



NATURAL RESOURCES AGENCY OF CALIFORNIA
 DEPARTMENT OF CONSERVATION
 DIVISION OF OIL, GAS & GEOTHERMAL RESOURCES
 5816 Corporate Ave., Suite 100 Cypress, CA 90630-4731
 Phone:(714) 816-6847 Fax:(714) 816-6853

No. T 115-1213

REPORT ON OPERATIONS

WATER FLOOD PROJECT

Ms. Madelyn (Joyce) Holtzclaw
 E & B Natural Resources Management Corporation (E0100)
 1600 Norris Rd.
 Bakersfield, CA 93308

Cypress, California
 November 17, 2015

Your operations at well "Wnf-I" 19, A.P.I. No. 037-22846, Sec. 19, T. 04S, R. 13W, SB B.&M., Wilmington field, in Los Angeles County, were witnessed on 4/2/2015, by Grayson Carlton, a representative of the supervisor.

The operations were performed for the purpose of inspecting the blowout prevention equipment and installation.

DECISION: **APPROVED**

DEFICIENCIES NOTED AND CORRECTED: NONE

HAM:dt

~~EXPIRED~~
~~CANCELLED~~
~~ED~~
~~LED~~

01/16/15

Steven Bohlen

 State Oil and Gas Supervisor

By *Wafiq Ateeq*

 For Daniel J. Dudak, District Deputy

BLOWOUT PREVENTION EQUIPMENT MEMO

Operator E & B Natural Resources Well "Wnf I" -19 Sec. 19 T. 04S R. 13W

Field _____ County Los Angeles Spud Date _____

VISITS:

| | Date | Engineer | Time | Operator's Rep. | Title |
|-----|----------|-----------------|--------------------|-----------------|-------|
| 1st | 4/2/2015 | Grayson Carlton | (1350 to 1420) | David Hopkins | DSM |
| 2nd | | | (_____ to _____) | | |

Contractor Harbor Resources Rig # 3 Contractor's Rep. & Title 16

Casing record of well: 16" cem 60'; 10-3/4" cem 604'; 7" cem 5098', perf 5083 WSO, holes 3579'-3590' (cem off); 5" Id 5037'-5256', perfs 5068'-5250'. TD 5285'. Plugged w/ cem 5270'-3570'.

OPERATION: Testing (inspecting) the blowout prevention equipment and installation. Critical well? Y N
 DECISION: The blowout prevention equipment and its installation on the _____ casing are approved.

Proposed Well Opns: Rework (change bottom hole location and kickoff) . MACP: _____ psi
 Hole size: 14-3/4" fr. 60' to 607', 9-7/8" to 5099' & 12" to 5256'

REQUIRED BOPE CLASS:
II2M

| CASING RECORD OF BOPE ANCHOR STRING | | | | | Cement Details | | Top of Cement | |
|-------------------------------------|-----------|----------|---------|-------|----------------|--|---------------|---------|
| Size | Weight(s) | Grade(s) | Shoe at | CP at | | | Casing | Annulus |
| | | | | | | | | |

| BOP STACK | | | | | | | TEST DATA | | | | | | |
|-----------|----------------|--------------|---------------|-----------------------|-------------|--------------------|---------------|--------------------|------------------|-------------------|----------------|-----------|-------------|
| API Symb. | Ram Size (in.) | Manufacturer | Model or Type | Vert. Bore Size (in.) | Press. Rtg. | Date Last Overhaul | Gal. to Close | Recov. Time (Min.) | Calc. GPM Output | psi Drop to Close | Secs. to Close | Test Date | Test Press. |
| Rd | 2-7/8 | Townsend | 81 | 7-1/16 | 5M | | 1 | | | | | | |
| Rd | CSO | Townsend | 81 | 7-1/16 | 5M | | 1 | | | | | | |

| ACTUATING SYSTEM | | | | TOTAL: 2 | | AUXILIARY EQUIPMENT | | | | | | |
|---|--|--|--|-------------------|--|---------------------|------------|--------------|------|--------|--------|-------------|
| Accumulator Unit(s) Working Pressure <u>N/A</u> psi | | | | | | Connections | | | | | | |
| Total Rated Pump Output _____ gpm | | | | Fluid Level _____ | | No. | Size (in.) | Rated Press. | Weld | Flange | Thread | Test Press. |
| Distance from Well Bore <u>30</u> ft. | | | | OK | | | | | | | | |

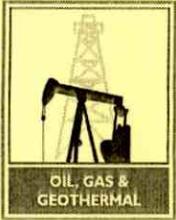
| Accum. Manufacturer | Capacity | Precharge | Fill-up Line |
|---------------------|----------|-----------|------------------|
| 1 Manual | 10gal. | psi | Kill Line |
| 2 | gal. | psi | Control Valve(s) |

| CONTROL STATIONS | | | | Elec. | Hyd. | Pneu | Check Valve(s) |
|------------------------------|------------------|--|--|-------|------|------|--------------------|
| Manifold at accumulator unit | | | | | | | Aux. Pump Connect. |
| Remote at Driller's station | | | | | | | Choke Line |
| x | Other: hand pump | | | | x | | Control Valve(s) |

| EMERG. BACKUP SYSTEM | | | | Press. | Wkg. | Pressure Gauge |
|--------------------------|---|---------|------|--------|---------------------|-------------------|
| N ₂ Cylinders | 1 | L= 51 " | 2200 | 7 gal. | Adjustable Choke(s) | |
| Other: | 2 | L= " | | gal. | Bleed Line | |
| | 3 | L= " | | gal. | Upper Kelly Cock | |
| | 4 | L= " | | gal. | Lower Kelly Cock | |
| | 5 | L= " | | gal. | Standpipe Valve | |
| | 6 | L= " | | gal. | Standpipe Press. | |
| TOTAL: 7 | | | | gal | x | Pipe Safety Valve |

| HOLE FLUID MONITORING EQUIPMENT | | | Alarm Type | | Class | Hole Fluid Type | Weight | Storage Pits (Type & Size) |
|---------------------------------|----------------------|--------|------------|--|-------|-----------------|--------|--|
| | Audible | Visual | | | | | | |
| x | Calibrated Mud Pit | | | | A | lease water | | 135 bbl pump tank, 160 bbl open top tank |
| | Pit Level Indicator | | | | B | | | |
| | Pump Stroke Counter | | | | C | | | |
| | Pit Level Recorder | | | | | | | |
| | Flow Sensor | | | | | | | |
| | Mud Totalizer | | | | | | | |
| | Calibrated Trip Tank | | | | | | | |
| | Other: | | | | | | | |

REMARKS AND DEFICIENCIES: _____



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 DIVISION OF OIL, GAS & GEOTHERMAL RESOURCES
 5816 Corporate Ave., Suite 100 Cypress, CA 90630-4731
 Phone:(714) 816-6847 Fax:(714) 816-6853

No. T 115-1073

REPORT ON OPERATIONS

WATER FLOOD PROJECT

Ms. Madelyn (Joyce) Holtzclaw
 E & B Natural Resources Management Corporation (E0100)
 1600 Norris Rd.
 Bakersfield, CA 93308

Cypress, California
 November 16, 2015

Your operations at well "Wnf-I" 19, A.P.I. No. 037-22846, Sec. 19, T. 04S, R. 13W, SB B.&M., **Wilmington** field, in **Los Angeles** County, were witnessed on 7/22/2015, by **Max Chavez-Segura**, a representative of the supervisor.

The operations were performed for the purpose of **demonstrating that all of the injection fluid is confined to the approved zone.**

DECISION: **APPROVED**

DEFICIENCIES NOTED AND CORRECTED: NONE

HAM:dt

~~EXPIRED~~ _____
~~CANCELLED~~ _____
 MAILED _____
 FILED _____

01/17/16

Steven Bohlen
 State Oil and Gas Supervisor

By *Daniel J. Dudak*
 For Daniel J. Dudak, District Deputy

State of California
Department of Conservation
Division of Oil, Gas, and Geothermal Resources

No. T 115-1073

MECHANICAL INTEGRITY TEST (MIT)

| | | | | | |
|--|-----------|-----------|-------------|----------------------------------|-------------------|
| Operator: E & B Natural Resources Management Corp. | | | | Well: "Wnf-I" 19 | |
| Sec. 19 | T. 04S | R. 13W | B.&M. SB | API No.: 037-22846 | Field: Wilmington |
| County: Los Angeles | | | | Witnessed/Reviewed on: 7-22-2015 | |
| Max Chavez, representative of the supervisor, was present from 1100 to 1400 Also present were: Aaron Glenn and Raul Ronderos (WellaCo). | | | | | |
| Casing record of the well: | | | | | |
| The MIT was performed for the purpose of (15) Demonstrating that all of the Injection fluid is confined to the approved zone. | | | | | |
| <input checked="" type="checkbox"/> The MIT is approved since it indicates that all of the injection fluid is confined to the formations below <u>4936</u> feet at this time. | | | | | |
| <input type="checkbox"/> The MIT is not approved due to the following reasons: (specify) | | | | | |
| <p>CONTRACTOR: <i>Wella Co</i></p> <p>UNCORRECTABLE DEFICIENCIES:</p> <p>DEFICIENCIES NOTED AND CORRECTED:</p> | | | | | |

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| Total Postage & Fees | \$ 6.735 |

037-22846
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Sent To
 Ms. Madelyn Holtzclaw
 Street, Apt. No.,
 or PO Box No. 1600 N Brms Road.
 City, State, ZIP+4
 Bakersfield, CA 93308



DEPARTMENT OF CONSERVATION

DIVISION OF OIL, GAS, & GEOTHERMAL RESOURCES

5816 CORPORATE AVENUE • SUITE 100 • CYPRESS, CALIFORNIA 90630

PHONE 714/ 816-6847 • FAX 714/ 816-6853 • WEB SITE conservation.ca.gov

COPY

NOTICE OF VIOLATION

July 2, 2015

Report # V115-00041

Ms. Madelyn Holtzclaw, Agent
E & B Natural Resources Management Corporation
1600 Norris Road
Bakersfield, California 93308

Dear Ms. Holtzclaw:

"WNF-I" LEASE, WILMINGTON OIL FIELD – EXCESS FLUID IN WELL CELLARS

California Code of Regulations (CCR) section 1777 states in part that operators shall maintain production facilities in good condition and in a manner to prevent leakage or corrosion and to safeguard life, health, property, and natural resources, well cellars shall be covered and kept drained, grating or flooring shall be installed and maintained in good condition so as to exclude people and animals, and cellars should be protected from as much runoff water as practical.

On April 14, 2015, Dale Peterson, Associate Oil and Gas Engineer, was on site at the "WNF-I" lease in the Wilmington Oil Field to observe an SAPT test. He observed 2-3 inches of oily water in the common well cellar where well "WNF-I" 19 (API# 037-22846) is located.

April 24, 2015, Raul Lima, Engineering Geologist, performed an inspection of the "WNF-I" lease. During the inspection, all three common well cellars on the "WNF-I" lease were full of fluids.

Not maintaining production facilities in good condition is a violation of CCR section 1777. E & B Natural Resources Management Corporation shall remove all fluids from the "WNF-I" lease common well cellars by July 31, 2015.

Failure to comply with the statutes and regulations of this Division may result in enforcement action including, but not limited to, issuance of a civil penalty and/or order pursuant to Public Resources Code Sections 3106, 3224, 3235 and 3236.5.

July 2, 2015

Report # V115-00041

Ms. Madelyn Holtzclaw
E&B Natural Resources Management Corporation
Page 2 of 2

For any questions please contact Raul Lima at (714) 816-6875 or email at Raul.Lima@conservation.ca.gov.

Sincerely,



for Daniel J. Dudak
District Deputy

Cc: Lou Zylstra, Vice President/General Manager, E & B Natural Resources
City of Los Angeles Fire Department

File: [\\doccyp1\data\enforcement\notices of Violations\NOV2015\V115-000041](#)

Certified Mail Number: 7013 1710 0001 9440 9399

5/13/15-DT

DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

CHECK LIST – RECORDS RECEIVED AND WELL STATUS

| | | |
|----------|---|---|
| Company: | E & B National Res. Mng. Co. | Well: WNF 1 19 |
| API#: | 037-22846 | Sec. 19 , T. 4S , R. 13W . S. B. B. & M. |
| County: | Los Angeles | Field: Wilmington |

| RECORDS RECEIVED | DATE | STATUS | WELL TYPE |
|---------------------------------|-----------------|---|---|
| Well Summary (Form OG100) | 4/28/2015 | Active <input type="checkbox"/> Drilling <input type="checkbox"/> | Oil <input type="checkbox"/> Waterflood <input checked="" type="checkbox"/> |
| History (Form OG103) | 4/28/2015 | Abandoned <input type="checkbox"/> Idle <input type="checkbox"/> | |
| Core Record (Form OG101) | | Reabandoned <input type="checkbox"/> Other <input checked="" type="checkbox"/> <i>shuttin</i> | Gas <input type="checkbox"/> Water Disposal <input type="checkbox"/> |
| Directional Survey | 4/28/2015 | | Water Source <input type="checkbox"/> Cyclic Steam <input type="checkbox"/> |
| Sidewall Samples | | | Observation <input type="checkbox"/> Steam Flood <input type="checkbox"/> |
| Date final records received. | | | Exploratory <input type="checkbox"/> Fire Flood <input type="checkbox"/> |
| Electric Logs: | | | Dry Hole <input type="checkbox"/> Other <input type="checkbox"/> |
| Other: <i>Ultra/Image/OR/CC</i> | <i>5/4/2015</i> | | |
| <i>5" RAPI/CC/GR</i> | <i>5/4/2015</i> | | |
| <i>Ultra/Image/OR/CC</i> | <i>5/4/2015</i> | | |
| | | EFFECTIVE DATE: <i>12-21-2014</i> | |
| | | REMARKS: <i>plug back - redrill & suspended.</i> | |

| ENGINEERS CHECK LIST | CLERICAL CHECK LIST |
|--|--------------------------------------|
| <input checked="" type="checkbox"/> Summary, History & Core Record (Dupl.) | Location change |
| <input checked="" type="checkbox"/> Electric Log | Elevation change |
| <input checked="" type="checkbox"/> Operator's Name | Form OGD121 |
| <input checked="" type="checkbox"/> Signature | Form OGD150b (Release of Bond) |
| <input checked="" type="checkbox"/> Well Designation | Duplicate logs to archives |
| <input checked="" type="checkbox"/> Location | Notice of Records Due |
| <input checked="" type="checkbox"/> Elevation | EDP <i>6-29-15 um</i> |
| <input checked="" type="checkbox"/> Notices | District Date Base <i>6-29-15 um</i> |
| <input checked="" type="checkbox"/> "T" Reports | Final Letter (OG159) |
| <input checked="" type="checkbox"/> Casing Record | Update Center |
| <input checked="" type="checkbox"/> Plugs | |
| <input checked="" type="checkbox"/> Directional Survey | |
| <input checked="" type="checkbox"/> Production/Injection (FAP Codes: <i>849-03-20</i>) | |
| <input type="checkbox"/> E Well on Prod., enter EDP | |
| <input type="checkbox"/> Surface Inspection Required | FIELD CHECK LIST |
| <input type="checkbox"/> Surface inspection Waived (Island) | Date Surface Inspection Completed: |
| <input type="checkbox"/> Well site restoration deferred (common cellar) | Other: |
| <input type="checkbox"/> Final Letter Required AB: <input type="checkbox"/> REAB: <input type="checkbox"/> | |
| <input type="checkbox"/> Other: | |

| RECORDS NOT APPROVED | RECORDS APPROVED |
|----------------------|--|
| (Reason:) | (Signature) <i>Nafis Ateeg</i> |
| | RELEASE BOND |
| | Date Eligible |
| | (Use date last needed records received.) |
| | MAP AND MAP BOOK |
| | |



WELL SUMMARY REPORT

API No. 04-037-22846

| | | | | | | |
|--|--|------------------------------|-------------------|-----------------|--|--------------------|
| Operator E&B Natural Resources Management Corporation | | Well WNF-I 19 RD1 | | | | |
| Field (and Area, if applicable) Wilmington | | County Los Angeles | Sec. 19 | T. 4S | R. 13W | B.&M. SB |
| Location of well (Give surface location from property or section corner, street center line) 131' N & 137' E from SW corner of property which is NE corner of Main St and AT&SF right of way | | | | | Elevation of ground above sea level: 36' | |
| Lat./Long. in decimal degrees, to six decimal places, NAD 83 format: Lat: 33.805013 Long: -118.274051 | | | | | | |

Was the well directionally drilled? Yes No If yes, show coordinates (from surface location) and true vertical depth at total depth.
TVD: 3841', N: 2654.42, E: 1350.39

| | | | | | |
|---|---|-------------------------------------|-------|---|------------------------------------|
| Commenced drilling (date) 12.10.2014 | (1st hole) 5285' | Total depth (2nd) 5394 | (3rd) | Depth measurements taken from top of: <input type="checkbox"/> Derrick Floor <input type="checkbox"/> Rotary Table <input checked="" type="checkbox"/> Kelly Bushing | |
| Completed drilling (date) 12.21.2014 | | | | Which is 22' feet above ground. | |
| Commenced production/injection (date) NA | Present effective depth ' 5370' | | | GEOLOGICAL MARKERS | |
| Production mode: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas lift | Junk? Describe: | | | DEPTH | |
| Name of production/injection zone(s) Ranger Sands | | | | Tar | 4240 |
| | | | | Ranger F | 4928 |
| | | | | Ranger H | 5099 |
| | | | | Ranger X | 5236 |
| | | | | Formation and age at total depth Pliocene | Base of fresh water 2584 |

| | Clean Oil (bbl per day) | API Gravity (clean oil) | Percent Water (including emulsion) | Gas (Mcf per day) | Tubing Pressure | Casing Pressure |
|--------------------------|-------------------------|-------------------------|------------------------------------|-------------------|-----------------|-----------------|
| Initial Production | NA | NA | NA | NA | NA | NA |
| Production After 30 days | NA | NA | NA | NA | NA | NA |

CASING AND CEMENTING RECORD (Present Hole)

| Size of Casing (Inches API) | Top of Casing | Depth of Shoe | Weight of Casing | Grade and Type of Casing | New (N) or Used (U) | Size of Hole Drilled | Number of Sacks or Cubic Feet of Cement | Depth of Cementing (if through perforations) | Top(s) of Cement in Annulus |
|-----------------------------|---------------|---------------|------------------|--------------------------|---------------------|----------------------|---|--|-----------------------------|
| 10-3/4" | surf | 604 | 40.5# | J55 | | 14-3/4 | 360 sx | | Surf |
| 7" | surf | 2231 | 23# | K55 | | 9-7/8 | 350sx | | 1000' |
| 5" | surf | 5370 | 18# | P110-FlushMax | N | 6-1/4, 9 | 530 cuft | | 1370' |

PERFORATED CASING (Size, top, bottom, perforated intervals, size and spacing of perforations, and method.)
See attached page

Logs/surveys run? Yes No If yes, list type(s) and depth(s).
Gyro survey (TD-surf), USIT (5370-surf), CBL/GR/CCL/Neutron (5145-surf)

In compliance with Sec. 3215, Division 3, of the *Public Resources Code*, the information given herewith is a complete and correct record of the present condition of the well and all work done thereon, so far as can be determined from all available records.

| | | | |
|---|---|--|--------------------------|
| Name of person filing report Danielle Uhl | Telephone Number 661.679.1700 | Signature | Date |
| Address 1600 Norris Rd | | City/State Bakersfield, CA | Zip Code 93308 |
| Individual to contact for technical questions: Danielle Uhl | Telephone Number 424.281.8894 | E-Mail Address: duhl@ebresources.com | |

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES
HISTORY OF OIL OR GAS WELL

| | | | | | |
|-----------------|--|----------------------------|--------------|----------------------------------|-------------|
| Operator | E&B Natural Resources Management Corporation | Field | Wilmington | County | Los Angeles |
| Well | WNF-I 19 RD1 | Sec. | 19 | T. | 4S |
| A.P.I. No. | 04-037-22846 | Name | Danielle Uhl | Title | Engineer |
| Date | | (Person submitting report) | | (President, Secretary, or Agent) | |
| Signature _____ | | | | | |
| Address | 1600 Norris Road; Bakersfield CA 93308 | Telephone Number | 661.679.1700 | | |

History must be complete in all detail. Use this form to report all operations during drilling and testing of the well or during re-drilling or altering the casing, plugging, or abandonment, with the dates thereof. Include such items as hole size, formation test details, amounts of cement used, top and bottom of plugs, perforation details, sidetracked junk, bailing tests, and initial production data.

Date

| | WNF-I 19 (original hole) |
|------------|--|
| 10.24.2014 | Move in pulling unit. Nipple up Class II BOPE. Measure in hole with 100 joints of 2-7/8" work string. |
| 10.25.2014 | Continued picking up work string tagging top of existing cement plug at 3570'. Using Ausburn cementers upgrade cement from 3570' to 2150' with 313 cuft of slurry. Reverse clean and pull out of hole with diverting sub. |
| 10.27.2014 | Ran in hole with 6-1/8" bit tagging top of cement at 2161'. Drill out solid cement down to new kick-off point at 2250'. Tripped Weatherford's 7" 23# casing scraper set at drift to top of cement with no restrictions. Clean well cellar preparing for hot work this morning. Secured rig and well. |
| 10.28.2014 | Made up and ran in hole with Baker Oil Tools 7" Whip stock to 8' above our setting depth 2242'. Scientific attempted to run in with Gyro finding tools stacking out at 1515'. Pulled and laid down restricted joint #49 ran two stands back in and made feeler run to sub with no restrictions. Ran back in with Whip stock to 2242' and reran Gyro finding tools stacking out at 1430' (Scientific recording 50 degrees deviation at 1430'). |
| | WNF-I 19 RD 1 |
| 12.8.2014 | MIRU Key Energy rig #88. Prep location. |
| 12.9.2014 | Continued rigging up. Nipple up BOPE. |
| 12.10.2014 | Test casing to 2000 psi. Install test plug, test accumulator and all floor valves. Function test BOPE. Make up milling BHA. Run in hole with BHA and 18 joints heavy weight drill pipe and drill pipe to 2195'. DOGGR rep Paul Kaufman on location. Witnessed 1000 psi test on pipe rams, choke & kill lines, manifold and annular preventer. Notified that previous 5 min charted test on blind rams was not sufficient. Required to retest. POOH and stand back drill pipe, heavy weight drill pipe and BHA. Pressure test blind rams to 1000 psi. Test good. DOGGR witnessed and approved. Run in hole with BHA, heavy weight drill pipe and drill pipe. |
| 12.11.2014 | Run in hole with BHA to 2200'. Tag whipstock at 2231'. Turn hole over to 50% gel mud system. Mill window from 2231' - 2272'. Cannot pass mills thru window at 2244' without rotation. Circulate well clean. POOH. Lay down milling tools. Service rig. Strap new milling BHA. Make up and run in hole with BHA, heavy weight drill pipe & drill pipe. Bit at 1955'. Regen rig. Continue in hole to whipstock at 2231'. Ream window to 2263'. Tight spot 2242'-2246'. Extend window to 2276'. Circulate well clean. POOH. |
| 12.12.2014 | Make up 6-1/4 PDC 4-3/4 PDM PRT MWD COMP. Air calibrate MWD. Break down make up new tools. Make up collars and jars. Sur test. Run in hole to 2249'. Work BHA through window to 2276'. Directionally drill 6-1/4" hole to 2356'. Condition mud. Pull up above whipstock, bit at 2230'. Rig up SDI gyro wireline Unit. Run in hole with SDI multishot gyro. Stop at 1310', POOH. Rig up pump down kit. Run in hole. Pump down to UBHO at 2157'. Survey from 2157' to surface. POOH. Run bit to bottom at 2356'. Run in hole with SDI multishot gyro. Pump down to UBHO at 2263'. Survey from 2263' to 1845'. POOH. Directionally drill from 2356'-2455'. Survey. Collecting clean MWD/LWD readings. Release gyro unit. Directionally drill from 2455'-2740' |
| 12.13.2014 | Directionally drill from 2,740' - 2,798'. Wiper trip new hole back to 2,249'. Directionally drill from 2,798' - 3,276'. Wiper trip new hole up to 2,790'. Directionally drill from 3,276' - 3,490'. Directionally drill from 3,490' - 3,680'. Directionally drill from 3,680' - 3,805'. Reactive torque while sliding. Treat mud with TORKease. |
| 12.14.2014 | Directionally drill from 3,808' - 3,869'. Wipe hole from 3,869' to 2,249'. Directionally drill from 3,869' - 4,309'. Wipe hole from 4,309' up to 3,869'. Directionally drill from 4,309' - 4,478'. |

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES
HISTORY OF OIL OR GAS WELL

- 12.15.2014 Directionally drill from 4,478' to 4,502'. POOH from motor change and a DHV. Make up directional tools and surface test MWD. Run in hole to 582 put in DHV (agitator). Run in hole to 4,502'. Directionally drill from 4,502' - 4,830'. Directionally drill from 4,830' - 4,892'.
- 12.16.2014 Directionally drill from 4,892' - 5,017'. Wipe hole from 5,017' - 4,411'. Run in hole to TD. Directionally drill from 5,017' - 5,374'. Total Depth of hole at 5,374'. Collect final surveys. Circulate hole. POOH to 1,883'. POOH to BHA. Lay down directional tools. Make up 6x9 Baker Underreamer BHA. RIH with underreamer to 1000'. Directionally drill from 4,892' - 5,017'. Wipe hole from 5,017' - 4,411'. RIH to TD.
- 12.17.2014 Jar down on pipe with torque. Displace drill pipe with mud. Spot in Tiger Wireline. Run in hole with underreamer, took weight at 2,994'. Continue in hole with underreamer, stop at 4,229'. Attempt to work thru. Unable to work up. Pulling up to 150K. Unable to make progress. Pull up to 200K without progress. Work down setting jars. Attempt to jar up hitting jars at 200K. Pulling up to 240K. Jar up on pipe. Attempt to rotate with table. Slips failed dropping pipe to elevators. Broke bolts & bell on retainer links in top drive. Repair top drive. Jar up on pipe. Pulling up to 200K hitting. Pull up to 240K. Pump 25 bbls oil down drillpipe. Spot 4 bbls across BHA. Pump 1/2 bbl per 1/2 hour. Continue jarring up on pipe. Adding torque with top drive intermittently.
- 12.18.2014 POOH with fish. HSM with Tiger Wireline and rig crew. Rig up wireline sheaves and packoff. Ran free point tool using torque only. Found rotation down to first stabilizer. Rig up shorter cross-over subs for packoff. Change to 16' elevator bails. Ran free point tool using stretch down to first stabilizer. Run string shot and shoot at 4056' (wireline). Back off at bottom of drilling jars. Trip out of hole. Lay down Weatherford drilling jars. Strap and make up screw in sub and bi-directional fishing jars. Pick up four 4-3/4" drill collars. Run in hole with fishing BHA to top of fish. Tag at 4,045' (drillpipe). Perform rig motor regen. Rotate pipe to top of fish. Screw into fish, pull 60K over string weight to check fish engaged. Jar up on pipe at 200K. Pull to 240K. Slack off string weight jarring down on pipe. Jar fish free at 100K.
- 12.19.2014 POOH with fish. Lay down fish, found no obvious damage to under-reamer or stabilizers. Make up 6-1/4" bullnose reamer and BHA, stage in hole circ. B/U at shoe then at 4,105' circ. Ream from 4,150' - 5,374'. Circulate and condition mud. POOH from 5,374' with bullnose reamer. Pick up and run in hole with 6 x 9-1/4" Under reaming BHA.
- 12.20.2014 Continue running in hole with 6 x 9-1/4" Under reaming BHA, and cut shoulder at 4,800'. Under ream 6-1/4" hole to 9" from 4,800' to 5,220.
- 12.21.2014 Under ream 6-1/4" hole to 9" from 5,200' to 5,374'. POOH laying down 4" drill string. Break kelly cock, laid down drill collars. Laid down bumper sub, and hole opener. Rig up H&H tong services. Dry fit mandrel. Run 5", 18#, P-110, flush-max production casing to 400'.
- 12.22.2014 Pull 10 jts (400') of 5", 18#, P-110, flush-max production casing. Run in hole with 50 joints of 5", 18#, P-110, flush-max production casing to 2038'. Rig up circulating swedge, and circulate bottoms up from 2,038'. Rig down circ swedge with full returns. Continue running in hole from 2,038' with 5", 18#, P-110 flush-max production casing to 3,343'. Unable to push liner down with blocks. Rig up circulating swedge, attempting to circulate with limited returns, loss 41 bbls. Reciprocate liner with 5' stroke, while building volume in active pit.
- 12.23.2014 Continue running in hole from 3,343' with 112 joints 5", 18#, P-110 flush-max production casing with shoe at 5,368. Float at 5,325. Circulate and condition for cement. Pumped 5 bbls water, test lines to 3000 psi, pumped 262 sx (530cu-ft), 14.5 ppg, 2.02 yield, class G cement. Displaced with 94 bbls lease water, bumped plug with 500 psi over final circulating pressure. Check floats, and floats held. Wait on cement. Holding 5" liner in tension at 120K. Slack of from 5" Liner, remove landing joint and lay out same. Close blind rams and pressure up annulus to 500 psi, held same for 15 min. Release pressure and open blind rams. Clean Mud Tanks. Nipple down BOPE.
- 12.24.2014 Nipple Down and set out BOPE. Clean mud tanks. RDMO.
- 1.7.2015 Run CBL.
- 4.1.2015 MIRU
- 4.2.2015 Measured in hole with 5" casing scraper working tools past cement strings at 5217'. Scraper stacking out at 5232' (ETD 5370) unable to work past. Ran in with Tiger's 3-1/8" carriers. Correlate off log and shot eight .45" holes through 5" casing between 5056' and 5058', 5094' and 5096'. Start in hole with 5" Full Bore.
- 4.3.2015 Continued in hole with packer setting same between perforations at 5079'. Made several attempt to break perms down with 1500 psi finding upper perforation at 5058' bleeds from 1500 to 1300 psi in 8 minutes with no sign of communications from lower perms. Lower perms at 5094' holing at 1500 psi. Ran into perms several time attempting to break down with no change. Rig up Schlumberger wire line and ran in with their triple combo logging tools. Log 5" casing making two passes. Rig down and release wire line. Secure rig and well.
- 4.6.2015 Make up 4-1/8" bit . Pick up 6 3-1/8" drill collars . Run in hole with TBG to 5212' . Rig up power swivel . Drill out cement to 5360' . Cir to clean returns . Rig down power swivel . POOHW tbg . Lay down Collars and bit . Secure well for pm .
- 4.7.2015 Spot and rig up Weatherford wire line unit. With engineer on location correlate and selectively perforate the Ranger in intervals between 4936' and 5100' (See attached report for perforation description and intervals). Ran 5" casing scraper to ETD at 5360' with no restrictions. Pull out of hole with same securing rig and well till AM.

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

HISTORY OF OIL OR GAS WELL

- 4.8.2015 MIRU MTS Stimulation Services. Cup wash newly perforated intervals. RDMO MTS.
- 4.9.2015 Attempted to run back in with wash tools to ETD finding tools stacking out 96' high at 5264'. Pull out with wash tools. Ran in with mule shoe and cleaned out fine ad coarse sand back down to ETD at 5360'. Pull out of hole laying down work string.
- 4.13.2015 Flow back a small amount of oil and water . Pick up Weatherford 5" Lok-Set-PKR . Start to pick up tbg . TBG started to flow back water . Pumped 35 BBLS of 9# KCL water down tbg . TBG stopped flowing . Con to pick up a total of 153 joints of 2-3/8" J-55 4.7# 8RD IC TBG . Land tbg on hanger . Remove BOP . Change well over with 70 bbls of lease water treated with PKR fluid . Set pkr . Land tbg . Pressure test Backside to 1700 psi . Held good for 15 min . Load tools and equipment .
- 4.14.2015 RDMO

SDI Survey Report

| | | | |
|---------------------------------|--|-----------------------|----------------|
| Company: E & B Resources | Date: 12/15/2014 | Time: 19:28:17 | Page: 1 |
| Field: NORTH WHILIMNGTON | Co-ordinate(NE) Reference: Well: WNF-I-19, Grid North | | |
| Site: WNF DRILL SITE #1 | Vertical (TVD) Reference: WNF I 19 RD1 DF 51.5 | | |
| Well: WNF-I-19 | Section (VS) Reference: Well (0.00N,0.00E,31.22Azi) | | |
| Wellpath: WNF-1-19 RD1 | Survey Calculation Method: Minimum Curvature | Db: Sybase | |

| | |
|--|---------------------------------------|
| Field: NORTH WHILIMNGTON LA COUNTY CA USA | Map Zone: California, Zone V |
| Map System: US State Plane Coordinate System 1983 | Coordinate System: Well Centre |
| Geo Datum: GRS 1980 | Geomagnetic Model: IGRF2010 |
| Sys Datum: Mean Sea Level | |

| | | | |
|---|--------------------------------|------------------------------------|--|
| Site: WNF DRILL SITE #1 1 NORTH WILMINGTON | | | |
| Site Position: | Northing: 1751500.00 ft | Latitude: 33 48 17.652 N | |
| From: Map | Easting: 6478000.00 ft | Longitude: 118 16 31.571 W | |
| Position Uncertainty: 0.00 ft | | North Reference: Grid | |
| Ground Level: 0.00 ft | | Grid Convergence: -0.16 deg | |

| | |
|---|-----------------------------------|
| Well: WNF-I-19 SUR. N 1751539.51 E 6478139.58 | Slot Name: |
| Well Position: +N/-S 39.51 ft Northing: 1751539.51 ft | Latitude: 33 48 18.046 N |
| +E/-W 139.57 ft Easting: 6478139.58 ft | Longitude: 118 16 29.919 W |
| Position Uncertainty: 0.00 ft | |

| | | | |
|--|-------------------------------|---|---------------|
| Wellpath: WNF-1-19 RD1 | Drilled From: WNF-1-19 | Tie-on Depth: 2263.00 ft | |
| Current Datum: WNF I 19 RD1 DF | Height: 51.50 ft | Above System Datum: Mean Sea Level | |
| Magnetic Data: 3/14/2014 | | Declination: 12.32 deg | |
| Field Strength: 47111 nT | | Mag Dip Angle: 58.63 deg | |
| Vertical Section: Depth From (TVD) ft | +N/-S ft | +E/-W ft | Direction deg |
| 0.00 | 0.00 | 0.00 | 31.22 |

| | |
|--|-------------------------------|
| Survey: WNF-I-19 RD1 PRODUCTION WELL | Start Date: 12/10/2014 |
| Company: SDI | Engineer: SDI |
| Tool: MWD;MWD - Standard ver 1.0.1 | Tied-to: From Surface |

Survey: WNF-I-19 RD1

| MD ft | Incl deg | Azim deg | TVD ft | +N/-S ft | +E/-W ft | VS ft | DLS deg/100ft | Build deg/100ft | Turn deg/100ft | Tool/Comment |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|--------------|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | MWD |
| 30.00 | 0.30 | 11.97 | 30.00 | 0.08 | 0.02 | 0.07 | 1.00 | 1.00 | 0.00 | MWD |
| 60.00 | 0.61 | 11.97 | 60.00 | 0.31 | 0.07 | 0.30 | 1.03 | 1.03 | 0.00 | MWD |
| 90.00 | 0.91 | 11.97 | 90.00 | 0.70 | 0.15 | 0.67 | 1.00 | 1.00 | 0.00 | MWD |
| 120.00 | 1.21 | 11.97 | 119.99 | 1.24 | 0.26 | 1.20 | 1.00 | 1.00 | 0.00 | MWD |
| 150.00 | 1.51 | 11.97 | 149.98 | 1.94 | 0.41 | 1.87 | 1.00 | 1.00 | 0.00 | MWD |
| 180.00 | 2.16 | 13.15 | 179.97 | 2.88 | 0.62 | 2.78 | 2.17 | 2.17 | 3.93 | MWD |
| 210.00 | 3.73 | 20.60 | 209.93 | 4.34 | 1.09 | 4.28 | 5.38 | 5.23 | 24.83 | MWD |
| 240.00 | 5.65 | 22.50 | 239.82 | 6.62 | 2.00 | 6.70 | 6.42 | 6.40 | 6.33 | MWD |
| 270.00 | 7.22 | 25.84 | 269.63 | 9.68 | 3.39 | 10.03 | 5.38 | 5.23 | 11.13 | MWD |
| 300.00 | 8.88 | 28.82 | 299.34 | 13.40 | 5.33 | 14.22 | 5.70 | 5.53 | 9.93 | MWD |
| 330.00 | 10.42 | 31.49 | 328.91 | 17.75 | 7.86 | 19.25 | 5.34 | 5.13 | 8.90 | MWD |
| 360.00 | 12.16 | 33.70 | 358.33 | 22.69 | 11.03 | 25.12 | 5.98 | 5.80 | 7.37 | MWD |
| 390.00 | 13.96 | 34.33 | 387.55 | 28.31 | 14.83 | 31.89 | 6.02 | 6.00 | 2.10 | MWD |
| 420.00 | 15.72 | 33.87 | 416.55 | 34.67 | 19.13 | 39.57 | 5.88 | 5.87 | -1.53 | MWD |
| 450.00 | 17.27 | 32.28 | 445.32 | 41.81 | 23.77 | 48.08 | 5.38 | 5.17 | -5.30 | MWD |
| 480.00 | 18.57 | 30.10 | 473.86 | 49.71 | 28.55 | 57.31 | 4.88 | 4.33 | -7.27 | MWD |
| 510.00 | 19.92 | 27.17 | 502.19 | 58.39 | 33.28 | 67.18 | 5.53 | 4.50 | -9.77 | MWD |
| 540.00 | 21.37 | 24.41 | 530.26 | 67.91 | 37.87 | 77.71 | 5.82 | 4.83 | -9.20 | MWD |
| 570.00 | 22.71 | 22.81 | 558.07 | 78.23 | 42.38 | 88.86 | 4.89 | 4.47 | -5.33 | MWD |
| 600.00 | 23.85 | 23.10 | 585.62 | 89.15 | 47.00 | 100.60 | 3.82 | 3.80 | 0.97 | MWD |
| 630.00 | 25.76 | 24.87 | 612.85 | 100.64 | 52.12 | 113.08 | 6.83 | 6.37 | 5.90 | MWD |
| 660.00 | 27.23 | 26.23 | 639.70 | 112.71 | 57.90 | 126.40 | 5.30 | 4.90 | 4.53 | MWD |
| 690.00 | 28.07 | 26.80 | 666.28 | 125.17 | 64.11 | 140.27 | 2.94 | 2.80 | 1.90 | MWD |

SDI Survey Report

Company: E & B Resources
Field: NORTH WHILIMNGTON
Site: WNF DRILL SITE #1
Well: WNF-I-19
Wellpath: WNF-1-19 RD1

Date: 12/15/2014 **Time:** 19:28:17 **Page:** 2
Co-ordinate(NE) Reference: Well: WNF-I-19, Grid North
Vertical (TVD) Reference: WNF I 19 RD1 DF 51.5
Section (VS) Reference: Well (0.00N,0.00E,31.22Azi)
Survey Calculation Method: Minimum Curvature **Db:** Sybase

Survey: WNF-I-19 RD1

| MD ft | Incl deg | Azim deg | TVD ft | +N/-S ft | +E/-W ft | VS ft | DLS deg/100ft | Build deg/100ft | Turn deg/100ft | Tool/Comment |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|--------------|
| 720.00 | 28.47 | 26.92 | 692.70 | 137.85 | 70.53 | 154.44 | 1.35 | 1.33 | 0.40 | MWD |
| 750.00 | 28.60 | 27.22 | 719.05 | 150.61 | 77.06 | 168.74 | 0.64 | 0.43 | 1.00 | MWD |
| 780.00 | 28.88 | 27.28 | 745.36 | 163.43 | 83.66 | 183.13 | 0.94 | 0.93 | 0.20 | MWD |
| 810.00 | 29.20 | 27.28 | 771.59 | 176.37 | 90.33 | 197.65 | 1.07 | 1.07 | 0.00 | MWD |
| 840.00 | 29.68 | 27.25 | 797.71 | 189.48 | 97.09 | 212.36 | 1.60 | 1.60 | -0.10 | MWD |
| 870.00 | 30.28 | 26.69 | 823.70 | 202.84 | 103.89 | 227.31 | 2.21 | 2.00 | -1.87 | MWD |
| 900.00 | 31.14 | 24.41 | 849.49 | 216.66 | 110.49 | 242.56 | 4.82 | 2.87 | -7.60 | MWD |
| 930.00 | 31.90 | 24.19 | 875.07 | 230.96 | 116.94 | 258.13 | 2.56 | 2.53 | -0.73 | MWD |
| 960.00 | 33.17 | 25.02 | 900.36 | 245.63 | 123.66 | 274.15 | 4.49 | 4.23 | 2.77 | MWD |
| 990.00 | 34.60 | 26.00 | 925.26 | 260.72 | 130.87 | 290.80 | 5.10 | 4.77 | 3.27 | MWD |
| 1020.00 | 35.99 | 27.06 | 949.75 | 276.22 | 138.61 | 308.07 | 5.06 | 4.63 | 3.53 | MWD |
| 1050.00 | 37.46 | 27.75 | 973.79 | 292.15 | 146.87 | 325.97 | 5.09 | 4.90 | 2.30 | MWD |
| 1080.00 | 38.84 | 27.71 | 997.38 | 308.55 | 155.49 | 344.47 | 4.60 | 4.60 | -0.13 | MWD |
| 1110.00 | 40.35 | 27.25 | 1020.50 | 325.52 | 164.32 | 363.55 | 5.13 | 5.03 | -1.53 | MWD |
| 1140.00 | 42.08 | 26.87 | 1043.07 | 343.12 | 173.31 | 383.26 | 5.83 | 5.77 | -1.27 | MWD |
| 1170.00 | 43.12 | 26.63 | 1065.15 | 361.25 | 182.45 | 403.50 | 3.51 | 3.47 | -0.80 | MWD |
| 1200.00 | 44.69 | 26.36 | 1086.76 | 379.87 | 191.73 | 424.24 | 5.27 | 5.23 | -0.90 | MWD |
| 1230.00 | 46.05 | 26.31 | 1107.84 | 399.00 | 201.20 | 445.51 | 4.53 | 4.53 | -0.17 | MWD |
| 1260.00 | 47.45 | 26.21 | 1128.39 | 418.60 | 210.86 | 467.28 | 4.67 | 4.67 | -0.33 | MWD |
| 1290.00 | 48.84 | 25.82 | 1148.41 | 438.68 | 220.66 | 489.53 | 4.73 | 4.63 | -1.30 | MWD |
| 1320.00 | 49.73 | 25.59 | 1167.98 | 459.17 | 230.53 | 512.16 | 3.02 | 2.97 | -0.77 | MWD |
| 1350.00 | 50.47 | 25.27 | 1187.22 | 479.95 | 240.41 | 535.06 | 2.60 | 2.47 | -1.07 | MWD |
| 1380.00 | 50.88 | 25.13 | 1206.23 | 500.95 | 250.29 | 558.14 | 1.41 | 1.37 | -0.47 | MWD |
| 1410.00 | 50.92 | 25.09 | 1225.15 | 522.03 | 260.17 | 581.29 | 0.17 | 0.13 | -0.13 | MWD |
| 1440.00 | 50.83 | 25.21 | 1244.08 | 543.10 | 270.06 | 604.43 | 0.43 | -0.30 | 0.40 | MWD |
| 1470.00 | 50.67 | 25.33 | 1263.07 | 564.11 | 279.98 | 627.54 | 0.62 | -0.53 | 0.40 | MWD |
| 1500.00 | 50.70 | 25.43 | 1282.07 | 585.08 | 289.93 | 650.63 | 0.28 | 0.10 | 0.33 | MWD |
| 1530.00 | 50.86 | 25.47 | 1301.04 | 606.06 | 299.91 | 673.75 | 0.54 | 0.53 | 0.13 | MWD |
| 1560.00 | 50.93 | 25.54 | 1319.96 | 627.08 | 309.94 | 696.91 | 0.30 | 0.23 | 0.23 | MWD |
| 1590.00 | 50.79 | 25.59 | 1338.90 | 648.07 | 319.98 | 720.07 | 0.48 | -0.47 | 0.17 | MWD |
| 1620.00 | 50.81 | 25.68 | 1357.86 | 669.03 | 330.04 | 743.21 | 0.24 | 0.07 | 0.30 | MWD |
| 1650.00 | 50.87 | 25.76 | 1376.81 | 689.98 | 340.13 | 766.36 | 0.29 | 0.20 | 0.27 | MWD |
| 1680.00 | 51.01 | 25.79 | 1395.71 | 710.96 | 350.26 | 789.55 | 0.47 | 0.47 | 0.10 | MWD |
| 1710.00 | 51.07 | 25.88 | 1414.57 | 731.96 | 360.43 | 812.78 | 0.31 | 0.20 | 0.30 | MWD |
| 1740.00 | 51.19 | 25.95 | 1433.40 | 752.96 | 370.63 | 836.03 | 0.44 | 0.40 | 0.23 | MWD |
| 1770.00 | 51.17 | 26.01 | 1452.21 | 773.98 | 380.87 | 859.31 | 0.17 | -0.07 | 0.20 | MWD |
| 1800.00 | 51.17 | 26.05 | 1471.02 | 794.98 | 391.13 | 882.58 | 0.10 | 0.00 | 0.13 | MWD |
| 1830.00 | 51.27 | 26.01 | 1489.81 | 815.99 | 401.39 | 905.87 | 0.35 | 0.33 | -0.13 | MWD |
| 1860.00 | 51.40 | 26.26 | 1508.55 | 837.02 | 411.71 | 929.21 | 0.78 | 0.43 | 0.83 | MWD |
| 1890.00 | 51.65 | 26.21 | 1527.22 | 858.09 | 422.09 | 952.60 | 0.84 | 0.83 | -0.17 | MWD |
| 1920.00 | 51.69 | 26.23 | 1545.82 | 879.20 | 432.49 | 976.05 | 0.14 | 0.13 | 0.07 | MWD |
| 1950.00 | 51.87 | 26.16 | 1564.38 | 900.35 | 442.89 | 999.53 | 0.63 | 0.60 | -0.23 | MWD |
| 1980.00 | 51.86 | 26.45 | 1582.91 | 921.50 | 453.35 | 1023.04 | 0.76 | -0.03 | 0.97 | MWD |
| 2010.00 | 51.73 | 26.38 | 1601.46 | 942.61 | 463.84 | 1046.53 | 0.47 | -0.43 | -0.23 | MWD |
| 2040.00 | 51.78 | 26.41 | 1620.03 | 963.72 | 474.31 | 1070.01 | 0.18 | 0.17 | 0.10 | MWD |
| 2070.00 | 51.92 | 26.47 | 1638.56 | 984.84 | 484.82 | 1093.51 | 0.49 | 0.47 | 0.20 | MWD |
| 2100.00 | 51.94 | 26.55 | 1657.06 | 1005.98 | 495.36 | 1117.05 | 0.22 | 0.07 | 0.27 | MWD |
| 2130.00 | 52.10 | 26.56 | 1675.52 | 1027.13 | 505.93 | 1140.62 | 0.53 | 0.53 | 0.03 | MWD |
| 2160.00 | 52.26 | 26.68 | 1693.92 | 1048.31 | 516.55 | 1164.24 | 0.62 | 0.53 | 0.40 | MWD |
| 2190.00 | 52.54 | 26.61 | 1712.22 | 1069.56 | 527.21 | 1187.94 | 0.95 | 0.93 | -0.23 | MWD |
| 2220.00 | 52.64 | 26.63 | 1730.45 | 1090.86 | 537.89 | 1211.69 | 0.34 | 0.33 | 0.07 | MWD |
| 2249.00 | 52.71 | 26.75 | 1748.03 | 1111.47 | 548.24 | 1234.68 | 0.41 | 0.24 | 0.41 | MWD |
| 2260.00 | 52.18 | 26.55 | 1754.74 | 1119.26 | 552.16 | 1243.37 | 5.03 | -4.82 | -1.82 | MWD |

SDI

Survey Report

Company: E & B Resources
Field: NORTH WHILMINGTON
Site: WNF DRILL SITE #1
Well: WNF-I-19
Wellpath: WNF-1-19 RD1

Date: 12/15/2014 **Time:** 19:28:17 **Page:** 3
Co-ordinate(NE) Reference: Well: WNF-I-19, Grid North
Vertical (TVD) Reference: WNF I 19 RD1 DF 51.5
Section (VS) Reference: Well (0.00N,0.00E,31.22Azi)
Survey Calculation Method: Minimum Curvature **Db:** Sybase

Survey: WNF-I-19 RD1

| MD ft | Incl deg | Azim deg | TVD ft | +N/-S ft | +E/-W ft | VS ft | DLS deg/100ft | Build deg/100ft | Turn deg/100ft | Tool/Comment |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|--------------|
| 2365.00 | 45.27 | 22.81 | 1823.98 | 1190.84 | 585.20 | 1321.71 | 7.10 | -6.58 | -3.56 | MWD |
| 2397.00 | 44.79 | 21.56 | 1846.59 | 1211.80 | 593.75 | 1344.07 | 3.14 | -1.50 | -3.91 | MWD |
| 2428.00 | 44.97 | 22.51 | 1868.56 | 1232.08 | 601.95 | 1365.66 | 2.24 | 0.58 | 3.06 | MWD |
| 2459.00 | 43.50 | 22.64 | 1890.77 | 1252.05 | 610.26 | 1387.04 | 4.75 | -4.74 | 0.42 | MWD |
| 2491.00 | 42.51 | 22.58 | 1914.17 | 1272.20 | 618.65 | 1408.62 | 3.10 | -3.09 | -0.19 | MWD |
| 2522.00 | 41.40 | 22.80 | 1937.22 | 1291.32 | 626.64 | 1429.12 | 3.61 | -3.58 | 0.71 | MWD |
| 2554.00 | 42.17 | 22.86 | 1961.08 | 1310.97 | 634.91 | 1450.21 | 2.41 | 2.41 | 0.19 | MWD |
| 2586.00 | 43.00 | 22.00 | 1984.64 | 1330.98 | 643.18 | 1471.61 | 3.17 | 2.59 | -2.69 | MWD |
| 2617.00 | 43.29 | 23.33 | 2007.26 | 1350.54 | 651.34 | 1492.57 | 3.08 | 0.94 | 4.29 | MWD |
| 2649.00 | 43.88 | 23.87 | 2030.44 | 1370.76 | 660.18 | 1514.44 | 2.18 | 1.84 | 1.69 | MWD |
| 2681.00 | 44.60 | 23.78 | 2053.37 | 1391.18 | 669.20 | 1536.58 | 2.26 | 2.25 | -0.28 | MWD |
| 2712.00 | 44.61 | 23.06 | 2075.44 | 1411.16 | 677.85 | 1558.15 | 1.63 | 0.03 | -2.32 | MWD |
| 2743.00 | 44.77 | 22.59 | 2097.48 | 1431.25 | 686.30 | 1579.71 | 1.18 | 0.52 | -1.52 | MWD |
| 2775.00 | 44.77 | 21.07 | 2120.20 | 1452.17 | 694.68 | 1601.95 | 3.35 | 0.00 | -4.75 | MWD |
| 2807.00 | 45.07 | 21.03 | 2142.85 | 1473.26 | 702.80 | 1624.19 | 0.94 | 0.94 | -0.12 | MWD |
| 2838.00 | 44.56 | 20.29 | 2164.85 | 1493.70 | 710.51 | 1645.67 | 2.35 | -1.65 | -2.39 | MWD |
| 2869.00 | 43.64 | 20.17 | 2187.11 | 1513.95 | 717.97 | 1666.84 | 2.98 | -2.97 | -0.39 | MWD |
| 2901.00 | 42.14 | 19.78 | 2210.55 | 1534.41 | 725.41 | 1688.21 | 4.76 | -4.69 | -1.22 | MWD |
| 2933.00 | 41.59 | 19.38 | 2234.38 | 1554.53 | 732.57 | 1709.12 | 1.91 | -1.72 | -1.25 | MWD |
| 2964.00 | 41.75 | 19.12 | 2257.54 | 1573.99 | 739.36 | 1729.28 | 0.76 | 0.52 | -0.84 | MWD |
| 2996.00 | 41.34 | 18.92 | 2281.49 | 1594.06 | 746.28 | 1750.03 | 1.35 | -1.28 | -0.62 | MWD |
| 3028.00 | 41.56 | 20.28 | 2305.48 | 1614.01 | 753.38 | 1770.78 | 2.90 | 0.69 | 4.25 | MWD |
| 3059.00 | 41.46 | 21.57 | 2328.69 | 1633.20 | 760.72 | 1790.99 | 2.78 | -0.32 | 4.16 | MWD |
| 3091.00 | 41.65 | 21.42 | 2352.64 | 1652.95 | 768.50 | 1811.91 | 0.67 | 0.59 | -0.47 | MWD |
| 3123.00 | 42.22 | 22.43 | 2376.44 | 1672.79 | 776.49 | 1833.01 | 2.76 | 1.78 | 3.16 | MWD |
| 3154.00 | 42.35 | 21.91 | 2399.38 | 1692.10 | 784.36 | 1853.61 | 1.20 | 0.42 | -1.68 | MWD |
| 3186.00 | 41.95 | 22.19 | 2423.10 | 1712.01 | 792.42 | 1874.81 | 1.38 | -1.25 | 0.87 | MWD |
| 3218.00 | 41.99 | 22.90 | 2446.89 | 1731.77 | 800.62 | 1895.97 | 1.49 | 0.12 | 2.22 | MWD |
| 3247.00 | 42.19 | 21.43 | 2468.41 | 1749.77 | 807.96 | 1915.16 | 3.47 | 0.69 | -5.07 | MWD |
| 3279.00 | 42.33 | 21.19 | 2492.10 | 1769.82 | 815.78 | 1936.36 | 0.67 | 0.44 | -0.75 | MWD |
| 3310.00 | 42.00 | 21.18 | 2515.07 | 1789.22 | 823.30 | 1956.85 | 1.06 | -1.06 | -0.03 | MWD |
| 3341.00 | 42.03 | 20.19 | 2538.11 | 1808.63 | 830.62 | 1977.25 | 2.14 | 0.10 | -3.19 | MWD |
| 3373.00 | 41.98 | 21.29 | 2561.88 | 1828.66 | 838.21 | 1998.31 | 2.31 | -0.16 | 3.44 | MWD |
| 3404.00 | 42.21 | 20.99 | 2584.89 | 1848.04 | 845.70 | 2018.77 | 0.99 | 0.74 | -0.97 | MWD |
| 3436.00 | 42.46 | 20.46 | 2608.54 | 1868.20 | 853.33 | 2039.96 | 1.36 | 0.78 | -1.66 | MWD |
| 3467.00 | 42.30 | 20.18 | 2631.44 | 1887.79 | 860.58 | 2060.48 | 0.80 | -0.52 | -0.90 | MWD |
| 3499.00 | 42.50 | 21.09 | 2655.07 | 1907.99 | 868.19 | 2081.69 | 2.02 | 0.62 | 2.84 | MWD |
| 3530.00 | 42.55 | 20.72 | 2677.92 | 1927.56 | 875.67 | 2102.30 | 0.82 | 0.16 | -1.19 | MWD |
| 3562.00 | 42.65 | 21.30 | 2701.48 | 1947.78 | 883.43 | 2123.62 | 1.27 | 0.31 | 1.81 | MWD |
| 3594.00 | 42.40 | 21.14 | 2725.06 | 1967.94 | 891.26 | 2144.92 | 0.85 | -0.78 | -0.50 | MWD |
| 3625.00 | 42.81 | 21.95 | 2747.88 | 1987.46 | 898.97 | 2165.60 | 2.21 | 1.32 | 2.61 | MWD |
| 3657.00 | 42.82 | 22.20 | 2771.35 | 2007.62 | 907.14 | 2187.08 | 0.53 | 0.03 | 0.78 | MWD |
| 3689.00 | 43.14 | 21.53 | 2794.76 | 2027.86 | 915.26 | 2208.60 | 1.74 | 1.00 | -2.09 | MWD |
| 3720.00 | 42.79 | 20.91 | 2817.45 | 2047.56 | 922.91 | 2229.41 | 1.77 | -1.13 | -2.00 | MWD |
| 3751.00 | 42.86 | 20.31 | 2840.18 | 2067.28 | 930.33 | 2250.12 | 1.33 | 0.23 | -1.94 | MWD |
| 3783.00 | 42.83 | 20.19 | 2863.64 | 2087.70 | 937.86 | 2271.48 | 0.27 | -0.09 | -0.37 | MWD |
| 3814.00 | 42.07 | 20.67 | 2886.52 | 2107.30 | 945.16 | 2292.04 | 2.67 | -2.45 | 1.55 | MWD |
| 3846.00 | 41.93 | 21.75 | 2910.30 | 2127.26 | 952.91 | 2313.12 | 2.30 | -0.44 | 3.37 | MWD |
| 3877.00 | 41.84 | 21.02 | 2933.38 | 2146.54 | 960.46 | 2333.51 | 1.60 | -0.29 | -2.35 | MWD |
| 3908.00 | 41.86 | 21.88 | 2956.47 | 2165.79 | 968.02 | 2353.90 | 1.85 | 0.06 | 2.77 | MWD |
| 3940.00 | 41.98 | 21.71 | 2980.28 | 2185.64 | 975.96 | 2374.99 | 0.52 | 0.37 | -0.53 | MWD |
| 3971.00 | 41.80 | 20.99 | 3003.36 | 2204.91 | 983.49 | 2395.38 | 1.66 | -0.58 | -2.32 | MWD |
| 4003.00 | 41.72 | 20.15 | 3027.23 | 2224.87 | 990.98 | 2416.32 | 1.77 | -0.25 | -2.62 | MWD |

SDI Survey Report

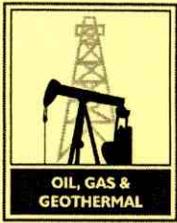
| | | | |
|---------------------------------|-----------------------------------|-----------------------------|-------------------|
| Company: E & B Resources | Date: 12/15/2014 | Time: 19:28:17 | Page: 4 |
| Field: NORTH WHILIMNGTON | Co-ordinate(NE) Reference: | Well: WNF-I-19, Grid North | |
| Site: WNF DRILL SITE #1 | Vertical (TVD) Reference: | WNF I 19 RD1 DF 51.5 | |
| Well: WNF-I-19 | Section (VS) Reference: | Well (0.00N,0.00E,31.22Azi) | |
| Wellpath: WNF-1-19 RD1 | Survey Calculation Method: | Minimum Curvature | Db: Sybase |

Survey: WNF-I-19 RD1

| MD ft | Incl deg | Azim deg | TVD ft | +N/-S ft | +E/-W ft | VS ft | DLS deg/100ft | Build deg/100ft | Turn deg/100ft | Tool/Comment |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|--------------|
| 4034.00 | 41.54 | 20.66 | 3050.40 | 2244.17 | 998.16 | 2436.55 | 1.24 | -0.58 | 1.65 | MWD |
| 4065.00 | 41.41 | 20.99 | 3073.63 | 2263.36 | 1005.46 | 2456.75 | 0.82 | -0.42 | 1.06 | MWD |
| 4097.00 | 41.45 | 20.70 | 3097.62 | 2283.15 | 1013.00 | 2477.57 | 0.61 | 0.12 | -0.91 | MWD |
| 4129.00 | 41.14 | 22.13 | 3121.66 | 2302.81 | 1020.71 | 2498.38 | 3.10 | -0.97 | 4.47 | MWD |
| 4160.00 | 41.34 | 24.35 | 3144.97 | 2321.58 | 1028.77 | 2518.62 | 4.76 | 0.65 | 7.16 | MWD |
| 4192.00 | 41.87 | 26.20 | 3168.90 | 2340.79 | 1037.84 | 2539.75 | 4.18 | 1.66 | 5.78 | MWD |
| 4223.00 | 42.44 | 27.82 | 3191.88 | 2359.33 | 1047.29 | 2560.50 | 3.96 | 1.84 | 5.23 | MWD |
| 4254.00 | 43.51 | 29.18 | 3214.56 | 2377.90 | 1057.38 | 2581.60 | 4.57 | 3.45 | 4.39 | MWD |
| 4286.00 | 43.50 | 31.90 | 3237.78 | 2396.87 | 1068.57 | 2603.63 | 5.85 | -0.03 | 8.50 | MWD |
| 4318.00 | 43.46 | 34.27 | 3261.00 | 2415.31 | 1080.59 | 2625.63 | 5.10 | -0.12 | 7.41 | MWD |
| 4349.00 | 43.18 | 35.60 | 3283.55 | 2432.75 | 1092.76 | 2646.86 | 3.08 | -0.90 | 4.29 | MWD |
| 4381.00 | 42.65 | 37.59 | 3306.99 | 2450.24 | 1105.75 | 2668.55 | 4.55 | -1.66 | 6.22 | MWD |
| 4413.00 | 43.17 | 38.45 | 3330.43 | 2467.40 | 1119.17 | 2690.18 | 2.45 | 1.62 | 2.69 | MWD |
| 4444.00 | 43.23 | 40.71 | 3353.03 | 2483.76 | 1132.69 | 2711.17 | 4.99 | 0.19 | 7.29 | MWD |
| 4464.00 | 43.46 | 41.73 | 3367.57 | 2494.08 | 1141.74 | 2724.69 | 3.68 | 1.15 | 5.10 | MWD |
| 4495.00 | 43.60 | 43.60 | 3390.05 | 2509.78 | 1156.20 | 2745.62 | 4.18 | 0.45 | 6.03 | MWD |
| 4524.00 | 43.72 | 44.86 | 3411.03 | 2524.12 | 1170.17 | 2765.12 | 3.03 | 0.41 | 4.34 | MWD |
| 4556.00 | 44.06 | 46.35 | 3434.09 | 2539.64 | 1186.02 | 2786.61 | 3.40 | 1.06 | 4.66 | MWD |
| 4588.00 | 45.00 | 48.34 | 3456.90 | 2554.85 | 1202.53 | 2808.16 | 5.26 | 2.94 | 6.22 | MWD |
| 4619.00 | 45.21 | 49.47 | 3478.78 | 2569.28 | 1219.07 | 2829.09 | 2.67 | 0.68 | 3.65 | MWD |
| 4651.00 | 45.37 | 50.27 | 3501.30 | 2583.94 | 1236.46 | 2850.63 | 1.85 | 0.50 | 2.50 | MWD |
| 4683.00 | 45.44 | 53.44 | 3523.77 | 2598.01 | 1254.38 | 2871.95 | 7.06 | 0.22 | 9.91 | MWD |
| 4714.00 | 45.07 | 56.17 | 3545.59 | 2610.70 | 1272.37 | 2892.13 | 6.37 | -1.19 | 8.81 | MWD |
| 4746.00 | 44.59 | 58.21 | 3568.29 | 2622.92 | 1291.33 | 2912.41 | 4.74 | -1.50 | 6.37 | MWD |
| 4777.00 | 44.54 | 60.71 | 3590.37 | 2633.97 | 1310.06 | 2931.57 | 5.66 | -0.16 | 8.06 | MWD |
| 4809.00 | 44.99 | 63.36 | 3613.10 | 2644.54 | 1329.96 | 2950.92 | 6.00 | 1.41 | 8.28 | MWD |
| 4841.00 | 45.55 | 65.06 | 3635.62 | 2654.42 | 1350.43 | 2969.98 | 4.16 | 1.75 | 5.31 | MWD |
| 4872.00 | 45.93 | 65.80 | 3657.25 | 2663.66 | 1370.62 | 2988.34 | 2.10 | 1.23 | 2.39 | MWD |
| 4903.00 | 45.99 | 65.79 | 3678.80 | 2672.79 | 1390.94 | 3006.69 | 0.19 | 0.19 | -0.03 | MWD |
| 4935.00 | 45.83 | 66.50 | 3701.07 | 2682.09 | 1411.96 | 3025.54 | 1.67 | -0.50 | 2.22 | MWD |
| 4966.00 | 45.96 | 65.83 | 3722.64 | 2691.08 | 1432.32 | 3043.78 | 1.61 | 0.42 | -2.16 | MWD |
| 4998.00 | 45.79 | 65.83 | 3744.92 | 2700.49 | 1453.28 | 3062.69 | 0.53 | -0.53 | 0.00 | MWD |
| 5029.00 | 46.77 | 68.05 | 3766.35 | 2709.26 | 1473.89 | 3080.87 | 6.06 | 3.16 | 7.16 | MWD |
| 5093.00 | 46.66 | 68.48 | 3810.23 | 2726.51 | 1517.17 | 3118.06 | 0.52 | -0.17 | 0.67 | MWD |
| 5124.00 | 46.82 | 68.11 | 3831.47 | 2734.86 | 1538.15 | 3136.07 | 1.01 | 0.52 | -1.19 | MWD |
| 5155.00 | 46.83 | 67.58 | 3852.68 | 2743.39 | 1559.08 | 3154.21 | 1.25 | 0.03 | -1.71 | MWD |
| 5187.00 | 47.24 | 65.72 | 3874.50 | 2752.67 | 1580.58 | 3173.29 | 4.44 | 1.28 | -5.81 | MWD |
| 5219.00 | 47.27 | 66.74 | 3896.22 | 2762.14 | 1602.09 | 3192.54 | 2.34 | 0.09 | 3.19 | MWD |
| 5250.00 | 47.90 | 66.37 | 3917.12 | 2771.25 | 1623.08 | 3211.21 | 2.22 | 2.03 | -1.19 | MWD |
| 5281.00 | 47.68 | 66.25 | 3937.95 | 2780.47 | 1644.11 | 3230.00 | 0.77 | -0.71 | -0.39 | MWD |
| 5319.00 | 47.57 | 66.33 | 3963.56 | 2791.76 | 1669.81 | 3252.97 | 0.33 | -0.29 | 0.21 | MWD |
| 5374.00 | 47.57 | 66.33 | 4000.67 | 2808.06 | 1706.99 | 3286.18 | 0.00 | 0.00 | 0.00 | PROJECT T/TD |

Annotation

| MD ft | TVD ft | |
|----------|-----------|--------------|
| 5374.00 | 4000.67 | PROJECT T/TD |



NATURAL RESOURCES AGENCY OF CALIFORNIA
 DEPARTMENT OF CONSERVATION
 DIVISION OF OIL, GAS & GEOTHERMAL RESOURCES
 5816 Corporate Ave., Suite 100 Cypress, CA 90630-4731
 Phone:(714) 816-6847 Fax:(714) 816-6853

No. T 115-0494

REPORT ON OPERATIONS

WATER FLOOD PROJECT

Ms. Madelyn (Joyce) Holtzclaw
 E & B Natural Resources Management Corporation (E0100)
 1600 Norris Rd.
 Bakersfield, CA 93308

Cypress, California
 June 17, 2015

Your operations at well "Wnf-I" 19, A.P.I. No. 037-22846, Sec. 19, T. 04S, R. 13W, SB B.&M., Wilmington field, in Los Angeles County, were witnessed on 4/14/2015, by Dale Peterson, a representative of the supervisor.

The operations were performed for the purpose of pressure testing the 7" casing.

DECISION: **APPROVED**

DEFICIENCIES NOTED AND CORRECTED: None

EXPIRED _____
 CANCELLED _____
 MAILED _____
 EMAILED 6/29/15

HAM/kj

Steven Bohlen
 State Oil and Gas Supervisor

By Michael N. Skzfor
 For: Daniel J. Dudak, District Deputy

FLAM

Natural Resources Agency
Department of Conservation
Division of Oil, Gas, and Geothermal Resources

T 115-D494

Report on Operations
Standard Annular Pressure Test

OPERATOR E & B Natural Resources

CONTRACTOR:
Harbor Resources
UNCORRECTABLE DEFICIENCIES:
None
DEFICIENCIES NOTES AND TO BE CORRECTED:
None
DEFICIENCIES NOTED AND CORRECTED:
None

Your operations at well Wnf 19i API No. 037-22846
Sec 19 , T 04S , R 13W , SB , B. & M. Wilmington Field, Los Angeles County,
were witnessed on 04/14/2015 . D Peterson , representative of
the supervisor, was present from 0745 to 0830 .

There was also present Matt Greenlee (Harbor Resources)

Casing record of present hole: 16" cem 60'; 10 3/4" cem 604'; 7" cem 5098', drilled thru 2231'; 5" cem 5370',
perf @ int 4936'-5100'. TD 5394'. Plugged w/ cem 5370'-5360'.

A Standard Annular Pressure Test was performed on the 7" casing. The tubing/casing annulus was
pressure tested with 1700 psig for 15 minutes. There was 0 pressure drop.

Packer Depth: 4921'

Well Status: Injecting at _____ psi Idle Shut in

DECISION:

The pressure test is Approved Not Approved

HAM

DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

CEMENTING/PLUGGING MEMO

Operator E & B Natural Resources Management Well No. "Wnf-I" 19
API No. 037-22846 Sec. 19 T. 4S R. 13W SB B&M
Field Wilmington, County L.A. On 12/09/2014
Mr. Paul Kaufman representative of the supervisor, was present from 2300 to 0400

There were also present Nick Arbour, company representative, and Oscar Cervantes, rig supervisor

Casing record of well: 16" cem 60'; 10-3/4" cem 604'; 7" cem 5098', perf 5083 WSO, holes 3579'-3590' (cem off); 5" id 5037'-5256', perfs 5068'-5250'. TD 5285'. Plugged w/ cem 5270'-2250'.

The operations were performed for the purpose of: Rework (change bottom hole location and kickoff point)

[X] The plugging operations as witnessed and reported are approved.

[] The location and hardness of the cement plug @ are approved.

Hole size: 14-3/4" fr. 60' to 607', 9-7/8" to 5099' & 12" to 5256'

Table with 12 columns: Casing (Size, Wt., Top, Bottom), Cemented (Date, MO-Depth, Volume), Top of Fill (Annulus, Casing), Squeezed Away, Final Pressure, Perforations.

Casing/tubing recovered: Shot/cut at Pulled fr.
Shot/cut at Pulled fr.
Shot/cut at Pulled fr.

Junk (in hole):

Hole fluid (bailed to) Witnessed by

Table with 7 columns: Mudding, Date, bbls, Displaced, Poured, Fill, Engineer.

Table with 9 columns: Cement Plugs (Date, Sx./cf), Placing (MO & Depth), Placing Witnessed (Time, Engineer), Top Witnessed (Depth, Wt/Sample, Date & Time, Engineer).

Ali Mohammed, Hafiz@DOC

From: Ali Mohammed, Hafiz@DOC
Sent: Monday, April 6, 2015 12:03 PM
To: 'Dan Fouts'
Cc: Chris McCullough
Subject: RE: E&B - WNF-I 19 update and USIT log

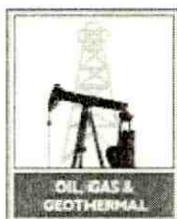
Dan,

Based upon USIT log result the TIZ zone has a good bond. Proceed with permit for all other jobs.

Thank You

Hafiz Ali Mohammed

Associate Oil & Gas Engineer
Department of Conservation
Division of Oil, Gas & Geothermal Resources
5816 Corporate Ave., Ste 100
Cypress, Ca 90630
(714) 816-6847



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 Please consider the environment before printing this e-mail

From: Dan Fouts [mailto:dfouts@ebresources.com]
Sent: Monday, April 6, 2015 10:16 AM
To: Ali Mohammed, Hafiz@DOC
Cc: McCullough, Chris@DOC; Lou Zylstra; dave hopkins; Brandy Fellers
Subject: E&B - WNF-I 19 update and USIT log
Importance: High

Hafiz,

This email is to update you on E&B well WNF-I 19 RD1.

To test the validity of the original CBL, we perforated 8 squeeze holes from 5098'-5100' and 8 squeeze holes from 5060'-5062'. These two locations are the bottom of the lower most injection perfs, and the top of the second lowest injection perfs, where the original CBL shows now poor bond. We then set a packer between the squeeze perfs and attempted to gain circulation for a block squeeze. The upper perfs pressured to 1500 psi and bled to 1300' in 8 minutes. The lower

set of perfs pressured up to 1500 psi and held. So even though the original CBL showed the poorest apparent bond, the test shows isolation, much like water shot off holes were used to prove isolation before bond logging became prevalent.

Therefore, we decided to run a second bond log on Friday, April 3rd. We called out Schlumberger to run a USIT. It reads differently than the original CBL. Cement bond is intermittent from TIZ at 4928' up to 4852'. The 5" casing is bonded 80-95% from 4838'-4852' (within 100' of the TIZ) and thus isolates the TIZ from the Tar sands above. The USIT log is attached.

Based upon these tests and the USIT results, we are ready to move forward with the injection perforations in the Ranger sands. Please review the log and verify that we may proceed.

Thank you,
Dan

From: Ali Mohammed, Hafiz@DOC [<mailto:Hafiz.Ali-Mohammed@conservation.ca.gov>]
Sent: Monday, March 30, 2015 11:53 AM
To: Dan Fouts
Cc: McCullough, Chris@DOC
Subject: RE: E&B - WNF-I 19 CBL and completion plan

Dan,
Due to poor cement bond above the top of ranger zone (TIZ) , so the top of ranger zone shall be isolated by squeezed cement to fill outside the 7" casing, or until a pressure increase, not to exceed fracture pressure, is noted. Our office need to be notified to witness the squeeze job.
Thank You
Hafiz

From: Dan Fouts [<mailto:dfouts@ebresources.com>]
Sent: Friday, March 27, 2015 6:32 PM
To: Ali Mohammed, Hafiz@DOC
Cc: McCullough, Chris@DOC; Brandy Fellers; Lou Zylstra
Subject: RE: E&B - WNF-I 19 CBL and completion plan

Hafiz,

Thank you for your time today. It was nice to meet you. And while emails and phones are useful, I find face to face time far more beneficial.

Regarding well WNF-I 19, we have planned the following perforation intervals for injection:
4934-4944
4954-4982
5014-5020
5060-5070
5092-5099

Based on the CBL, we have consistently good cement bond and isolation from 1330'-4800'. Cement is poor from 4800' to 4880' and intermittent from 4880' to the top perforation to be shot at 4934'. The cement from 4800' up effectively isolates the primary tar sands located at 4470'-4690'. Due to the confinement (above and below) of the poorly cemented interval from 4800'-4880', establishing significant vertical cement height behind pipe will likely be difficult. Cement squeezing a single set of perforations would likely yield less than 10 vertical feet of cement behind pipe. And any squeeze perforations introduce an unwanted compromise of wellbore integrity. For these reasons, I propose to perforate the completion intervals above, place the packer at 4830' +/- (100' above the top of the Ranger F marker at 4930'), and run an injection survey to verify that fluid is not migrating behind pipe above the Ranger sands.