

Industrial Heat

CONFIDENTIAL MEMORANDUM

21 April 2015

To: Paul Lamacraft, Woodford Investment Management

From: Tom Darden, Industrial Heat

Subject: Industrial Heat Update, March 16th - April 17th, 2015

The primary areas of activity the past four weeks at Industrial Heat have included:

1. Identifying and interviewing potential candidates for key positions on the IP and R&D/Engineering teams; identifying co-located lab/office space for the company.
2. Further developing acquisition and investment opportunities in the sector--we hope to close on at least two acquisitions (Redacted - Other Investments is described below) and at least one investment (Redacted - Other Investments) in the 4-8 weeks post-closing.
3. R&D: Rossi continues to operate his 1MW unit; (Redacted - Other Investments) appear to separately be making progress; progress is less clear with (Redacted - Other Investments) at the moment; (Redacted - Other Investments) did not conduct significant R&D work during the past month.
4. On April 13, gave the opening address for ICCF-19 in Padua, Italy (International Conference on Condensed Matter Nuclear Science), the industry's premier conference, held every 18 months. It seems to have been very well received; a copy is attached. In addition, Rossi partnered with Norman Cook to present a technical paper at the conference, which appears to have been generally well received; a copy is attached.
5. Finalizing international corporate restructuring, including the formation of a UK holding company. Appear to be on schedule to finalize the transaction with WIM by the end of the month, assuming Wells Fargo does not delay activating a bank account for the UK holding company.
6. External relations:
  - a. hosted a Chinese delegation that visited Rossi's plant in Miami, Florida
  - b. further engaged Google concerning its interest in the sector, which appears to be serious, though not entirely cooperative at present
  - c. established a relationship with Phononic, a leading thermoelectric company
  - d. visited Dr. James Truchard, the founder and CEO of National Instruments, and discussed NI's interest in the sector (which is to ensure its LabView software becomes the industry standard in monitoring and controlling experiments)
  - e. initiated relations with India through Dr. Mahadeva Srinivasan, who has indicated that India's new Prime Minister, Mr. Narendra Modi, is serious about climate change and aware of LENR.

Below, we have provided a more granular update concerning our activity over the preceding four weeks and our plans going forward. Consistent with previous updates, this update is organized into four sections:

- I. Strategy and G&A
- II. Intellectual Property
- III. R&D and LENR Sector Activity
- IV. Three-Month and Six-Month Goals

## **I. Strategy and G&A**

### Strategy Consulting:

IH has initiated discussions with Bain, McKinsey and BCG to assist in developing IH's overall strategy. IH intends to retain one of these firms within one month of closing, and expects the initial analysis to take 3-4 months to complete.

In parallel, IH will be working to identify and retain an investment bank to engage Global 500 companies interested in partnering with IH to license and further develop its technology. One such firm IH is considering engaging is Ocean Tomo, a pre-eminent intellectual property merchant bank based in Chicago, IL. We would be interested in WIF recommendations.

### G&A Updates:

Real estate: IH is narrowing the list of potential lab/office locations. Once selected, the new combined lab and office space will need to be updated and equipped. IH anticipates this process taking approximately 6-8 months, and intends to continue to use its existing lab space in the interim, as well as offices at Cherokee. IH anticipates signing a 3 year lease, costing 100,000 to 200,000 per year. IH is presently working to better equip its existing lab (with such equipment to be transported to the new lab once it has been identified) to allow for an expanded R&D effort.

Human Resources: Executive, administrative and business team -- the strategy consulting work will help inform the types of personnel we need to assist with administrative, business and commercialization efforts. In the interim, we continue to use Cherokee Investment Services to provide back office support (e.g., accounting, payroll, insurance, etc.) at cost. Tom Darden continues in his capacity as CEO, as does JT Vaughn in his capacity as Vice President, focused on operations and executing on the sector strategy. Dewey Weaver continues to be the point person for maintaining inventor relationships and identifying new opportunities and relationships in the field. IH has also recently begun working to identify candidates for the CFO position.

R&D and Engineering team: T. Barker Dameron continues to provide technical oversight and analysis on the state of current and prospective technologies. As we have mentioned previously, we have been working to identify an experienced director for the R&D and Engineering team. We are in the process of interviewing Joseph Murray for this position.

Mr. Murray was previously a co-founder and principal of 3 Phoenix, a design and engineering business that provides innovative technology solutions (such as active and passive anti-submarine warfare sonar processing) to the US Department of Defense as well as industry partners. 3 Phoenix was acquired last year by Ultra Electronics and, after assisting through the transition period; Mr. Murray is now looking for new opportunities. IH management has known Mr. Murray for about two years, and when we learned he was leaving Ultra Electronics, we invited him to learn more about IH. Mr. Murray's bio is attached.

We are also in the process of interviewing Alexandra Alvarez for the position of project manager for the R&D and Engineering team. She is currently a project controls engineer for Shell Global Solutions, where she manages projects in the United Arab Emirates, Iraq and the Netherlands. Ms. Alvarez was introduced to IH management by a mutual friend in startup technology sector, world who knew that she was relocating to the Research Triangle due to her husband's new job. Ms. Alvarez's resume is attached.

We anticipate that the director of the R&D and Engineering team, whether it is Mr. Murray or another candidate, will fill out his or her team, with a focus on relevant scientific and engineering skills.

IP Team: IH advertised three positions on LinkedIn for the IP team, including in-house patent counsel, IP project manager and technical staff (science or engineering backgrounds). In a matter of weeks we received 40 applications for in-house patent counsel, 22 for project manager and 39 for the technical staff. We are working towards developing a short list for each position. One of the candidates for in-house patent counsel is Letao Qin, a lawyer we have been using at Coats & Bennett PLLC. The IH team has been impressed with Mrs. Qin's work to-date with several of its inventors and considers her a strong candidate for in-house patent counsel. Mrs. Qin's resume is attached.

## **II. Intellectual Property**

Below we have listed a number of disclosures that we are currently working to develop and file as provisional patent applications. Preparing a draft provisional patent application for filing could take as much as 3-4 months, and the titles below will likely change before being filed. The number of provisional applications filed deriving from the disclosures listed below could also be more or less, depending on how the applications develop.

Redacted - Other Investments

Redacted - Other Investments

**III. R&D and LENR Sector Activity**

Below is a brief update on the R&D underway with our portfolio of inventors. Many of the inventors were distracted these past four weeks in preparing to attend ICCF-19, a week long event in Padua, Italy.

1. Rossi: Rossi continues to operate his 1MW unit in Miami; no independently verified results yet.

Redacted - Other Investments

Redacted - Other Investments

Redacted - Other Investments

#### IV. Three-Month and Six-Month Goals

##### 3-month goals (May - July, 2015):

1. Close on at least two acquisitions and one strategic investment
2. Staff R&D/Engineering and IP teams
3. Expand the IP identification and capture processes
4. Create IH administrative and payroll systems
5. Engage strategy consulting firm to further develop overall strategy and business plan; hire an investment banking firm to engage potential strategic partners
6. Build and operate new reactors, monitoring and capturing all key data points
7. Continue and expand conversations with corporate partners; attend GE new venture conference in May

##### 6-month goals (May - October, 2015):

1. Begin implementing strategy as guided by outside consulting firm; begin engaging potential strategic partners identified by investment banking firm
2. Up-fit and equip new lab/office space
3. Create demonstration site inside our lab to show working technology to outside partners
4. Independently build and operate at least one additional model of reactor (e.g., Redacted - Other Investments reactors)
5. File 15 high quality provisional patent applications

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**From:** Tom Darden <tdarden@industrialheat.co>  
**Sent:** Friday, May 15, 2015 9:15 AM  
**To:** Jon Spear; Steven Hartanto  
**Subject:** Fw: Industrial Heat

Guys: here is a schedule item for you to be aware of. Steven, when are the CA mtgs with your dad? Are they confirmed? Thanks.

Sent from my BlackBerry 10 smartphone on the Verizon Wireless 4G LTE network.

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**From:** Tom Darden <tdarden@industrialheat.co>  
**Sent:** Friday, May 15, 2015 9:12 AM  
**To:** Zoe King  
**Cc:** JT Vaughn; Andrea P. Meli  
**Subject:** Re: Industrial Heat

Let's tentatively hold the 21st at 10 AM. I have cc'd JT Vaughn and also Andrea Meli for their input also. Thanks.

Sent from my BlackBerry 10 smartphone on the Verizon Wireless 4G LTE network.

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**From:** Zoe King  
**Sent:** Friday, May 15, 2015 5:34 AM  
**To:** Tom Darden  
**Cc:** Joe Pike  
**Subject:** Industrial Heat

Tom,

Thursday morning (21<sup>st</sup> May) in Oxford is best for Paul, I can offer a 10am or 11am start. Likely just Paul from our side on this occasion.

Thank you,

Zoe

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**From:** Paul Lamacraft  
**Sent:** 14 May 2015 07:08  
**To:** 'Tom Darden'; Neil Woodford; Saku Saha  
**Cc:** Joe Pike  
**Subject:** RE: Industrial Heat

Tom this is great news. We are delighted to be part of the LENR revolution. I am not sure about diaries for the rest of the team next week so will check with Zoe but I am sure I will be able to make myself available for an update. I'll come back to you later today with best timing.

Kind regards,  
Paul

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**From:** Tom Darden [mailto:tdarden@industrialheat.co]

**Sent:** 14 May 2015 05:10

**To:** Neil Woodford; Paul Lamacraft; Saku Saha

**Cc:** Joe Pike

**Subject:** Industrial Heat

Gentlemen:

The Industrial Heat funding closed earlier today, and I wanted to convey my deep appreciation to our British friends.

We are having an enormous impact on the LENR community, and we are building a great team and set of related technologies around Rossi's key innovation. We have much to do, but we have the resources we need and an open field in front of us. Thanks for being a critical part of our team. We are highly motivated to add value to your funds.

JT Vaughn and I would like to drop in sometime next week to give you an update. Would Wednesday or Thursday work for a morning meeting?

Again, thanks.

Tom Darden

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**From:** Paul Lamacraft <Paul.Lamacraft@woodfordfunds.com>  
**Sent:** Friday, March 04, 2016 2:34 AM  
**To:** JT Vaughn  
**Subject:** RE: IH public statement

Hi JT,

This is clearly very disappointing given that Rossi's technology was a core element of the initial investment. Can you let me have sight of the statement please.

Many thanks,

Paul

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Paul Lamacraft  
Fund Manager

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**From:** JT Vaughn [<mailto:jvaughn@industrialheat.co>]  
**Sent:** 03 March 2016 20:56  
**To:** Paul Lamacraft <Paul.Lamacraft@woodfordfunds.com>; Harry Raikes <harry.raikes@woodfordfunds.com>  
**Cc:** Tom Darden <[tdarden@industrialheat.co](mailto:tdarden@industrialheat.co)>; McLaughlin, Brian <[BMcLaughlin@apcoworldwide.com](mailto:BMcLaughlin@apcoworldwide.com)>; Kight, April <[akight@schellbray.com](mailto:akight@schellbray.com)>; Neil Woodford <[Neil@woodfordfunds.com](mailto:Neil@woodfordfunds.com)>  
**Subject:** IH public statement

Neil, Paul and Harry: I wanted to let you guys know that we will be releasing a public statement tomorrow morning at approximately 10:30AM ET concerning our position with regard to Rossi's technology. The statement will make it known that based on our experience, analysis and observations we are not in a position to announce the successful testing of his technology now or at any previous time. The statement will go on to talk about our portfolio of leading LENR technologies (aside from Andrea Rossi's technology) and announce (for the first time publicly), our serious engineering efforts presently underway. Net, net, our message is that notwithstanding anything associated with Rossi, we are excited about our portfolio and, along with our investors, we remain committed to the sector and commercializing an LENR technology.

Separately, earlier today and last night, some of the LENR enthusiasts discovered the valuation at which WIM invested in the last round and also the complete list of IH shareholders. This information was publicly available through the filed articles of IHHI in the UK.

I wanted to send this quick note to make you guys aware of these events and to give you a heads up that you may be receiving some inquiries.

Brian McLaughlin, with APCO Worldwide, is our PR manager and will shortly send some statements WIM may use in response to any inquiries.

If you have any questions, please let us know. I am boarding a flight now and will be airborne most of the rest of the day, but will respond when I can.

Best,  
JT

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## INDUSTRIAL HEAT

CONFIDENTIAL

November 2, 2015

### Industrial Heat Business Development Update:

#### Sector Status

1. IH continues to lead and is increasingly being given credit for “unlocking the sector” with the Rossi investment.
2. Awareness and knowledge in the promise of LENR as a potential energy solution is steadily growing with broadening and unsolicited media coverage.
3. Gates has invested an initial \$6M into starting a LENR Program under Rob Duncan at Texas Tech University.
4. Airbus hosted a Colloquium for LENR researchers in late Oct and issued a challenge for a reactor with a COP of 3 and output of 700C. IH was in attendance and is in the process of developing a working relationship with the Airbus Chief Scientist.
5. The Japanese Govt has establish grant programs for LENR researchers in Japan. (\$31M in RFP funds identified to-date). IH is pursuing access to one or more of these grant programs
6. The Indian Govt authorized and funded 4 Universities to establish LENR research programs. IH has established a relationship with a leading advisor to that emerging Indian LENR program.
7. US Govt is funding LENR modeling research in the Nav/Sea Systems Command group at Dahlgren.
8. The lead NAV/SEA researcher reports that NASA has resumed its LENR reactor research program.

#### Additional Engagements:

##### **1. La Gatta / TSEM US**

- US lab established, testing underway
- Verbal update from TD

##### **2. Letts Lab**

- Construction of the High Temperature / Seebeck Reactor (2<sup>nd</sup> LT - LENR Tube reactor), thermal enclosure and test rig has been completed.
- The HT/SB design will allow Letts to test at higher temperatures and with faster turnaround times (hours instead of days) on experiments.
- The HT/SB has the potential to give us 10 to 100W of XP if it works as expected and is scalable beyond that initial range should the initial testing show promise.
- Calibration of lab power and measurement equipment will be completed by Nov. 15.
- Testing of the calorimeter is expected to be complete by Nov 23
- Plating / Loading of the LT is scheduled for late Nov along with the initial live runs of the system.

##### **3. Cooper Core Tech**

- Construction of CCT's 16 channel test system has been completed.
- The IH engineering team is working with CCT to debug and commission the system

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- The complexity of the design and desire by CCT to move rapidly remains a challenge during the commissioning phase.
  - IH has reset expectations and significantly tightened milestones and associated spend as part of an attempt to assist CCT in focusing on near-term system baseline objectives.
  - IH has engineers on the ground this week at CCT as part of this effort.
  - Cooper's lead reactant researcher, Dennis Cravens, is staying in close collaboration with CCT & IH during this cycle.
  - IH thinks there is sustainable value to the CCT piezo and pyro resonance reaction model that they continue to develop with their Dartmouth chemist, Dr. Scott Gordon
- 4. Miley / Lenuco**
- Closing in Nov, 2015
- 5. Mizuno / HEAD**
- IH, along with Japanese counsel, have been assisting Mizuno in cleaning up a previously unknown contractual arrangement that hindered the original IH investment.
  - Mizuno has continued his research and is reporting 15W of excess heat on 20W input power.
  - IH has submitted a revised contract / proposal to Mizuno and expects to have him fully engaged with IH control of IP in the coming weeks.
  - IH is also assisting Mizuno in the pursuit of substantial grant funding that has been allocated by various groups within the Japanese Govt.
- 6. Peter Hagelstein / MIT:**
- The working relationship with Hagelstein continues to grow as his model development continues to solve with most available datasets.
  - Hagelstein was in Raleigh in mid-Oct teaching his hydrogen / deuterium metal loading methodology as well as explaining background research to the IH engineering team.
  - He may have a baseline experiment that proves resonant metal energy extraction using stainless steel and a waterjet. This is very significant should it be confirmed.
  - Hagelstein believes the resonant metal energy technology could be eligible for monetization in 18 to 24 months should the ongoing experiments and test results continue to be successful.
  - Hagelstein has a lab / Phd candidate ready to test a Nanor and expects one to be delivered / tested in Q4.
- 7. Tom Claytor / High Mesa Labs:**
- Tom Claytor and Malcolm Fowler have partnered with IH to test materials and gases from IH funded reactors. Both of these gentlemen are retired Los Alamos (LANL) scientist and are considered world experts in their fields.
  - IH has gotten access to the highest resolution analytical systems at LANL thru an agreement with High Mesa and is expecting test results on post reaction materials from Mizuno and Letts reactors in mid-to-late Q4.

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### Under Development:

#### **1. Curt Brown / PointSource**

- IH is still in negotiations with Pointsource around technical due diligence needed to advance to the termsheet stage.
- Brown remains hesitant to share the necessary details and this project is presently stalled.

#### **2. Etiam Oy, Finland**

- LENR IP portfolio has been developed by this company and put up for bid.
- IH submitted a bid along with a proposal for additional negotiation following further due diligence. It appears to Etiam Oy has allowed claims in their patent application filings and that should lead to issued patents in both the USA and EU.

#### **3. Mitchell Swartz / Nanor**

- Swartz continues to report progress with COPs up to 20.
- He advises that MIT will be independently testing the Nanor reactor this Qtr.
- IH will continue to monitor his progress

#### **4. Jean-Paul Biberian – France**

- IH is funding a Rossi / Parkomov replication effort with Biberian, a retired nuclear physicist and leading research reviewer for the field at his lab in Avignon.
- Results are inconclusive to date
- IH is also funding a replication of the Fleishman and Pons boil-off experiment thru Biberian with Stan Pons confidentially coming out of retirement (and hiding) to assist in the project.

#### **5. Fabrice David – France**

- IH is developing a relationship with this long term LENR researcher who claims to have a direct-to-electron movement reactor design.

#### **6. Roger Stringham – Hawaii**

- Stringham has been a long-term proponent of Sono-luminescence / cavitation fusion using high frequency acoustics.
- Stringham has morphed his concept over electro-magnetic triggering (piezo approach) and is getting excess heat and energetic particles on demand in a shoebox size reactor.
- Tom Claytor at High Mesa labs has confirmed that some excess power reaction appears to be taking place in Stringham's latest reactor.
- Stringham has invited IH to review his latest reactor, to assist with IP and to invest in validating his approach as well as develop a monetization strategy.
- IH is in preliminary due diligence for this project.

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### **7. Iraj Parchmajad / Mel Miles, Los Angeles**

- IH discovered this Zeolyte-based LENR research program at ICCF-19 in Padua, Italy
- Miles is a retired US Navy electro-chemist who led the China Lake LENR research project in the 1990s before it was shutdown by the Navy's hot fusion contingent.
- IH is in the preliminary due diligence phase for this project.

### **8. David Fojt – MDI, France**

- Discovered this Ni-H research project at the Airbus meeting.
- Initial discussions are beginning around MDI's research effort which may be in conjunction with Renault.

### **9. Bob Higgins / Mathieu Valat, Martin Fleishman Memorial Project**

- Bob Higgins was the lead researcher for a stealth LENR program that Motorola had to shed with the sale of the company. He has partnered with a French Scientist along with others for an open source replication project of Rossi. Results to date are inconclusive.
- IH has been approached separately by Higgins and Valat about possible research engagements with the company.
- IH is carefully and deliberately grooming these potential relationships.