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Attorney for Plaintiffs The New 49'ers Inc. et al.

SUPERIOR COURT OF THE STATE OF CALIFORNIA
FOR THE COUNTY OF SAN BERNARDINO

Coordination Proceeding
Special Title (Rule 1550(b))

SUCTION DREDGE MINING CASES

Judicial Council Proceeding No. JCPDS 4720

**DECLARATION OF THOM SEAL IN
SUPPORT OF MINERS' JOINT MOTION
FOR INJUNCTION AGAINST
DEFENDANTS**

Judge: Hon. Gilbert G. Ochoa
Dept.: S36
Date: June 23, 2015
Time: 8:30 a.m.

Related Actions:

*Karuk Tribe of California, et al. v. California
Department of Fish and Game*

RG 05211597 – Alameda County

*Hillman, et al. v. California Department of
Fish and Game*

RG 09434444 – Alameda County

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<i>Karuk Tribe of California, et al. v. California Department of Fish and Game</i>	RG 1263796 – Alameda County
<i>Kimble, et al. v. Kamala Harris, Attorney General of California, et al.</i>	CIVDS 1012922 – San Bernardino County
<i>Public Lands for the People, et al. v. California Department of Fish & Game, et al.</i>	CIVDS 1203849 – San Bernardino County
<i>The New 49er's, et al. v. State of California; California Department of Fish and Game, et al.</i>	SCCVCV 120048 – Siskiyou County
<i>Foley, et al. v. State of California; California Department of Fish and Wildlife, et al.</i>	SCSCCV 13-00804 – Siskiyou County
<i>Walker v. Harris, et al.</i>	34-2013-80001439 – Sacramento County

1 I, Thom Seal, declare:

2 1. I am a professor in the Mining and Metallurgical Engineering Department at the
3 University of Nevada. I have a Ph.D in Mining and Metallurgical Engineering, and am a
4 Registered Professional Engineer and a Mineral "Qualified Person". A copy of my curriculum
5 vitae is attached hereto as Exhibit 1.

6 2. I am familiar with the environmental issues opponents have raised with regard to
7 suction dredge mining, and served as a member of a task force in Oregon appointed to advise the
8 Governor concerning proposed legislation on the subject.

9 3. I make this Declaration in support of the motion by suction dredge mining
10 interests for an injunction to bar the California Department of Fish and Wildlife from prohibiting
11 suction dredging on federal lands where operators comply with the California regulations
12 prevailing in 2009 when the Department stopped issuing permits.

13 4. In my opinion, such an injunction will have no appreciable adverse environmental
14 effects.

15 5. With respect to the issue of mercury that may be released if suction dredge
16 operators encounter mercury in California rivers and streams, suction dredges efficiently collect
17 approximately 98% of the mercury they encounter. This is an obvious benefit to the
18 environment notwithstanding the remaining 2% that may fall back into the water.

19 6. The Department's refusal to issue permits since 2009 has the potential to provide
20 a useful experiment to determine whether the release of that 2% has any measurable impact on
21 mercury levels prevailing in the streams where suction dredgers operate.

22 7. I attempted to collect data concerning for periodic water sampling for mercury
23 (Hg) data from 2005-2010+ on the Yuba, Feather and/or Feather River where there are known
24 issues with respect to isolated pockets of mercury left behind by hydraulic miners long ago.
25 Oddly, it seemed as if much of the effort to gather data in these areas ceased when the
26 Department stopped issuing suction dredge mining permits.

27 8. I was able to obtain some measurements from the input waters for the Nimbus
28 Fish Hatchery on the American River near Folsom, California. The highest mercury reading was

1 less than 1/100th of the mercury levels required under drinking water standards (US-EPA), and
2 the very limited data available did not demonstrate any relationship between mercury levels and
3 the general cessation of suction dredge mining activity.

4 I certify under penalty of perjury that the foregoing is true and correct.

5 Executed on May 18, 2015.



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Thom Seal

Thom Seal, Ph.D, P.E.

SME
Society for
Mining, Metallurgy
& Exploration
Dr. Thom J. Seal
SME Registered Member No. 2888660
Signature *Thom Seal*
Date Signed *5/18/15*
Expiration date *12/31/15*

Thom Seal, PhD, PE
Mining Engineering/MS 173
University of Nevada, Reno
Reno, Nevada 89557
tseal@unr.edu (775) 682-8813

Education:

University of Idaho,
Moscow, Idaho, 2004, Ph.D. in Mining and Metallurgical Engineering
Dissertation: *Enhanced Gold Extraction in Cyanide Heap Leaching Using Hydro-Jex Technology*
University of Idaho
Moscow, Idaho, 1988, M.S. in Metallurgical Engineering
Thesis: *The Extraction of Silver Using Thiourea, a Rotating Disk Study*

Oregon State University
Corvallis, Oregon, 1975, B.S. in General Science Major: Environmental Chemistry

Academic Experience:

2012 – Present Founding Director for the Institute of Mineral Resource Studies, UNR
2010 – Present Barrick Gold Corp. Professor, Mining Engineering Dept., University of Nevada, Reno, Nevada
2009 – 2010 Newmont Associate Professor, Mining Engineering Dept., University of Nevada, Reno, Nevada
2003 – 2005 Chair of Land Survey Advisory Committee at Great Basin College, Elko Nevada
1996 - 1998 Adjunct professor at Great Basin College, Elko Nevada

Non-academic Experience:

1980 – Present Principal Engineer and President of Differential Engineering Inc. a Nevada and Oregon corporation, Spring Creek, NV.
2009 – Present Chief Operating and Technology Officer for Metal Recovery Solutions, Inc. a Nevada corporation, Spring Creek, NV.
2008 – 2009 Chief Technology Officer for Everclear Solutions, Inc. a California corporation, Emeryville, CA.
1995 – 2008 Manager of Metallurgical Technology and Senior Metallurgist for Newmont Mining Corp, Carlin NV.
1994 – 1995 Chief Metallurgical Engineer for Kinross Gold Corp. at the DeLamar Silver Min outside Jordan Valley, OR.
1987 – 1987 Summer Intern Metallurgical Engineer for Asamera Minerals Inc. of Wenatchee, WA.
1977 – 1983 Journeyman Carpenter and Millwright for Local 555 Portland and 6415 Corvallis, OR on various jobs.

Current Memberships:

- Nevada Mining Association (Member since 2010)
- Northern Nevada Chapter of SME (Member since 2009)
- SME National Association (Member since 1986, Registered Member since 2006)
- SME Professional Engineering Committee (Member since 2006)
- SME Foundation Trustee (Board Member since 2012)

Thom Seal, PhD, PE

- Eastern Oregon Mining Association (Member since 1978, Past Vice President and current Board Member)
- Professional Engineer in Mining – Mineral Processing, Nevada #15921, since 2002

Honors and Awards:

- 13 year Service Award from Newmont Mining Corp.

Service Activities:

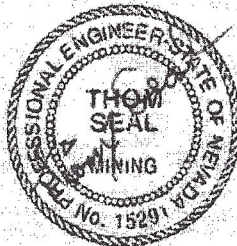
- Professional Engineering Committee, Foundation Trustee for SME
- Evaluate and comment on Federal EA & EIS for mining in the western USA.
- Oregon Governor's task force on small mining - 2014
- Curriculum Initiation Committee for Reintroduction of BS and MS in Metallurgical Engineering at UNR

List of Relevant Publications and Presentations:

1. In-Progress: Reduction of Hg(II) in Au Elution at Elevated Temperatures
2. In-Progress: Investigation of Mercury Reduction in Gold Stripping Process at Elevated Temperatures, Irawan Pramudya MS Thesis, T. Seal Thesis Advisor
3. Fuerstenau, M., Zhong, K., Misra, M., Seal, T., and Nesbitt, C., "Minimizing Mercury Pollution during Gold Ore Processing" SME Annual Meeting and Exhibit 2011
4. Seal, T., "Operational techniques to recover metal values from heap inventory and in situ chemical alteration prior to closure" First International Heap Leach Conference, Vancouver, Canada, Sept. 22-25, 2013.
5. Seal, T., Rucker, D.F, and Winterton, J. "Enhancing Gold Recovery using Hydro-Jex[®] at Cripple Creek and Victor Gold Mine Co." Advanced Separation Processes, Symposium Honoring Dr. Roe-Hoan Yoon, SME Annual Meeting and Exhibit 2011
6. Seal, T., Winterton, J., and Rucker, D.F., 2011. "Hydro-Jex[®] operations at the AngloGold Ashanti's Cripple Creek and Victor Gold Mine" SME Annual Meeting and Exhibit 2011.
7. Seal, T., Fink, J., "Integrating Hydro-Fracturing Technology and Geophysics into 3-D mapping and Extraction of Metals in Heap Leaching; Hydro-Jex[®] and High Resolution Resistivity" SME Annual Meeting and Exhibit 2008, paper number 08-01
8. Brierley, J., Logan, T., Seal, T., "Whole-Ore Heap Biooxidation of Sulfidic Gold-Bearing Ores", Chapter 6, pages 113-137. Biomining, Springer Press 2007

Professional Development Activities:

- Research and development of technology to mitigate mercury's release into the food chain.
- Research, development and improvement of the Hydro-Jex technology for extraction of inventory metals from heap leach operations. Inventor of patent-pending technology.
- Research and development of technology to mitigate acid rock drainage and improve heap, dump and waste rock facility reclamation and closure.
- Support the US mining industry in developing processes for metals recovery and sale.



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I am a citizen of the United States, over the age of 18 years, and not a party to or interested in the within entitled cause. I am an employee of Murphy & Buchal, LLP and my business address is 3425 SE Yamhill Street, Suite 100, Portland, Oregon 97214.

DECLARATION OF THOM SEAL IN SUPPORT OF MINERS' JOINT MOTION FOR
INJUNCTION AGAINST DEFENDANTS

Honorable Gilbert Ochoa Superior Court of California County of San Bernardino San Bernardino Justice Center 247 West 3 rd Street San Bernardino, CA 92415-0210 <i>Via U.S. Mail</i>	Chair, Judicial Council of California Administrative Office of the Courts Attn: Court Programs and Services Division (Civil Case Coordination) 455 Golden Gate Avenue San Francisco, CA 94102 <i>Via U.S. Mail</i>
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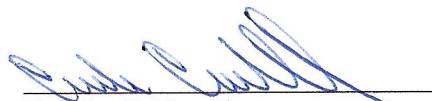
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11 Carole Caldwell
12 Declarant
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