NOTICE OF INTENTION TO ABANDON AND PLUG WELL (Oil & Gas Form 3)

Permit no. CM-10

File with the Oil and Gas Supervisor, Department of Natural Resources, Division of Geology and Earth Resources, MS 47007, Olympia, WA 98504-7007. A copy will be returned with approval or denial. You must also complete and file the Well Record or History (Oil & Gas Form 2).

Field or vicinity: Forks District County: Clallam

Operator: Glenn Springs Holdings, Inc. Address: 1201 Lake Robbins Drive, The Woodlands, TX 77380

Lease: Bloedel-Ruddock Well No: 1

Location (lat/long and TRS): 47.963191, -124.400311

Kind of well: Gas Total depth: 6,210 feet (oil, gas, or dry hole)

Allowable (if assigned): ________________________________

Last production test: Oil: 0 (bbls.) Water: unknown (bbls.) Gas: unknown (M.C.F.)

Production horizon: ________________________________ Producing from: ________________ to ________________

Date of commencing proposed operations: N/A

Name of party plugging well: Glenn Springs Holdings, Inc. Phone: 832-636-1558

Address: 201 Lake Robbins Drive

Email: Jesse_Harris@oxy.com City/State/Zip: The Woodlands, TX 77380

Fax: None Correspondence should be sent to:

Name: Jesse Harris Title: Project Manager

Attach narrative description of the proposed plan of for plugging. Include full details of length and depth of plugs, plans for mudding, cementing, testing, and removing casing, and any other information to that will assist the agency in the evaluation of this proposal.

ACTION OF AGENCY

☐ Approved Date: _____________________

☐ Denied Date: _____________________

Washington State Department of Natural Resources
Division of Geology and Earth Resources

By: ________________________________

Name: ________________________________

Title: ________________________________
Wells within 1 mile

**Subject Well**

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<th>TRS</th>
<th>Name</th>
<th>API</th>
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<td>2506-2510' (7 sks)</td>
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<td>188</td>
<td>Bloedel-Ruddock No. 1</td>
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</table>

**Well log data and plan**

- **CM10**
  - T28N, R13W, S5
  - 2406.90 ft

**Casing Data**

- **9 5/8" casing**
  - (12 1/4" hole)
  - 1165 - 1993 ft
  - Gel 14 ppg fluid
  - Gel 14 ppg

- **7 5/8" casing**
  - (9 7/8" hole)
  - 3095 - 3045 ft (14 sks)

- **4 3/4" liner**
  - (7" hole)
  - 2506-2406' (28 sks.)

**Plug Data**

- **Plug 1**
  - Gun perforated 3,000'
  - shows of gas (3684-4205')
  - 3100-6000'

- **Plug 2**
  - shows of gas (1185 - 1993)

- **Plug 3**
  - Cement plug 400'-260'

**Notes**

- Abandoned shortly after June 6, 1938
- Bad caving (3746, 3776, 4002, 4251)
- Gel 14 ppg fluid
- Gel 15.6 ppg

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Wells within 1 mile

**Abandoned shortly after June 6, 1938**
Narrative Description of the Proposed Plan for Plugging

The plugging of the well will be performed in Phases:

- Phase I—Reestablish Overland Access to Well Site
- Phase II—Plug and Abandon (P&A) Well
- Phase III—Restore/replant the work pad and remove access road improvements

The activities identified below represent the project proponent’s conservative estimation of the work that would be performed at the site; less environmentally-impactful alternate activities may be performed, or some activities may not be performed, depending on the timing of work, the to-be-determined condition and construction of the well components, and other factors.

**Phase I—Reestablish Overland Access to Well Site**

The Bloedel-Ruddock exploration well is located on forested lands with primarily evergreen tree growth of 30 years since last harvest. Two potential means of overland access have been identified.

**Access 1.** Access to the area would be along a county easement (an abandoned road) and railroad line bed and along a semi-improved dirt road (combined herein referred to as the access road) that was used to support past logging activities in the area. Under Phase I the access road would be rehabilitated to support the movement of equipment needed to P&A the well, and a work pad would be constructed at the well site. Access 1 will be accomplished in the following steps:

- A stabilized rock construction entrance will be built near a current vehicle pull-out area to allow access to the existing dirt access road / railroad bed, and to prevent track-out onto US 101 (see Figure 1). To establish this approximately 0.3 acre pull-out area, existing vegetation will be removed, the area will be graded, and an aggregate base will be laid. A temporary culvert will be installed to maintain hydraulic connectivity for the drainage ditch currently located along the east side of US 101.
- After establishment of the pull-out area, the existing dirt access road / railroad bed will be rehabilitated. The rehabilitation will include: widening of the access road in some locations sufficient for the passage of specialized P&A equipment (to include the removal of trees and vegetation in such areas); the trimming of vegetation and trees along the sides of the access road; and the placement of aggregate (crushed rock or gravel) on the access road to facilitate P&A activities during inclement weather. A steel gate may be installed across the access road to inhibit the entry of non-project vehicles.

**Access 2.** Access to the area would be through an existing privately-owned campground/recreational vehicle park, and then along a smaller portion of the same county easement (an abandoned road) as described for Access 1, a railroad line bed, and along a semi-improved dirt road (combined herein referred to as the access road) that was used to support past logging activities in the area. The access road would be rehabilitated to support the movement of equipment needed to P&A the well, and a work pad would be constructed at the well site. Access 1 will be accomplished in the following steps:

- At the point where the county easement intersects the campground, the county easement (abandoned road) and the existing dirt access road / railroad bed will be rehabilitated. The rehabilitation will include: widening of the access road in some locations sufficient for the passage of specialized P&A equipment (to include the removal of trees and vegetation in such areas); the trimming of vegetation and trees along the sides of the access road; and the placement of aggregate (crushed rock or gravel) on the access road to facilitate P&A activities during inclement weather. A steel gate will be installed across the access road to inhibit the entry of non-project vehicles.

The P&A activities will require a work pad of dimensions approximating 250’ by 250’ to be located at the location of the well. The existing trees and vegetation within the work pad area will be removed, the surface will be graded and compacted, and then a rock base will be laid over the well pad area.
It is anticipated that work in Phase I will take approximately 2 calendar weeks to complete, with a crew of approximately 10 workers. The typical construction equipment that would be used to complete the activities in Phase I include a backhoe(s), bulldozer(s), front loader(s), skid steer tractor(s), dump truck(s), and haul truck(s).

**Phase II**
The Bloedel-Ruddock exploration well P&A activities will occur during Phase II. The work could take approximately 5 weeks, with a crew of approximately 20 workers working seven days a week. The work under Phase II may not be performed continuously; depending on findings as the work progresses, activities may be paused for additional planning, consultation, or for health and safety purposes. Additionally, inclement weather may cause the stoppage of work.

The exact plugging and abandonment operations that may be necessary (and thus the final plugging plan) will not be known until the completion of the wireline work described below. At that time, the project proponent will finalize its P&A plan and submit it to the DNR for review and approval. Note that if, at any time, Glenn Springs Holdings, Inc. identifies through the activities proposed under Phase II that the well is not its responsibility, the well will be made safe, the DNR will be notified, P&A activities will cease, and equipment will be demobilized from the site.

The activities that would be completed under Phase II would include the following:

**II-A. Excavate Around the Well, Control Gas Pressure, Top Kill Well**
Under Phase II-A, the project proponent will execute the following activities:

- Excavate a pit around the wellbore. The pit would measure approximately 28’ x 30’ and would be approximately 8’ deep (see Figure 2). Soils would be stockpiled on-site. This activity would be accomplished using a backhoe and a skid-steer tractor.
- Mobilize the following equipment to the work pad at the well location:
  - 2 to 4 Baker tanks (depending on the volume that each tank can hold). The Baker tanks will be filled with water that will be procured from a commercial or municipal vendor offsite.
  - Secondary containment equipment
  - Hot tapping crew and equipment
  - Flowback equipment and tank
  - Wireline truck
  - Well service rig
  - Blowout Preventer
  - Mud pump
  - Front loader
  - Crew vehicles (pickup trucks)
- The hot tap crew will weld a Thredolet to the conductor pipe.
- The hot tap crew will tap through the Thredolet and the outer conductor pipe to and through the surface casing and then to and through the production casing within the well.
  - If the hot tap activity encounters concrete within the production casing at the planned depth of 3’ below the coupler, additional investigative methods will be required to determine the depth of the cement. This may require further excavation to expose a greater length of the conductor pipe and then performing an additional hot tap.
  - If no cement is encountered, a flowback apparatus will be installed and tested.
  - The well will be vented gradually through the flowback apparatus and tank and monitored for fluid.
- Once gas pressure and flow has been bled-off to an acceptable level, a pumping unit will be set up at the well site and connected to the well via the flowback apparatus.
- Kill well and install BOP
  - Spot and fill a closed top tank with heavy brine (8.7 ppg)
- Rig up the pumping unit on the 2" Threadolet on the side of the casing installed and pressure tested by the hot tap crew.
- Kill the well using top kill or Bullhead method.
  - Estimated casing and liner volume 622 bbls (overestimate of 622 bbls based on hole diameters from Cm-10 log)
  - Pump and monitor volume and flow rate to reach calculated hydrostatic volume to overcome reservoir pressure based on existing formation logs.
  - Check pressure and flow of gas and adjust fluid density if needed.

II-B. Perform Wireline Work

- Once the flow of gas has been stopped, the metallic plug at the top of the production string will be removed.
- If concrete is found within the production casing, the well service rig will be set-up on the well and work will begin to remove that portion of concrete or production casing necessary to get to an open production casing. At that time the wireline crew will run in the production casing to determine the total drilled depth of the well, to investigate the integrity of the down-hole casing, and to identify the construction of the well including the casing seat, perforations, and liner locations.
- If no concrete is found within the production casing, the wireline crew will perform the tasks listed under Step II-C, foregoing the need for the well service rig tasks.

II-C. Cleanout and Cementing

- Mobilize cementing crew and associated equipment and materials to site; this could include flatbed trucks or truck/trailer combinations for hauling-in equipment and fittings for the plugging activity and hauling-out casing (pipe) removed from the well, a truck carrying dry cement mix for plugging the well, Baker tanks to supply water for the concrete, portable sumps for containing fluids, and portable tanks for drilling mud (if needed).
- Perform well plugging as per the well P&A plan agreed to by DNR. This is projected to include the following:
  - Casing and Bore Hole Analysis
    Run Gamma log and Casing Collar Log down 2” to find potential oil and gas bearing zones in the formation, competent cap rock formations, and casing string depths. Historical well log data from adjacent Forks Area wells (within 1 mile radius) indicate gas and oil is present at multiple depths to within 100 feet of surface.

    Correlate Gamma log with existing Schlumberger log from CM-10 from 1937 and other well logs in the Forks area to assess caprock thickness and suitability and develop an isolation strategy.

    Confirm cement plug locations based on oil and gas bearing features and suitable caprock.

    Pressure test 2” to determine its integrity.
  - Shooting off 2” pipe.
    Run in wireline with perf guns to TD and Shoot off 2” production string to release from packer to allow for pulling of production string.
  - Remove production string, isolating oil and gas formations and stopping vertical migration
    Modify the proposed plugging plan document based on additional information gathered in the Wireline Work phase.

    Assure pressure is killed and production string is held secure while replacing/modify the well head and installing a BOP.

    Attempt to pull a joint of 2” production string without parting it. Run wireline camera to inspect/confirm liner presence and perforations.
Remove old production string and stage for removal and recycling. TIH with new work string and rig up the cement unit to pump cement from TD up around the stub. Check for signs of caving and check to see the integrity of the 4” perforated liner.

Cementing by reverse circulation down working string through the 4” continuously up hole past top of first oil and gas bearing formation (around 3,000’). Use gel spacers between cement plugs at strategic intervals based on formation information.

Squeeze jobs may be required to get cement on the backside of a documented 4” perforated liner that was gun perforated from TD up 3,000 feet (6210 to 3210)

Note local well logs indicate the presence of very shallow oil and gas shows. We anticipate at least 3 cement plugs covering know oil and gas bearing zones and freshwater aquifer zones. After each plug is placed, wait 12 hours for cement to set and tag and confirm top elevation of cement. Pump gel spacer from top of plug 1 to the next cement zone. All work to be done in accordance with the plugging plan / isolation strategy document.

- Confirm plug depths and integrity and properly abandon well per the well P&A plan agreed to by DNR.
- Demobilize equipment from site.
- Proceed to Phase III.

**Phase III**
Phase III of the proposed project would involve the removal of some improvements installed under Phase I. The work pad area would be reclaimed by removing the aggregate base. Sedimentation and erosion control measures would be installed at the work pad area in Phase III.

The portion of the pull-out area adjacent to US 101 that is located on Washington Department of Transportation property would be left in-place, pending authorization, at the request of Clallam County.
State of Washington
Oil and Gas Conservation Committee

NOTICE OF INTENTION TO ABANDON AND PLUG WELL

File in duplicate with the Oil and Gas Supervisor, Department of Natural Resources, P. O. Box 168, Olympia, Wash., 98501. One copy will be returned with approval or denial.

Field or vicinity: FORKS.......................... County CLALLAM

Operator: Eastern Petroleum Co.................. Address: P.O. Box 599, Forks, Wa 98331

Lease: FORK.................. Well No: 1 Drilling Permit No 290

Location: 660 Feet, 1690 Feet, Sec. 16, T28N, R13W

Kind of well: Oil Dry Hole Total depth: 3005

Oil, gas, or dry hole

Allowable (if assigned): NONE

Last production test: Oil: 0 (bbls.) Water: 0 (bbls.) Gas: 0 (M.C.F.)

Production horizon: NONE Producing from: to: ......

Full details of proposed plan of plugging (including length and depth of plugs, plans for mudding, cementing, testing, and removing casing):

Bottom Plug 3005-3045 W/1A sks. 2nd plug 2505-2405 W/28 sks.

3rd plug 252-176 W/130 sks. 4th plug 250-0 W/7 sks. Fill intervals between plugs with 14.2# drilling fluid. Will not remove the 226 ft.
of. surface pipe. Clean-up location and place monument over hole.

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Date of commencing proposed operations: 10-23-73

Name of party plugging well: Halliburton Company

Address: Bakersfield, California

Correspondence should be sent to: Same

Name:

Title:

ACTION OF COMMITTEE

Approved: 10/23/73

Denied:

Washington State Oil and Gas Committee

By: [Signature]

Deputy Oil and Gas Supervisor

Verbal permission to plug was obtained from Mr. Ford on the morning of 10-23-73.
Mail to Oil and Gas Supervisor, Department of Natural Resources, Division of Geology and Earth Resources, MS 47007, Olympia, WA 98504-7007, not more than thirty (30) days after completion or plugging and abandonment of well. Follow instructions in Section 344-12-070, Washington Administrative Code [http://apps.leg.wa.gov/wac/default.aspx?cite=344]. Indicate questionable data by following it with a question mark (?).

_________________ Glenn Springs Holdings, Inc. ____________________________
Company or operator

_________________ Bloedel-Ruddock ____________________________
Lease

Field or vicinity __Forks District, well no. 1 in ___ of section _1__, T 28N R 13W, Clallam County. Well is 1,430 feet □ north / X south of the X north / □ south line and 430 feet X east / □ west of the □ east / X west line of section 1.

Latitude/Longitude (decimal degrees, to four places minimum) __47.96458, -124.394291________________________

Lessor __________________________________________ Lessee __Glenn Springs Holdings, Inc. _____________
Address __________________________________________ Address 1201 Lake Robbins Drive,
________________________________________________ The Woodlands, TX 77380

Phone ___________________ Email ______________________ Phone 832-636-1558 __ Email jesse.harris@oxy.com__

Drilling commenced on ________________________________ Drilling was completed on ___ June 1938 __________

Drilling contractor __________________________________ Company __Sun Oil Co._____________________
Address __________________________________________ Phone ___N/A__ Email ___N/A_________

Elevation above sea level at top of casing __295 feet. Total depth ___6,210 feet.

OIL AND GAS SANDS OR ZONES

No. 1, from ____4205’ ____ to ____3684’ ____ feet No. 4, from _________________ to _______________ feet
No. 2, from ____1993’ ____ to ____1165’ ____ feet No. 5, from _________________ to _______________ feet
No. 3, from _________________ to _______________ feet No. 6, from _________________ to _______________ feet

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from ____170’ __________ to ____20’ _______ feet __From Dept of Ecology Water Resources_________
No. 2, from _________________ to _______________ feet
No. 3, from _________________ to _______________ feet
No. 4, from _________________ to _______________ feet
### CASING, LINER, AND TUBING RECORD

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### CEMENT AND TESTING RECORD

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No Data Available

### PLUGS AND ADAPTERS

No Data Available

### RECORD OF SHOOTING OR CHEMICAL TREATMENT

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No Data Available . No Mention of Shooting in Log

### RECORD OF DRILL-STEM AND SPECIAL TESTS

If drill-stem or other special tests or deviation or electrical surveys were made, submit report on separate sheet and attach hereto.

### TOOLS USED

Rotary tools used from ______ 0____ feet to ______ 6200'____ feet and from ____________ feet to ____________ feet.

Cable tools used from ____________ feet to ____________ feet and from ____________ feet to ____________ feet.
RECORD OF DRILLING MUD
Provide volumes and general chemical composition of drilling mud and additives used.

No Record Available

PRODUCTION
Put to producing on ________________. Production of the first 24 hours was ________________ barrels of fluid of which
_______ % was oil; _______ % emulsion; _______ % water; and _______ % sediment. Gravity API ________________
If gas well, cubic feet per 24 hours ________________
Gallons condensate per 1,000 cu. ft. of gas ________________ Rock pressure, lbs. per sq. in. ________________

EMPLOYEES
__________________________________________, Driller ____________________________________________, Driller
__________________________________________, Driller ____________________________________________, Driller

I HEREBY SWEAR OR AFFIRM THAT THE INFORMATION GIVEN HEREWITH IS A COMPLETE AND CORRECT RECORD
OF THE WELL AND ALL WORK DONE ON IT SO FAR AS CAN BE DETERMINED FROM AVAILABLE RECORDS.

Subscribed and sworn to before me
This ________________ day of ________________

__________________________________________
Notary Public

My commission expires: ________________

Signature: ________________
Name: ________________
Position: ________________

Representing (company or operator): ________________
Address: ______________________________________ Phone: ________________
City/State/Zip: ______________________________________ Email: ________________
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