Unique Well Numbers can be ***Easier!***

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A great idea:

Assign Unique identifiers to Wells

1 Well <==> **1** Unique Number

We want Reliable Identifiers for:

- Public Health
- Geologic Studies
- Environmental Protection
- Well Management *& Well Owners too*

A great idea:

Assign Unique identifiers to Wells

1 Well <==> **1** Unique Number

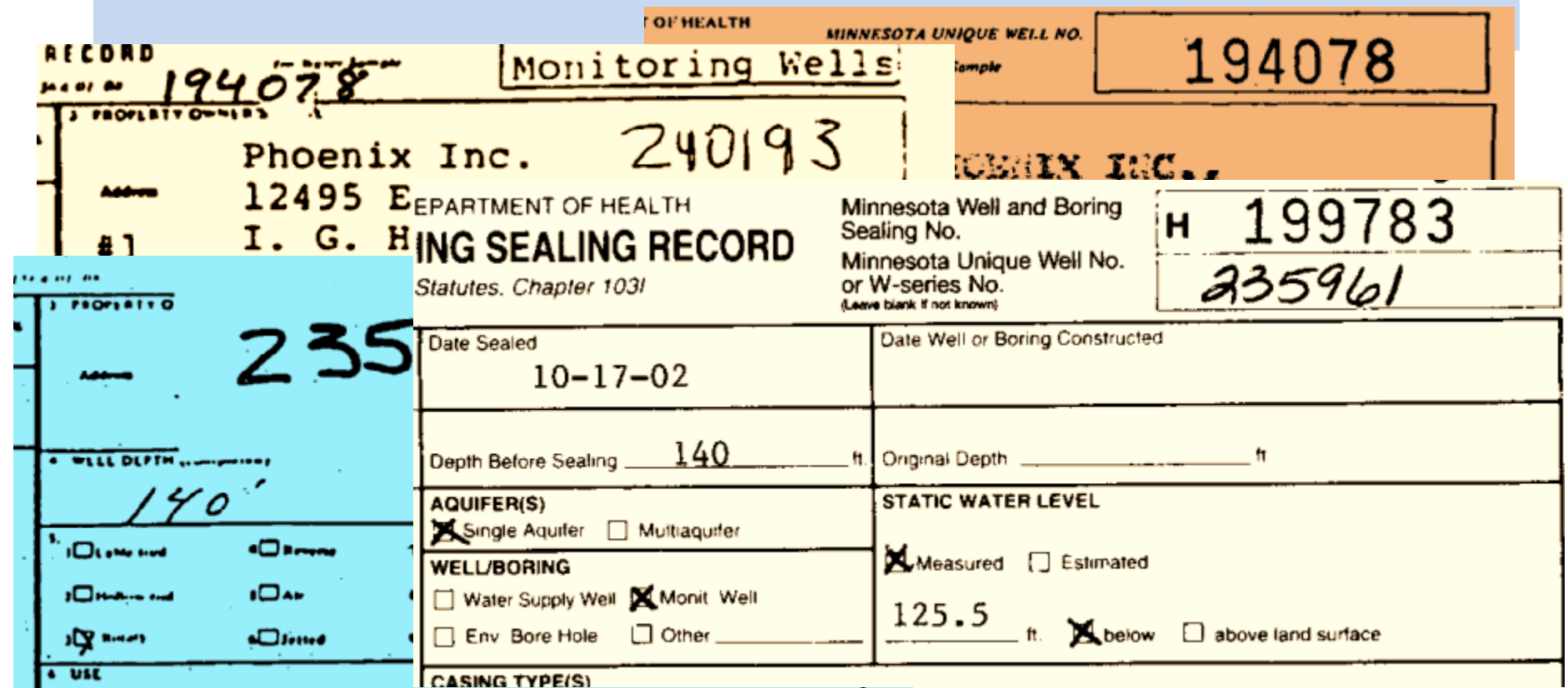
We use Unique Numbers to:

- Preserve information
- Share information
- Associate and Leverage Information

A great idea:

with a great problem!

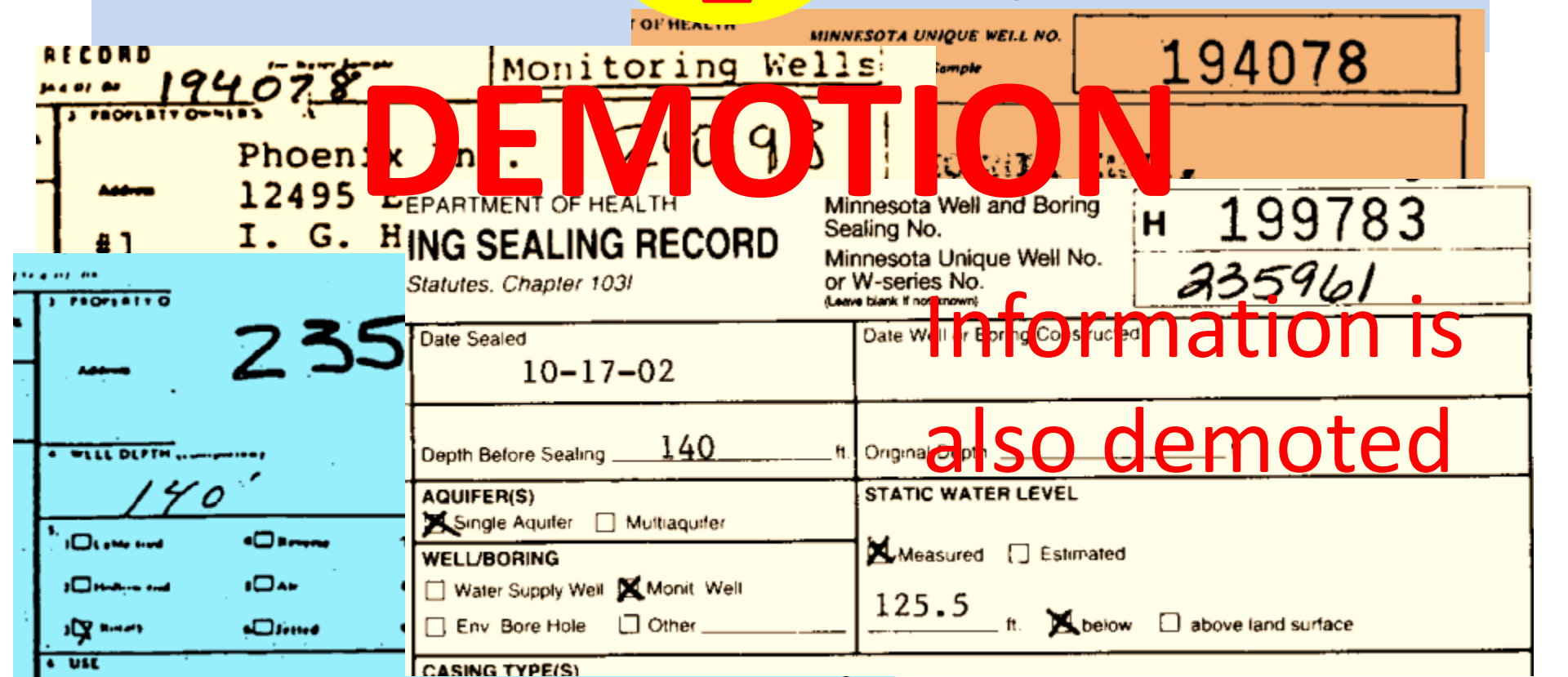
1 Well <==> **many** Unique Numbers



Not a great idea:

Force the data into the wrong model

1 Well <==> 1 Unique Number



A BETTER idea:

Use a model that fits the data

1 Well <==> **many** Unique Numbers

- Guarantee all Unique Numbers
- No demotion, no orphans
- Preserve information better
- Share well data more easily

Time for one illustration:

A recent study* collected 274 water samples from wells in Dakota County.

Unique Numbers were discovered for 217 wells.

New Unique Numbers were created for 57 wells.

Because every well got a Unique Number, all of the data can be effectively tracked through time, and shared reliably.

Did we make errors assigning Unique Numbers?

* WIISE Study. A cooperative study between MDH and Dakota County.

Types of errors:

1. Fail to recognize well A and guess it is well B
2. Fail to recognize well A and make up well C
3. Fail to recognize well A and do nothing

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Information from well A is merged with well B, and can be very difficult to disentangle.

This is really the worst mistake to make.

Types of errors:

1. Fail to recognize well A and guess it is well B
2. Fail to recognize well A and make up well C
3. Fail to recognize well A and do nothing

When the error is discovered, identifier C will be demoted, and information using identifier "C" will be orphaned.

Types of errors:

1. Fail to recognize well A and guess it is well B
2. Fail to recognize well A and make up well C
3. Fail to recognize well A and do nothing

Fearful of type 1 or 2 error, do nothing.

Information gathered for the well will not persist, cannot be shared, and cannot be leveraged.

Types of errors:

1. Fail to recognize well A and guess it is well B
2. Fail to recognize well A and make up new C
3. Fail to recognize well A and do nothing

PREFERRED

The proposed definition recognizes multiple identifiers, so the cost of error 2 is minimized.

Errors 1 and 3 can be less frequent.

Unique Well Numbers
really can be
Easier
- if we build our systems to
Embrace *the fact that:*

1 Well <==> **many** Unique Numbers