EXHIBIT A

Hydra STEAM GENERATOR

The Next Generation of Steam Production
for
Enhanced Oil Recovery and
Wax Removal in Wells and Pipelines

Hydra Steam Generator

Paraffins (a.k.a. WAX) & Asphaltenes

- Wax precipitation may result in wax deposition in tubing, pipelines and production equipment.
- Wax deposition in pipeline produces:
  - High viscosity, which lead to pressure losses
  - High-yield stress for re-establishing flow
  - Deposition of wax crystals on surfaces

- These are the primary causes of high flow line pressure drops, which may lead to:
  - Flow rates that make conditions for wax deposition more favorable
  - Pumping pressure requirements that can exceed the limits of the system and stop flow entirely
  - Pigging lines over a period of time has diminishing returns as the layer of wax left behind builds up

Hydra Steam Generator

Conventional Methods for Wax Prevention and Removal

- Wax can deposit on surfaces in the production system and in the formation.
- Wax deposition can be prevented or removed by a number of different methods.

These methods fall into three main categories:

- Chemical
- Mechanical
- Thermal (Hot Oil Trucks)

Hydra

STEAM GENERATOR

The Next Generation
of
STEAM PRODUCTION

Hydra Steam Generator

What is the Hydra Steam Generator

- Advanced Applied Science
- The Hydra Steam Generator is a completely new GREEN TECHNOLOGY
- Produces steam through the exothermic reaction by decomposing the Hydrogen Peroxide (H_2O_2) upon contact with the patented, specially designed Hydra Catalyst

Hydra Unit operating in Kazakhstan

Hydra Steam Generator

Hydra Eliminates All Historical Limitations For Well Steaming

- No fuel fired boilers
- No local water source
- No water treatment
- No fixed/permanent facilities
- No air and water permits required
- Highly mobile
- One unit will treat multiple wells and pipelines/flowlines

Hydra Steam Generator

Elimination of Paraffin Deposits

- **The Hydra Steam Generator produces high pressure and temperature steam**
- **This steam can be utilized in the elimination of built up wax and paraffin deposits in**
  - **Well production tubing**
  - **Flow lines, and**
  - **Header manifolds**
- **Reducing significant back pressure on the reservoir**

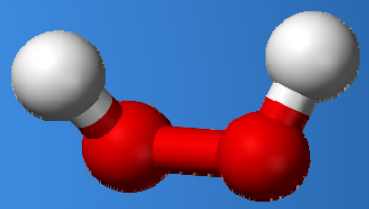
HUNGARY Feb, 2016

BACKGROUND

Hydrogen Peroxide

Hydrogen Peroxide and Steam Production

- Hydrogen Peroxide is used extensively worldwide
- 50% of the world's production of hydrogen peroxide is used for pulp and paper bleaching
- Other uses include:
  - BOD and COD removal in wastewater
  - Anti-microbial agent in hospital environments
  - Laundry bleach



- Concentrated H_2O_2 (>90%) is used as a propellant in rocketry
  (Germany, WW II, NASA, etc.)
- Hydrogen peroxide decomposes exothermally into water and oxygen gas:

$$2\ H_2O_2 \rightarrow 2\ H_2O + O_2 + \text{HEAT}$$

- The heat produced from the reaction turns the water into steam

Hydra Steam Generator

Hydrogen Peroxide Delivery Method

50%, 60%, & 70% Concentrations of Industrial Grade H_2O_2 Readily Available Worldwide

54 Gal. Drums

300 Gal. Tank

5,500 Gal. ISO Container

BACKGROUND

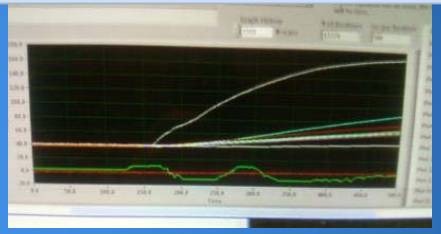
Hydra Catalyst

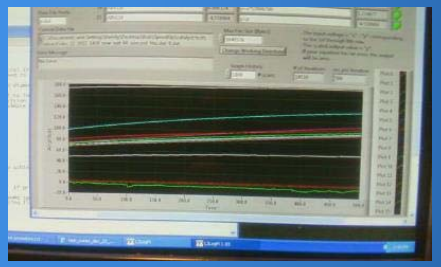
Hydra Steam Generator

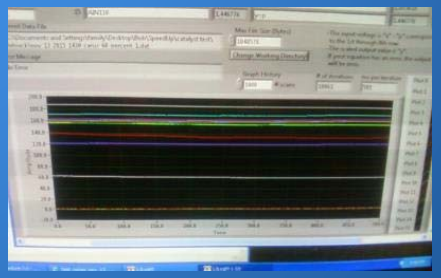
Specially Developed Hydra Catalyst Technology

Different
Catalysts
Developed/Tested

Results recorded vs.
Time, Flow, Temperature and Pressures







Hydra Catalyst US Patent Publication: US20260047211 A1; International Patent WO201602558870 A1

BACKGROUND

Hydra Design and Engineering

Hydra Steam Generator

State of the Art Engineering

- The Hydra Steam Generator can produce and maintain steam temperatures up to 500°F (260°C) with flow rates up to 10,000 Gal/day (40 M^3/day)
- It's components have been designed to handle pressures up to 1,500 psig (100 atm)
- Pressure vessels have ASME U stamp
- Steam flow, temperature and pressure can be adjusted depending upon:
  - Physical limitations of the well's infrastructure
  - Characteristics of the formation
  - Environmental requirements
  - Gravity of the oil
  - Steaming method used (cyclical or steam flooding injection)

Hydra Steam Generator

Hydra Transportation

Unit has been designed to be transported with various methods

BACKGROUND

Safety and Environment

Hydra Steam Generator

Safety and Environment

- **The Hydra Steam Generator is operational with industrial grade H_2O_2 concentrations as low as 50%. Depending on local regulations, economies and client requirements, concentrations up to 70% can be used**
- **Internal procedures have been developed following H_2O_2 manufacturers and OSHA Guidelines to safely handle and transport Hydrogen Peroxide on roads, by rail and vessels (If progressive international or local standards aren't met, the Hydra Steam Generator team will accommodate them)**
- **H_2O_2 is the <u>only</u> product used for this reaction**
- **The sole emissions from the reaction are Steam (H_2O) and Oxygen (O_2)**
- **If required, free O_2 can be converted to CO_2 with pre-additives**
- **Hydra personnel are trained to safely transport, store and utilize H_2O_2**

Hydra Steam Generator

Safety and Environment (continued)

- **In comparison to conventional oil heaters or steam generators:**

  <u>The HYDRA DOES NOT REQUIRE:</u>

  - **Surface structures (No footprint)**
  - **Boiler**
  - **Treated or untreated water supply**
  - **Diesel/Propane fuel supply**
  - **Electricity (Except for controls)**
  - **Inlet water treatment**
  - **Effluent recycling**

- **Produces no harmful emissions, merely steam and a small amount of oxygen**

NO GREENHOUSE GASES ARE PRODUCED

Hydra Steam Generator

Safety and Environment (continued)

- Traditional hot oil units are expensive, dangerous and have a limited ability to remediate blockage
- Traditional hot oil units are environmental accidents waiting to happen. Also, they are heavily regulated and negatively viewed by Regulatory Agencies
- Hot oil units generally have a limited heat input of 3-4 mmBTU/hr and are fire hazards throughout the process

Hydra Steam Generator

External Environmental Conditions

- Freezing Point of 50% H_2O_2 is -52° C (-62°F)
  - The HYDRA experienced minimal issues under freezing winter conditions
  - Conventional boilers have to prevent the water supply from freezing

Hydra operating during winter conditions in Kazakhstan

Hydra Steam Generator

FOR MORE INFORMATION

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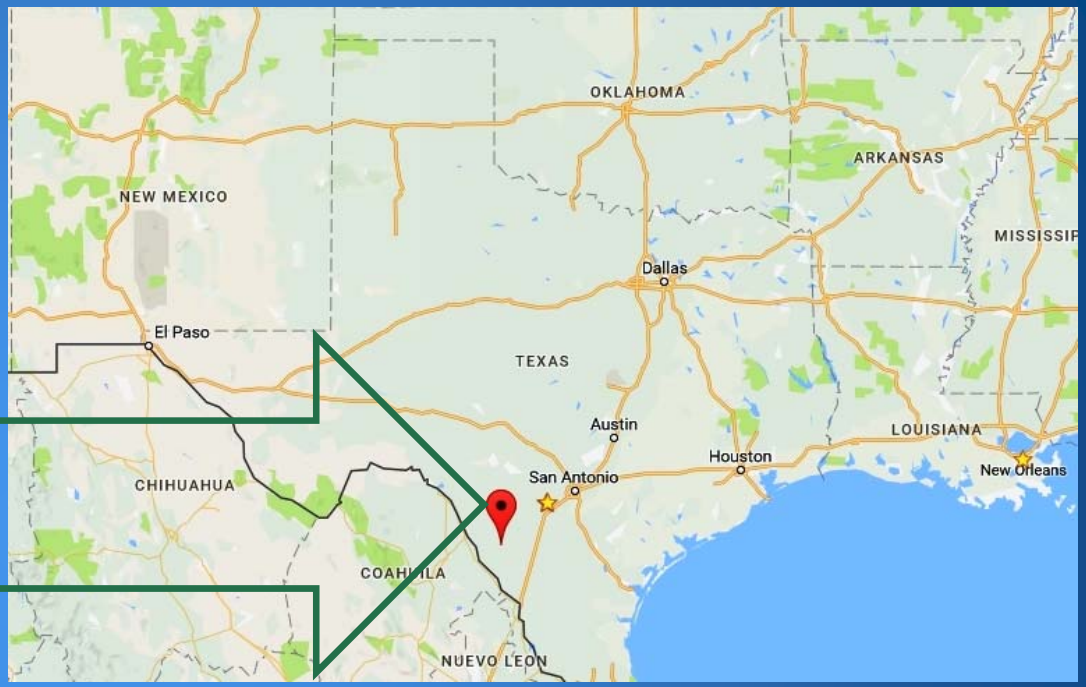
FLOW LINE AND WELL CLEANING
CARRIZO SPRINGS, TX

7-13-2017

Hydra III
Flow Line Cleaning
Date: 7-13-2017



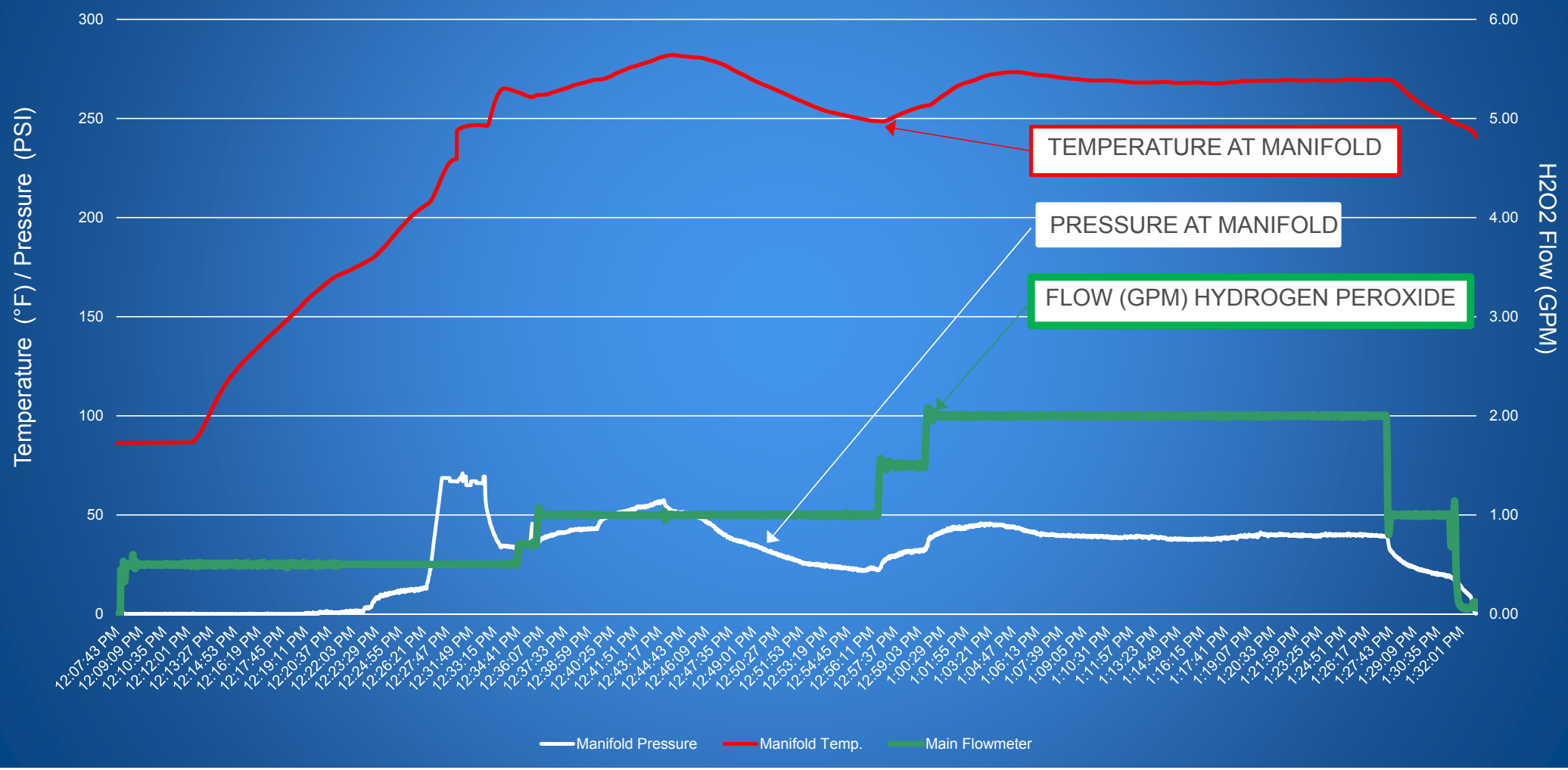
General Location: Carrizo Springs, TX
Detail Location: 28.576359, -99.962058
Company: Silver Star Oil and Gas

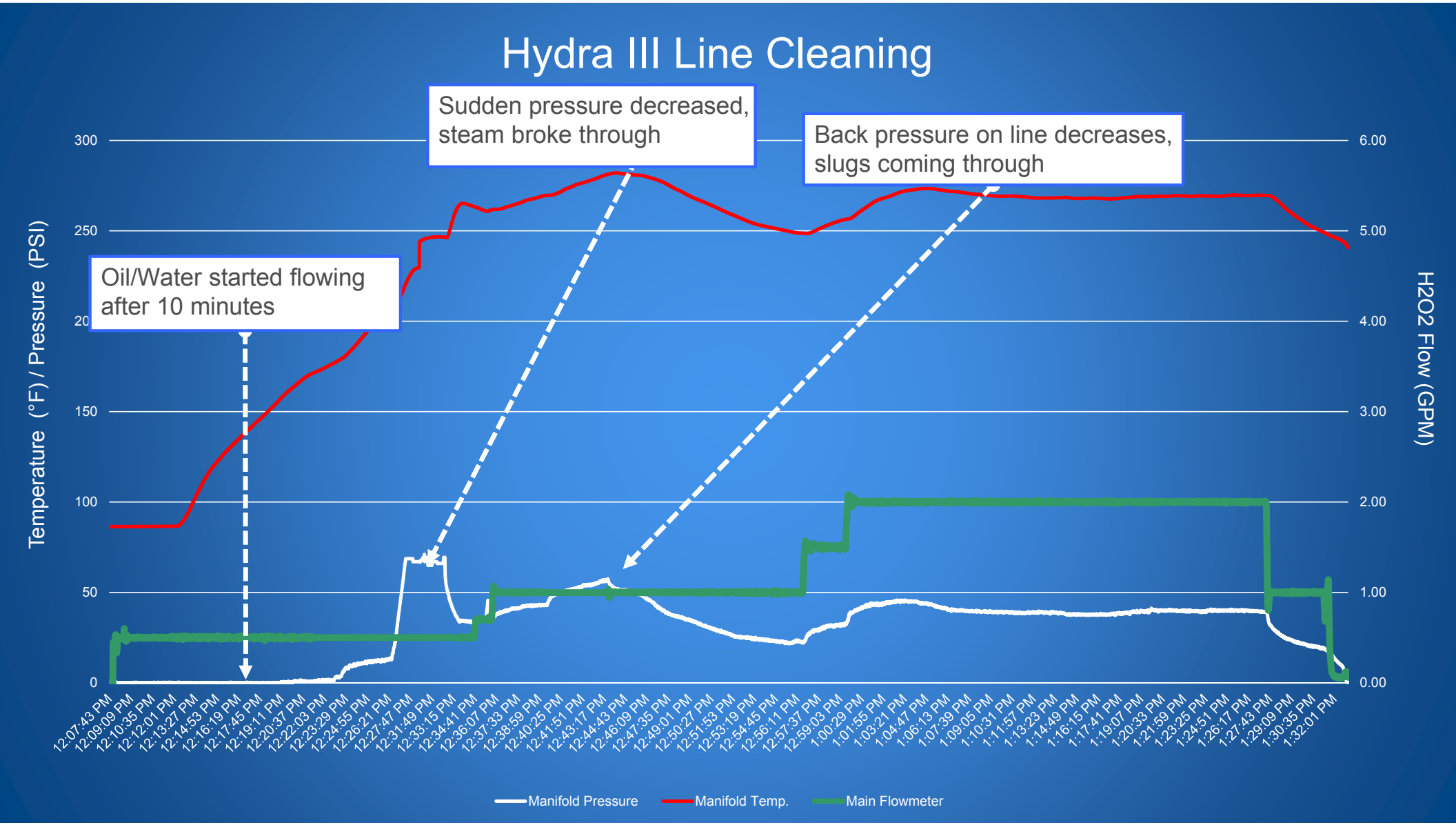
Hydra III
Flow Line Cleaning
Date: 7-13-2017

Hydra III
Flow Line Cleaning
Date: 7-13-2017

Buried 2” carbon steel line
Laid in 1950’s
Line closed with paraffin 60-80%
Oil Gravity: 42 API from San Miguel formation
Oil Cloud Point: 150°F
Flow Line in good condition, but with numerous leak clamps
Maximum pressure allowed 70 psi

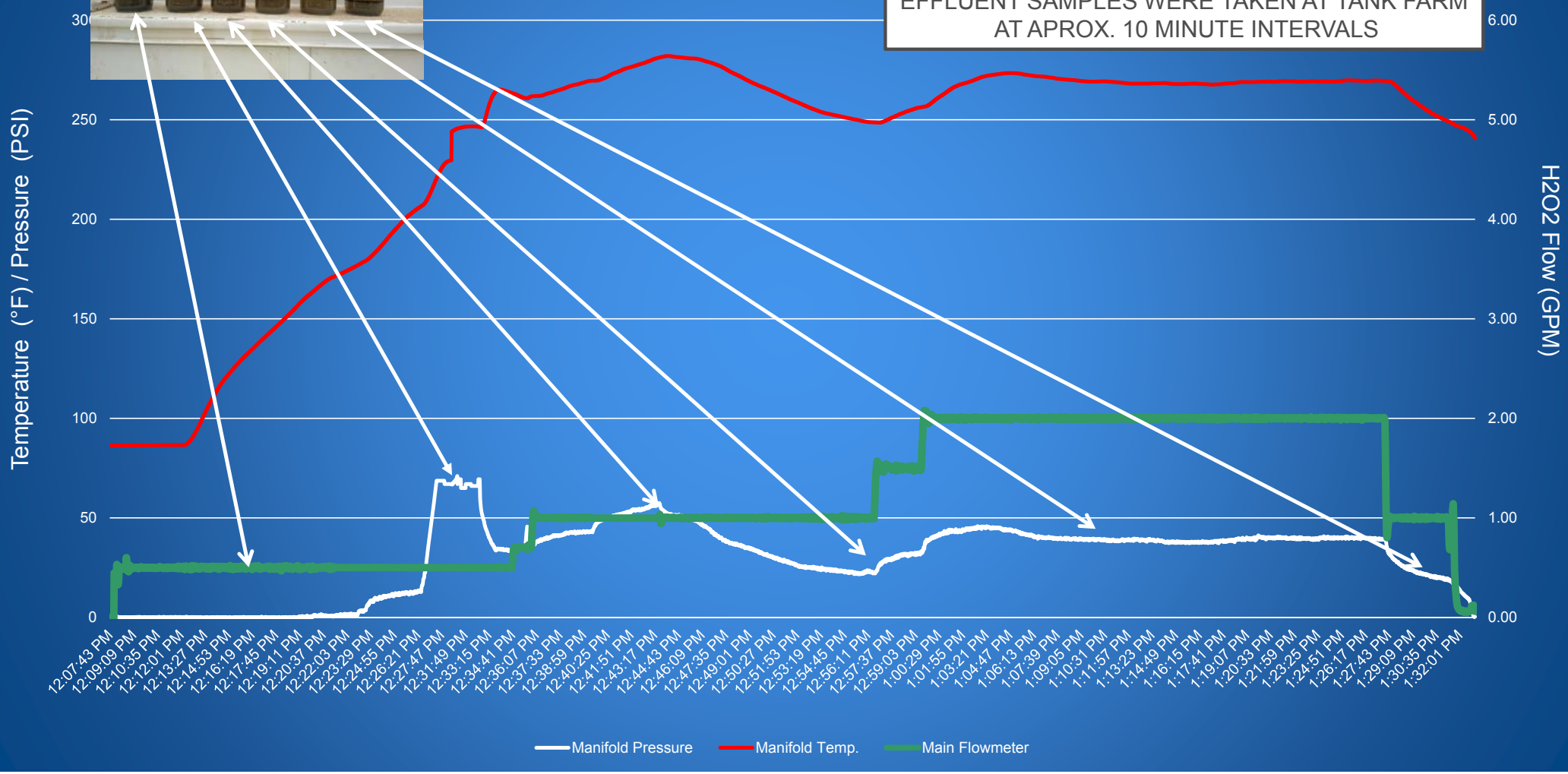
Hydra III Line Cleaning

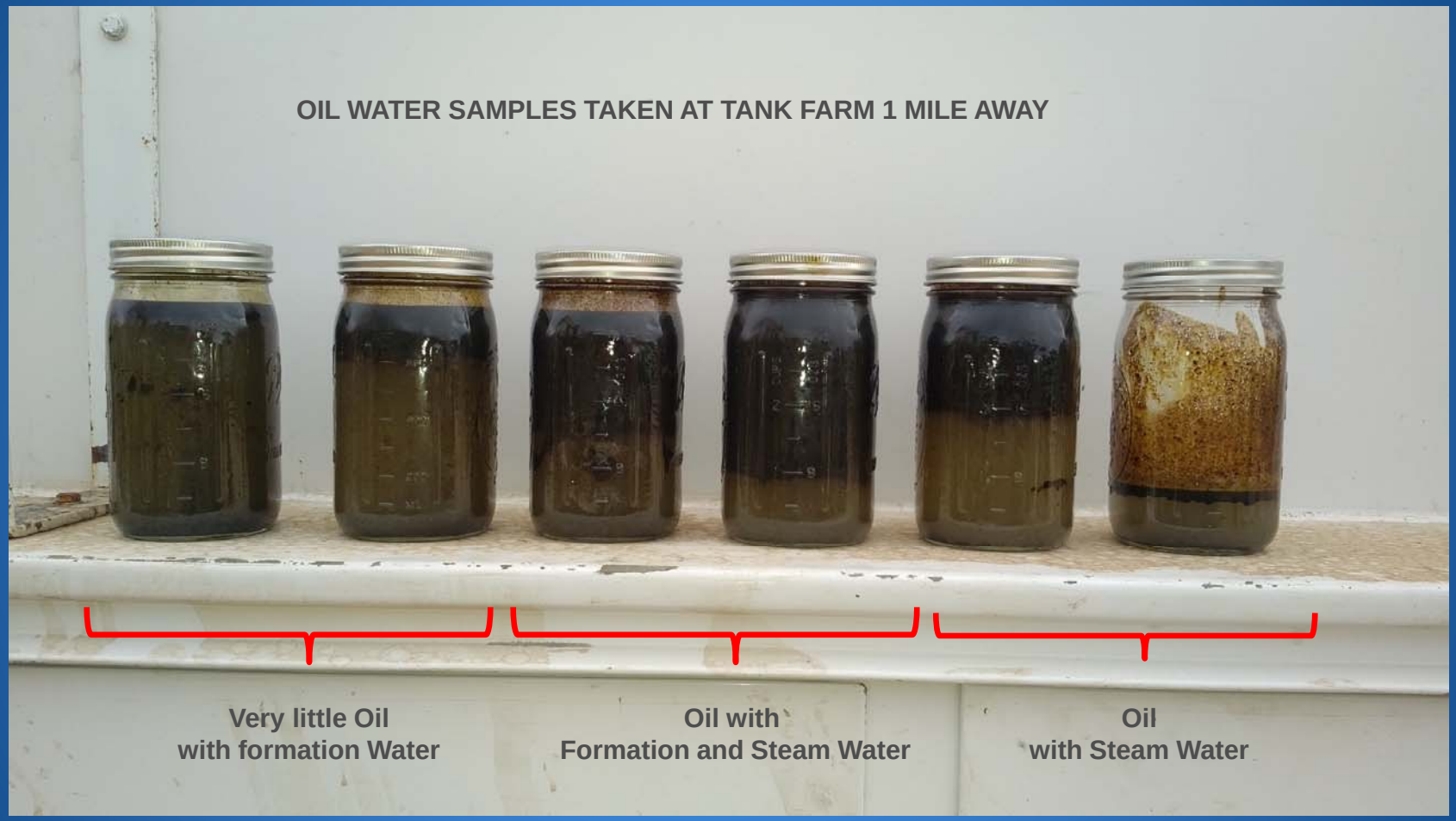



Hydra III Line Cleaning
Sudden pressure decreased, steam broke through
Back pressure on line decreases, slugs coming through
Oil/Water started flowing after 10 minutes
Temperature (°F) / Pressure (PSI)
H2O2 Flow (GPM)
300
250
200
150
100
50
0
6.00
5.00
4.00
3.00
2.00
1.00
0.00
12:07:43 PM
12:09:09 PM
12:10:35 PM
12:12:01 PM
12:13:27 PM
12:14:53 PM
12:16:19 PM
12:17:45 PM
12:19:11 PM
12:20:37 PM
12:22:03 PM
12:23:29 PM
12:24:55 PM
12:26:21 PM
12:27:47 PM
12:31:49 PM
12:33:15 PM
12:34:41 PM
12:36:07 PM
12:37:33 PM
12:38:59 PM
12:40:25 PM
12:41:51 PM
12:43:17 PM
12:44:43 PM
12:46:09 PM
12:47:35 PM
12:49:01 PM
12:50:27 PM
12:51:53 PM
12:53:19 PM
12:54:45 PM
12:56:11 PM
12:57:37 PM
12:59:03 PM
1:00:29 PM
1:01:55 PM
1:03:21 PM
1:04:47 PM
1:06:13 PM
1:07:39 PM
1:09:05 PM
1:10:31 PM
1:11:57 PM
1:13:23 PM
1:14:49 PM
1:16:15 PM
1:17:41 PM
1:19:07 PM
1:20:33 PM
1:21:59 PM
1:23:25 PM
1:24:51 PM
1:26:17 PM
1:27:43 PM
1:29:09 PM
1:30:35 PM
1:32:01 PM
Manifold Pressure
Manifold Temp.
Main Flowmeter

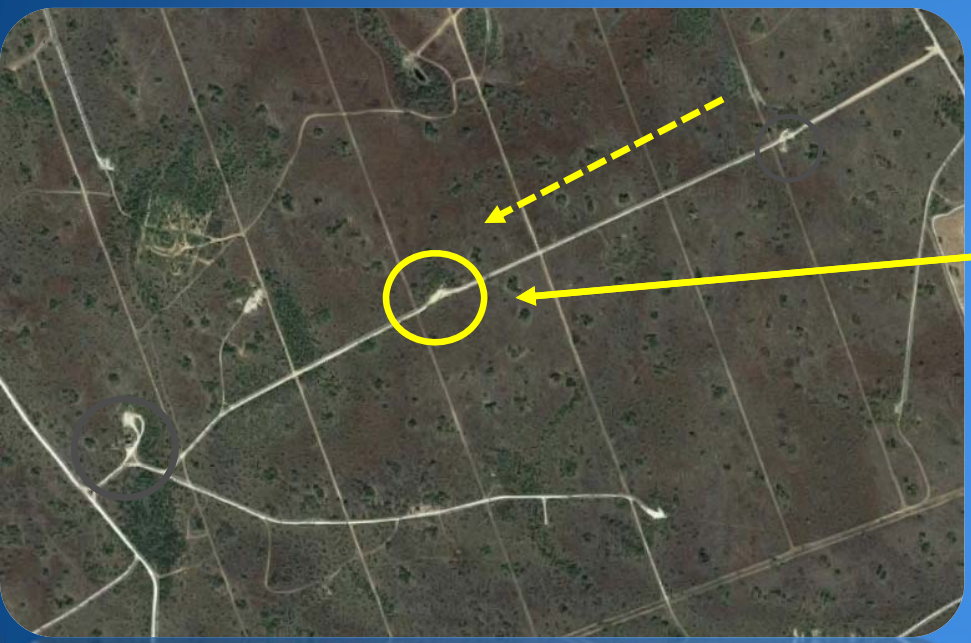
Hydra III Line Cleaning

EFFLUENT SAMPLES WERE TAKEN AT TANK FARM AT APROX. 10 MINUTE INTERVALS




OIL WATER SAMPLES TAKEN AT TANK FARM 1 MILE AWAY
Very little Oil
with formation Water
Oil with
Formation and Steam Water
Oil
with Steam Water

Hydra III
Well Cleaning
7-13-2017

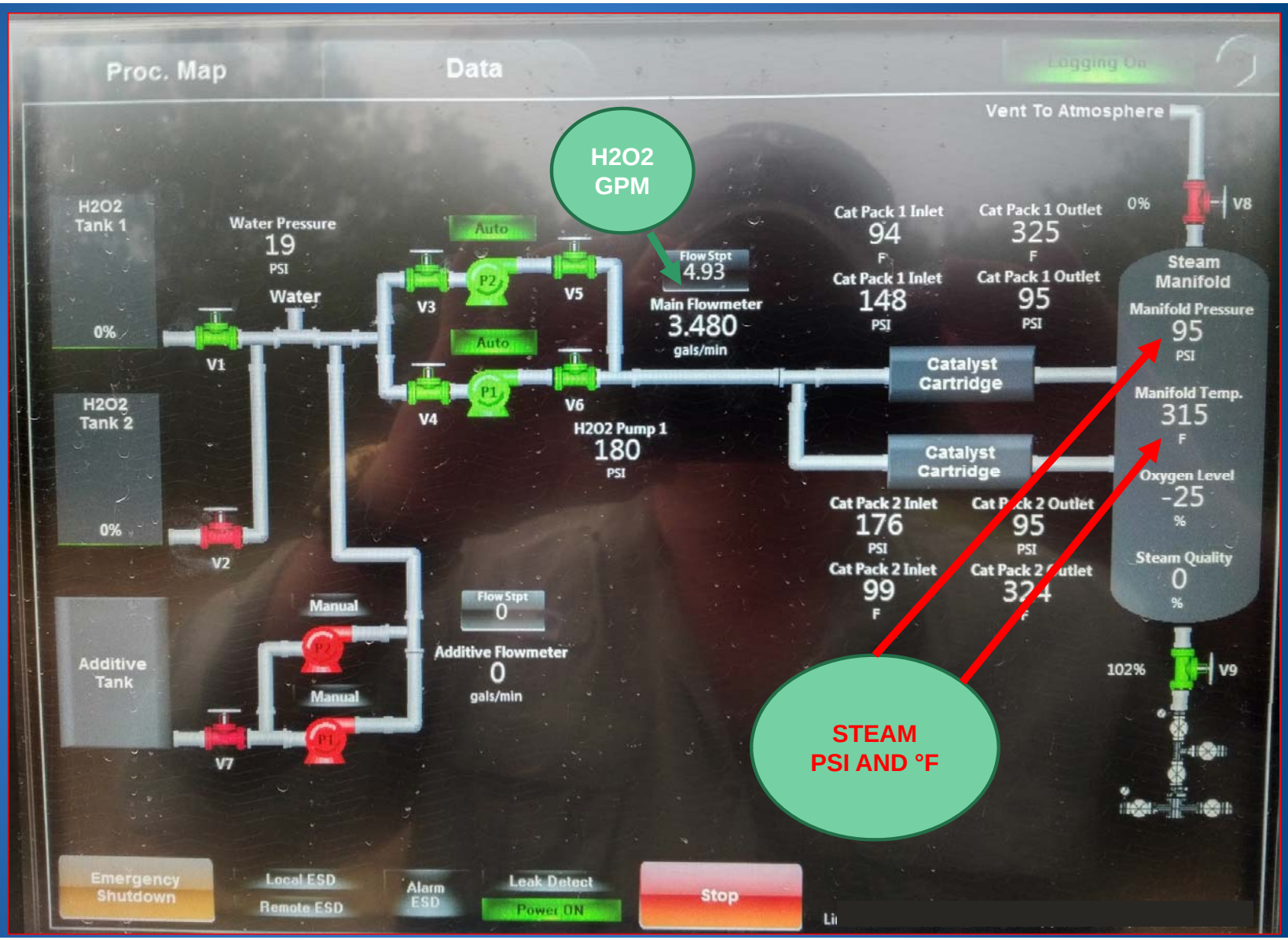


Hydra moved from Brady Well #1 to Brady Well #2

WELL CLEANING

- Well originally drilled 1958, re-drilled in 1973
- Current depth of perforations 3,400’
- Well not producing for last 2 years

Steam injected into well for 1 hour



WELL CLEANING

- **After steaming, well shut down for 2 hours**
- **Well produced avg. 4 bbls/day oil/water mixture for next 3 days**

Hydra Steam Generator

FLOW LINE AND WELL CLEANING
CARRIZO SPRINGS, TX

RESULTS AND CONCLUSIONS

- FLOW LINE:
  - HYDRA STEAM STARTED PUSHING OIL/PRODUCTION WATER WITHIN 10 MINUTES
  - FLOW LINE WAS FREE OF PLUGS AFTER 1 HOUR
  - PRESSURE WAS LIMITED TO <70 PSI (WHICH WAS A LIMITING FACTOR REGARDING THE TIME IT TOOK TO CLEAN THE LINE)
  - NO LEAKS WERE OBSERVED IN ANY OF THE CLAMPS
- WELL:
  - PUMP WAS ABLE TO LIFT WATER/OIL MIXTURE AFTER IDLE FOR 2 YEARS
- HYDRA SHOWED TO BE AN EFFECTIVE AND EFFICIENT TECHNOLOGY FOR CLEARING WAX FROM FLOWLINES AND WELL PRODUCTION TUBING.