



## **RW-7P Issues and Resolution**

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**March 9, 2022**

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**North American Operation**

## **RW-7P Pump and Motor Failure Outline**

1. Overview of what happened
2. Review of RW-7P parts-on-hand list
3. Where parts are stored
4. RW-7P RNMC chain of command contact list

## **RW-7P Pump and Motor Failure**

On January 23, RW-7P experienced a catastrophic failure of the primary **motor** associated with potable water supply well RW-7P (W08).

The failure was determined to be caused by a downhole ground fault (an **inadvertent contact between an energized conductor and equipment frame**) rendering the **motor inoperable**.

Upon this discovery, RNMC collected the on-site **critical spare pump and motor** and had them installed at the water supply well on February 4, 2022.

Immediately following completion of the install, a failure of the **critical spare pump** was observed.

The **critical spare pump** assembly has subsequently been sent back to the manufacturer where the cause for the failure is currently being investigated.

## RW-7P Pump and Motor Failure Continued

A second attempt to bring water supply well W08 back into operation was made on February 17, 2022 utilizing the **critical spare motor** paired with the **old (initial) pump**.

This combination also proved to be unsuccessful as flow from the well could not be achieved.

Due to the excess time constraints associated with sending these components back to the manufacturer to determine the cause of failure (>16 weeks).

RNMC contacted our pump vendor (Jim Rosser)- immediately

Jim came up with two options (March 3 ) for RW-7P as follows: Neither option includes startup services and utilizes the existing column pipe and power cable.

## RW-7P Pump and Motor Failure Continued

Old Pump and Old Motor

~~Old motor~~ ground fault-

Spare Pump and Motor - Available Installed

~~Spare pump failed~~ Reason for failure- under investigation

Spare motor and Old pump- No flow- reason for no flow is mechanical and electrical problem

## **RW-7P Pump and Motor Options**

### **Option 1      NSF Certified Integrity Pump/Hitachi Sun Star Motor**

This option is a 6 Stage submersible turbine capable of 1500 GPM @ 800' TDH pump with a 450 HP Motor. The complete package is provided by Integrity Pump. Estimated lead time is 16-18 weeks. This would include a pump crossover with shroud donut hanger and 16" shroud

### **Option 2      Schlumberger System**

This is a 4 Stage N1400 Pump with a 400 HP 2411V volt motor capable of 1500 GPM at ~800' TDH. Motor and Protector are filled with food grade oil. Estimated lead time is ~6 weeks. It is my understanding that the equipment complies with NSF per the attached letter and they are currently undergoing application with hopes of approval within the next year.

## **RW-7P Pump and Motor -BSDW**

RNMC contacted BSDW supervisor on March 3 to find out if option 2 could be permitted by the BSDW.

BSDW responded on March 4 as follows -there is a regulation in NAC 445A that allows a water system to submit a request to use non-certified NSF 61 products.

A copy of the regulations were sent to RNMC, and was instructed to work with the public water system to submit an Application for Approval of a Water Project, with two hard copies of all documents, an electronic version, and a \$300 review fee.

The application package is completed and should be submitted by end of the week.

# RW-7P Parts-on-Hand List - Where They Are Stored

Critical Spare motor (currently downhole) – 450 HP Sun Star SSEI Type D Submersible Motor

Critical Spare pump (currently in SLC being evaluated for failure) – Gould’s pump model 11CLC 3-Stage bowl assembly turbine

Critical Spare cable (currently pushed downhole) - #25kV flat jacketed submersible cable

The pump that had been in operation since September 2020 until the motor failure on January 23, 2022 was a Gould’s pump model 11CLC 4-stage bowl assembly turbine.

The failed motor was also a 450 HP Sun Star motor. The 4-stage pump was pushed back in after the catastrophic failure of the critical spare pump.

The old failed motor from the January 23 is being stored at the upper warehouse laydown. The original cable is spooled at the same location.

All of the RW-7P critical spare parts are stored in a warehouse laydown yard.



# RW-7P Chain of Command Contact List- RNMC

## **RNMC Contact List:**

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Thank you!

