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22 Attorneys for the Defendant and Respondent
23 County of Monterey

24 SUPERIOR COURT OF THE STATE OF CALIFORNIA
25 COUNTY OF MONTEREY

26 CHEVRON U.S.A. INC., etc.; et al.,
27 Petitioners and Plaintiffs,
28 v.
29 COUNTY OF MONTEREY, etc.; et al.,
30 Respondents and Defendants,
31 and
32 PROTECT MONTEREY COUNTY and DR.
33 SOLORIO,
34 Defendant - Intervenors.

Case Nos. 16CV003978

[Related Case Nos. 16CV003980,
17CV000790, 17CV000871, 17CV000935,
17CV001012]

Judge: Hon. Thomas W. Wills

DECLARATION OF ALAN BURZLAFF
IN SUPPORT OF DEFENDANT COUNTY
OF MONTEREY'S OPPOSITION TO
BRIEF FOR PHASE 1 PROCEEDINGS

[Filed with:
1. Req. for Judic. Notice;
2. Decl. of Burzlaff]

35 AND RELATED CASES.

Phase 1 Hear: Nov. 13-17, 2017
Time: Not Set
Dept.: 14
Action Filed: Dec. 14, 2016

DECLARATION OF ALAN A. BURZLAFF, P.E.

I, Alan Burzlaff, declare:

1. I have personal knowledge of the facts set forth below, and if called as a witness, I could and would testify to those facts under oath.

2. I have a B.Sc. in Engineering Physics from the Colorado School of Mines. I have 40 years of experience as a petroleum engineer. I am a registered Professional Petroleum Engineer in the State of California (P1386) and am a member of the Society of Petroleum Engineers. I am a Managing Partner of MHA Petroleum Consultants, LLC ("MHA"). MHA is a petroleum reservoir and geological engineering consulting company providing reservoir management, integrated field studies, reservoir simulation, geoscience, reserves reports and business solutions to the oil and gas industry. I have attached a current and accurate copy of my resume, which explains my background and experience in greater detail, as exhibit A. I have been asked to prepare this Declaration by Best Best & Krieger LLP on behalf of the County of Monterey.

3. After oil, natural gas and produced water is pumped to the surface from cyclic steam injection or steam flooding, the produced water is processed or treated to remove oil and various constituents. Specifically, this occurs at several points during the production train as follows:

A. The "Free Water Knockout" vessel is a large vertical or horizontal metal separation vessel which allows the natural gas, oil and water to separate by gravity.

B. The water remaining in the separation vessel is further processed to remove more oil. Specifically, a chemical emulsion breaker, or demulsifier, is injected into the

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1 effluent. The breaker is usually a surface active agent that is used to reduce the surface tension of
2 oil to break up oil and water emulsions. A non-toxic organic coagulant may also be used along
3 with subsequent mechanical devices to get the last traces of oil removed from the produced water.
4

5 C. After the water is separated by the emulsion breaker, it may also be treated
6 with reverse osmosis to remove salts and other contaminants and purify it further and allowed to
7 percolate or injected into groundwater for beneficial use.
8

9 D. After the water is separated by the emulsion breaker, it may also be
10 recycled to create steam for use in cyclic steam injection or steam flooding to produce more oil.
11 Water recycled for steam must be further treated to remove calcium and magnesium ions, which
12 softens the water, to avoid damage to the machinery used to heat and inject it.
13

14 E. After the water is separated by the emulsion breaker, it may also be re-
15 injected into the oil producing formation from which it was originally produced.
16

17 4. Water recycled for steam to be injected into the oil producing formation is not
18 stored or disposed in the formation since further oil production will cause that water to be
19 pumped to the surface as produced water.
20

21 I declare under penalty of perjury under the laws of the State of California that the above
22 is true and correct.
23

24 Executed on September 28, 2017, in Bakersfield, California.
25

26 
27 Alan A. Burzlaff
28

Exhibit A

ALAN A. BURZLAFF, P.E.
Managing Partner



MHA Petroleum Consultants, LLC
4700 Stockdale Highway, Suite 110
Bakersfield, CA 93309 USA Phone: 661-325-0038
Email: aburzlafl@mhausa.com

EDUCATION

- B.Sc., Engineering Physics, Colorado School of Mines
- Graduated with High Honors

PROFESSIONAL PROFILE

Forty years of petroleum engineering experience including:

- Reserves Evaluation, Reporting and Reservoir Simulation
- Waterflood Evaluation, Design, Waterflood Surveillance and Optimization
- Steamflood Design and Optimization
- Expert Witness Testimony
- Thermal Recovery Process Selection and Application
- International Petroleum Development Studies
- Petroleum Engineering Course Instruction
- Well Test Design, UIC Testing and Pressure Transient Test Analysis
- Unitization and Equity Determination Studies
- Property Evaluation and Economic Analysis

WORK EXPERIENCE

MHA PETROLEUM CONSULTANTS

(2009 – Present) Managing Partner

Responsible for consulting projects and in charge of staff of reservoir engineers, geologists and support staff. Project manager for projects providing geoscience, reservoir engineering, thermal recovery, reservoir simulation and reserves reporting. Prepare and certify annual reserves reports. Supervise engineering consulting projects performed by multidisciplinary staff.

Directed engineering aspects of a large feasibility study associated with using a depleted natural gas reservoir for compressed air storage in a CAES application. Provided well site support for the field compression testing program and pressure transient testing.

SERCO, INC. AND SI INTERNATIONAL INC.

(1995 – 2009) Director

Director of Petroleum and Environmental Division operations for Serco and SI International, Inc. Responsible for coordinating petroleum engineering work and quality control. Prepared annual year-end reserves reports and audits. Evaluated California heavy oil properties for application of cyclic and steam drive operations. Engineering consultant on numerous property acquisition projects, reserves studies and petroleum exploitation evaluations. Conducted reservoir engineering tasks associated with preparation of equity redetermination studies for the U.S. Department of Energy (DOE) at Naval Petroleum Reserve No. 1 (NPR-1), Elk Hills Field, CA.

INTERA INFORMATION TECHNOLOGIES, INC.

(1993 – 1995) Manager

Managed office staff of seven professionals. Responsible for management of Department of Energy contract providing reservoir engineering support services to the Naval Petroleum Reserves in California, Elk Hills Field.

(1990 – 1993) Senior Consultant

Project manager and industry course instructor (Pressure Transient Analysis, Advanced Well Testing). Analyzed pressure transient tests for wells in U.S., North Sea, Middle East (Arabian Oil Company) and South America, including a number of horizontal well buildup tests. Performed horizontal well simulation study (Eclipse) of a fractured shale reservoir. Prepared study of current horizontal well technology and a manual of standard methods for horizontal well transient testing. Conducted development evaluation and steamflood project design for a giant Russian heavy oil field in Kazakh, S.S.R. Evaluated exploration discovery potential for two Vietnamese offshore blocks. Built simulation model and history matched performance of a light oil steamflood pilot project for the Department of Energy.

JERRY R. BERGESON & ASSOCIATES, INC.

(1989 – 1990) Senior Petroleum Engineer

Conducted numerous field studies and reserve evaluations. Evaluated Stevens Zone reservoir waterflood in Elk Hills Field for Department of Energy. Built 2-D and 3-D simulation models of a sector of the waterflood project to understand historical performance and predict ultimate oil recovery. Performed study of future petroleum discoveries in selected area of Williston Basin for gas transmission company.

TENNECO OIL E & P

(1977 – 1989) Sr. Petroleum Engineering Specialist

Directed reservoir engineering effort in the San Juan Basin. Prepared acquisition evaluations for the Rocky Mountain region. Conducted field studies, material balance work, and economic analyses for the region. Evaluated potential division expansion into Alberta Province, Canada. Designed and helped implement a large Stevens sand waterflood (Yowlumne field, California). Responsible for the design of steam drive expansion projects in Kern River Field, California.

PROFESSIONAL MEMBERSHIPS

Registered Professional Engineer, State of California, #P1386
Society of Petroleum Engineers (SPE)
Past Technical Editor, SPE Editorial Review Committee

PUBLICATIONS

Unitizing and Waterflooding the California Yowlumne Oil Field, SPE paper #11685 presented at the 1983 California Regional Meeting, Ventura, CA; March 1983.

Thermal Simulation of Elk Hills Light-Oil Steamflood Pilot, SPE paper #24036 presented at the 1992 Western Regional Meeting, Bakersfield, CA; March 1992.

Unconventional Oil from California's Monterey Formation - Exploitation Results, SPE paper #169508 presented at the 2014 Western North American and Rocky Mountain Joint Meeting, Denver, CO, April 17-18.

RECORD OF EXPERT WITNESS EXPERIENCE

Chesser v. Alea North American Insurance Company

Arbitration – Claim #AL0188

Deposition: July 2009

Testimony: None, Case Settled

Wolverine Energy, LLC, et al v. Fraser, Trebilcock, Davis & Dunlap, P.C.

Circuit Court for the County of Ingham, State of Michigan, Case No. 09-1067-NM

Deposition: None, Case Settled

Romara Energy, Inc. v. Rosetta Resources Operating LP

Solano County Superior Court, State of California, Case No. FCS032296

Expert Report: October 2010

Testimony: None, Case Settled

James A. Wheeler, etc. v. Poso Creek Energy, LLC et al.

San Diego County Superior Court, Case No. 37-2010-00102953-CU-BT-CTL

Deposition, Testimony: None, Case Under Appeal

In the Arbitration Matter of INNEX California Inc. (INNEX) et al.

vs. KMD Operating Company and Matris Exploration

Expert Report: August 2011

Testimony: None

Appearance as a fact witness:

Chevron U.S.A. Inc. v. The United States

U.S. Court of Federal Claims, Washington D.C., Docket No. 04-1365C

Depositions: May 2009, April 2011, January 2014

Testimony: June 2, 2011