
Rachael Tadlock
August 6, 2018

Mr. Kenneth A. Harris Jr., State Oil and Gas Supervisor
Department of Conservation, Division of Oil, Gas, and Geothermal Resources
801 K Street, MS 24-03 (Legal Office)
Sacramento, California 95814-3530

Re: Notice of Appeal to Remedial Order to: Verify and Maintain Pressure Control, No. 1126
Wild Goose Storage, LLC (W2360), dated July 24, 2018

Dear Mr. Harris,

On Monday July 30, 2018, Wild Goose Storage, LLC (WGS) received by certified mail the Remedial Order referenced in the subject line.

Challenge of Remedial Order No. 1126:

After a careful review, WGS concluded that the Order should be appealed based on the fact that it is not justified in the circumstances and it is not technically sound or feasible. For these reasons which will be explained in detail below, WGS is filing the present Notice of Appeal to Remedial Order No. 1126.

1) The Order is not Justified in the Circumstances.

a. Review of events:

Background and purpose of the well workover under Permit No. 7000647:

The purpose of the workover conducted on well “Wild Goose Gas Unit 2” 24 HZ (the “Well”) in June 2018 was to install tubing and packer and conduct inspection and testing to get a head start in anticipation of the new rules which will require such modifications on all gas storage wells in the State. The Well is a modern gas storage well constructed in 2002, with casing designed to contain 3 times the current pressure (the casing wall thickness would have to be reduced by more than 66% before being concerned by its ability to contain current pressure), cemented to surface, with no history of integrity issues which has consistently passed integrity testing every year. It is also pertinent to note that WGS has been pro-active and that 24% of the wells within the WGS storage reservoir have had their casing inspected within the last two years and that results of these inspections show no corrosion issues within this storage field.
Review of the June 8, 2018 incident reported to Cal OES and the Division:

During the workover operations, an incident occurred on June 8, 2018. Control of the well pressure was lost for a few seconds before the blowout preventers ("BOP") were closed to regain control of the well. During that time, tubing was pushed out of the well towards surface before the blowout preventers closed on the tubing and stopped movement. During these few seconds a very small amount of gas was lost; we estimate that approximately 5 Mcf of gas escaped the well during this incident. After control of the well was regained, workover operations were put on hold, the situation was assessed, and proper notifications were made to WGS management and regulatory authorities. In a preliminary investigation of the incident, it was determined that the immediate cause was the failure of the Sub-Surface Safety Valve ("SSSV") packer to equalize pressure upon being unseated, thus acting as a "loose cork" and being pushed towards surface by the pressure differential. WGS would like to correct a statement in Order No. 1126 which alleges that there would have been "damage to the blowout preventer equipment being used for the workover." Although WGS did change elements of the BOP before resuming workover operations following the incident out of an abundance of caution, there was no indication of functional damage to the BOP and it did perform as intended before, during and after the incident.

Less than 48 hours after the incident, following the preliminary investigation and discussions with Division representatives, it was decided to cut the workover operations short and re-assemble the well back in its original condition, except for the SSSV which would not be reset in the well, and suspend operations on this well. To re-assemble the Well, a circulation kill was completed, the BOP elements were replaced as a precaution, the SSSV assembly was pulled out of the well and removed, and new tubing joints were run in the Well so that tubing could be set back in near its original depth, without the SSSV. The wellhead was then re-assembled, and the services were de-mobilized. In this current state the Well has the same configuration as most gas storage wells in California and workover operations can resume safely, without possibility of complications caused by the presence of a SSSV, when the Division will allow.

As requested by the Division in a separate request, a more detailed Root-Cause-Analysis ("RCA") and a go-forward work plan to prevent future occurrence of such incidents are in preparation and will be submitted to the Division by August 11, 2018.

b. Potential for damage to the well:

During the sequence of events summarized above, WGS does not see potential for damage to the integrity of the well. The SSSV packer was set at 536 feet of depth within the vertical portion of the Well and moved towards surface along with the
tubing assembly after being unseated as per the manufacturer’s procedure. There was no possible lateral movement or impact to the casing or other pressure containing element. Furthermore, as mentioned previously, the Well is a modern gas storage well constructed in 2002, with casing designed to contain 3 times the current pressure, cemented to surface, with no history of integrity issues which has consistently passed integrity testing every year and results of recent inspections show no corrosion issues within this storage field.

In addition, integrity monitoring done after the incident occurred, such as testing of the annular space between surface casing and production casing for the presence of gas, have shown negative results and no reason for concern.

WGS, as a responsible operator with an excellent record for safety and compliance, does not have outstanding concerns for the integrity of the Well.

2) **The Order is not Technically Sound or Feasible.**

The Order requires WGS to verify and maintain pressure control of the Well. Specifically, WGS is required to:

1. measure the fluid level in the tubing and casing of the Well on a daily basis, refilling as necessary to ensure the Well is full each day;
2. monitor wellhead pressure of the Well on a daily basis;
3. estimate reservoir pressure at the level of perforations based on activity of the facility each day;
4. digitally record daily fluid levels, amount and density of fluid required to fill the Well, and maximum daily wellhead and estimated reservoir pressures; and
5. provide these data on a weekly basis to the Division.

WGS would like to re-assure the Division that the Well was properly re-assembled before suspending workover operations and pressure control of the Well is currently maintained by production casing cemented to surface and the wellhead assembly, thus meeting the intent of the Order.

As for the specific requirements No. 1. and 4. to measure fluid levels and refilling as necessary to ensure the Well is full each day, these requirements are judged to be non-justified and not technically sound or feasible.

The storage reservoir at Wild Goose has excellent permeability and this will cause kill fluid to quickly fall down the wellbore and into the reservoir, unless it is prevented to do so by an effective bridging agent to greatly augment the viscosity of the kill fluid and slow down absorption of the kill fluid by the storage reservoir. Bridging agents used
during workovers are designed to maintain their bridging properties for a few hours only before they break down; this is purposeful so as to leave the reservoir porosity unharmed.

WGS estimates that the requirement of the Order to keep the Well full of fluid for an indefinite period could require hundreds of barrels of specialized brine per day and would lead to a continuous, daily traffic of tanker trucks carrying brine to the well for an unspecified duration (several months?). This would lead to a monumental waste of resources, considerable nuisance to property owners along the route and augmented risk of traffic accident on the roads with the daily tanker truck traffic. Furthermore, this could damage the long term use or usefulness of the storage well itself.

Regarding the specific requirements No. 2. and 3. of the Order, the wellhead pressures of the Well and all other storage wells are monitored continuously by the SCADA system and can be provided to the Division as requested.

3) Counter-proposal.

For the reasons described above, WGS is positive that there are no reasons to be concerned with the integrity of the Well and that no further actions are necessary until WGS is ready to come back to the well in 2019 to resume the tubing and packer installation workover.

Hence, WGS respectfully requests that Remedial Order No. 1126 be set aside by the Division and that WGS and the Division work together to plan for resuming the tubing and packer installation workover in the spring of 2019.

If the Division still has outstanding concerns which were not appeased by the present appeal, then WGS would propose to modify the Order by removing the requirement to keep the Well full of fluid and replace with the following:

1. discuss the Division’s outstanding concerns and be given the opportunity to address them. WGS is available to meet with the Division either in-person or by teleconference;
2. if, following the discussion, the Division would remain concerned with the integrity of the Well, then WGS would be prepared to inspect the Well with a temperature-noise log and/or a through-tubing casing inspection log within one month of being instructed to do so, to verify that there are no concerns to the integrity of the Well; and
3. if, following the above, results from the logs would show reason for concern, then WGS would be prepared to perform a workover on the Well, with proper authorization from the Division, to pull tubing, inspect casing and either set a plug at the bottom or continue with its original tubing and packer installation.
WGS, as a responsible operator with an excellent record of safety and compliance, hopes that the Division will agree with the reasoning above and grant WGS appeal to set aside or modify the Order.

I personally remain available at your convenience to the Division to discuss these matters and address any outstanding concerns either in-person or by teleconference.

Sincerely,

Mathieu Fournier  
Vice President, Engineering & Operations  
Wild Goose Storage, LLC  
Direct phone line: 403-513-8657

Attachments

Cc:  
Pat Baynard, WGS (pat.baynard@rockpointgs.com)  
Gary Theberge, WGS (gary.theberge@rockpointgs.com)  
Simon Dupere, WGS (simon.dupere@rockpointgs.com)
Well No. 24 HZ Sub-Surface Safety Valve assembly removed from the well in June 2018: