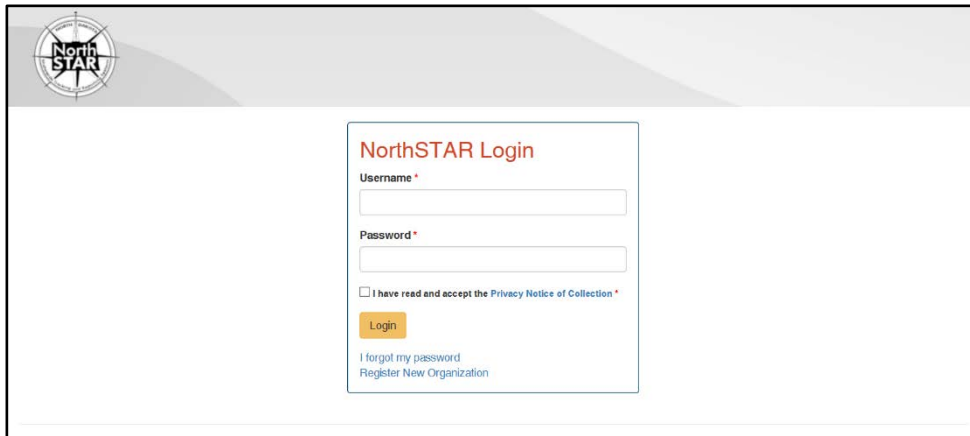# Guide to Creating Plugging Procedures in NorthSTAR

V1.0 01.27.2020

How to Get Started

- Log into NorthSTAR using Microsoft Edge, Google Chrome, or Firefox. URL: https://northstar.dmr.nd.gov

To begin a sundry for the intent to plug & abandon a well:

- Select [*Forms]* and *[Online Forms]* from the options at the top of the page.
- Select [*Sundry].*
- Select [*Well]* for *Sundry Type* and / or *Facility Type.*
- Select [*Request To]* and [*Plug & Abandon].*
- Fill out any other required fields. The *Due Date* is the date your organization <u>requesting</u> the form be reviewed by.

Except in emergency situations and other unexpected events, please allow at least 4-5 business days after the sundry has been submitted for P&A procedures to be reviewed and processed.

After review the sundry may be returned to the operator to make changes to the original proposal prior to the sundry being approved.

Operator Information

Contacts added to the sundry will be alerted by email when the status of the sundry changes.

Users may add a contact by selecting [*Actions*] and [*Add Contact*].

- To add a contact that is already in the NorthSTAR system, find their *Contact Role* and name in the drop down menus.
- To add a contact that is not in the NorthSTAR system, uncheck the box titled *[Is this contact already in NorthSTAR?]* and fill out all required fields.

Add Contact   ✕

* Indicates Required Field

☐ Is this contact already in NorthSTAR? ⬅   Ext

Contact Role *

[▼]

Find Person

[▼]

Contact Name *

[   ]

Phone Number *

[   ]

Email *

[   ]

[Cancel]   [Save]

▼ Advanced Filtering   Actions ▾

Role   Actions

                Actions▾

Submitter

Facility Information

The user may search for the well in the top table using many different criteria, including well file no., well name, well type, etc.

- Use the [*Advanced Filtering*] button to narrow search criteria even further.
- Some additional search fields, such as County, are available by clicking the [*Gear Icon*] and selecting the field you wish to add.

The user must add a well as the subject of the sundry by selecting it in the top table and clicking the down arrow symbol [*v*]. This will move the well into the table below.

Sundry Data – The Basics

The **Work Date** is the date that the operator plans to start operations related to the sundry.

Some information about the wellbore will already be populated in the tables. If a piece of information appears to be inaccurate, please review the well file prior to making any changes.

Table Descriptions:

- *Wellbore Information* lists the openhole record of the wellbore. Missing or inaccurate records will require additional paperwork to update.
- *Wellbore Construction Feature* itemizes the objects inside the wellbore. **Features** may also be proposed on the sundry. Missing **Features** may be added here.
- *Cement Segment* is a description of the cement inside and behind casing. **Cement segments** may also be proposed on the sundry. **Cement Segments** must have an **Associated Feature**. Missing **Cement Segments** may be added here.
- *Cement Class* is a description of the cement from the **Cement Segments** table. The cement class must have an associated **Cement Segment**. Missing **Cement Class** information may be added here.
- *Completion Intervals* and *Completion Open Hole or Perforations* should already be filled out. Missing records may be added.

The tables may be formatted to a better size using the [*Hide Form Navigation*] button.

Information may be added to each table by clicking on [*Actions*] at the top of the table and selecting [*Add New*].

Information regarding a **Feature, Cement Segment, Cement Class, Completion Interval, or Completion Open Hole or Perforations** may be edited by clicking [*Actions*] for the specific item and [*Edit Record*].

Items added by the user on this sundry will have a **New Record Status**. These items may also be deleted by the user by clicking on [*Actions*] for the specific item and selecting [*Delete Record*].

Example P&A Procecure

1. Do One-Call prior to going to well. Notify NDIC 24 hours prior to commencing work. (Jon Rumppe@ 701-XXX-XXXX).

2. Prepare location for workover. MIRU pulling unit. Discuss scope of work to be performed at this time.

3. Dig out surface casing valve and bleed off.

4. Bleed off well through hot oil truck.

5. ND wellhead. NU BOP.

6. Trip in hole with 2 7/8" workstring, bit and scraper for 7" casing to ±8,050' (Cement retainer). Circulate well with clean, 10 ppg SW. Trip out of hole with tubing, bit, and scraper.

7. Rig up wireline unit. Run cement bond log from 8,050' to Top of Cement. Trip out of hole and rig down wireline unit.

8. Trip in hole with workstring and sting into retainer. Establish injection rate. Rig up cement equipment. Mix and pump 100 sks Class G cement. Squeeze 90 sks into formation and leave 10sks on CICR. Rig down cement equipment.

   a. If unable to establish injection rate, spot 45sks class G cement on top of CICR.

9. Pick up to ±6,223' (Spearfish at ±6,173') and pump a balanced cement plug of 50sks of class G cement.

10. Pick up to ±4423' (Mowry at ±4,373'). Pump a balanced cement plug of 50sks of class G cement. Trip out of hole with tubing.

11. Rig up electric line. Run in hole with perforating gun and shoot 4 squeeze holes at 672' (50' below surface casing shoe). Trip out of hole with perforating gun. Rig down electric line unit.

12. Trip in hole with tubing and CICR. Set retainer @ 572ft (50ft above surface shoe). Establish injection rate. Mix & pump 100sks neat G cement. Squeeze 90sks into perfs. Leave 10sks on top of retainer. Rig down cement equipment. TOOH w/ tubing & stinger.

13. Trip in hole picking up mechanical cutter and 2jts tubing. Rig up swivel and tie in pump. Apply pressure to tubing to activate cutter. Rotate tubing to cut casing. After indication cut is successful rig down pump and swivel. Lay down tubing. ND BOP and NU WH. Break circulation out of surface casing. Mix and pump 30sks Class G cement to cut a 60'(surface plug). Rig down cement equipment.

14. RDMO

15. Dig out wellhead and cut off casing 4' below ground level. Weld ½" steel cap on casing with well file number and date inscribed. Dig out deadmen.

16. Submit notice of intent to reclaim to Cody Vanderbusch prior to reclamation. .

17. Submit Form 7 Plugging Report.

Sundry Data – Adding Proposed Cement Squeeze for Existing Perforations

Proposed features for a cement squeeze may include: Cast Iron Bridge Plug, Perforations, Cement Squeeze, Cement Retainer.

In order to add a proposed cement squeeze, select *[Actions]* and *[Add Feature]*:

- Add a *[Cement Squeeze]* **Feature.**
- **Construction Status** will be *[Not Installed]*.
- **Wellbore Start** and **Wellbore End** will be *[VerticalHole1]* because the item is inside the vertical section of the wellbore below the **SurfaceHole1** depth.
- **Feature Bottom MD (ft)** will be the bottom lowest perforation depth for the cement squeeze (see diagram in the next section).
- **Feature Top MD (ft)** will be the proposed top of cement. 10sks will leave an estimated 56ft of cement on top of the *Cement Retainer.*

Wellbore Construction Feature

▼ Advanced Filtering   Actions ▾   ⚙

Feature ID	Install Status	Record Status	Feature Top MD (ft) ↑	Feature Bottom MD (ft)	Outside Diameter (decimal inches)	Formation Isolated	Actions
Production Casing 1	Installed	Current	0	8262			Actions▾
Surface Casing 1	Installed	Current	0	622			Actions▾
Cement Squeeze 1	Installed	Current	3959	3990			Actions▾ ←
Cement Squeeze 2	Not Installed	New	7994	8320			Actions▾ ←
Cement Retainer 1	Installed	Current	8050	8051			Actions▾ ←

Item installed in Dec 1980 to TA well

Proposed cement squeeze w/ 10sks on top of Cement Retainer

Previous remedial cement squeeze
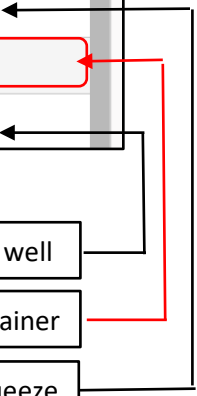
Sundry Data – Adding Proposed Balanced Plugs Across Spearfish & Mowry

Proposed features for balanced plugs may include: Cast Iron Bridge Plug & Balanced Plug.

In order to add the balanced plug features, for each feature select [*Actions*] and [*Add Feature*]:

- Add *[Balanced Plug]* **Features.**
- **Construction Status** will be *[Not Installed].*
- **Wellbore Start** and **Wellbore End** will be *[VerticalHole1]* because the item is inside the vertical section of the wellbore below the **SurfaceHole1** depth.
- **Feature Bottom MD (ft)** will be the depth of the end of tubing.
- **Feature Top MD (ft)** will be the calculated cement top for the balanced plug.

Wellbore Construction Feature   ✕

*Indicates Required Field

Feature *
Balanced Cement Plug ⬅

Construction Status * ⓘ
Not Installed ⬅

Record Status
New

Wellbore Start * ⓘ
VERTICALHOLE 1 ⬅

Wellbore End * ⓘ
VERTICALHOLE 1 ⬅

Feature Top MD (ft) *
4163 ⬅

Feature Bottom MD (ft) *
4423 ⬅

Outside Diameter (decimal inches)

Inside Diameter (decimal inches)

Weight (lbs)

Grade/Type

Burst Pressure (psi)

Feature Condition

Install Date

Remove Date

Pulled

Connection Type

Formation Isolated
Dakota Group ⬅

Description
50sk neat G balanced plug. 260ft in 7in 23ppf casing ⬅

Cancel   Save

Wellbore Construction Feature

▼ Advanced Filtering   Actions ▾   ⚙

Feature ID	Install Status	Record Status	Feature Top MD (ft) ↑	Feature Bottom MD (ft)	Outside Diameter (decimal inches)	Formation Isolated	Actions
Production Casing 1	Installed	Current	0	8262			Actions▾
Surface Casing 1	Installed	Current	0	622			Actions▾
Cement Squeeze 1	Installed	Current	3959	3990			Actions▾
Balanced Cement Plug 2	Not Installed	New	4163	4423		Dakota Group	Actions▾
Balanced Cement Plug 1	Not Installed	New	5963	6223		Spearfish Fm.	Actions▾
Cement Squeeze 2	Not Installed	New	7994	8320			Actions▾

Sundry Data – Adding Proposed Cement Squeeze @ Surface Shoe

Proposed features for proposed cement squeezes may include: Cast Iron Bridge Plug, Cement Retainer, Cement Squeeze, and Perforations.

In order to add proposed perforations and cement retainer features, for each feature select [*Actions*] for the table and [*Add Feature*]:

- Add *[Perforations], [Cement Retainer], and [Cement Squeeze] Features*.
- ***Construction Status*** will be *[Not Installed]*.
- ***Wellbore Start*** and ***Wellbore End*** will be *[VerticalHole1]* or *[SurfaceHole1]* depending on whether the *Feature* starts or ends above or below the ***SurfaceHole1*** depth.
- ***Feature Bottom MD (ft)*** and ***Feature Top MD (ft)*** will be the proposed bottom and top of the ***Feature.***

Wellbore Construction Feature

* Indicates Required Field

Feature *
Cement Retainer

Construction Status * ⓘ
Not Installed

Record Status
New

Wellbore Start * ⓘ
SURFACEHOLE 1

Wellbore End * ⓘ
SURFACEHOLE 1

Feature Top MD (ft) *
572

Feature Bottom MD (ft) *
573

Outside Diameter (decimal inches)

Inside Diameter (decimal inches)

Weight (lbs)

Grade/Type

Burst Pressure (psi)

Feature Condition

Install Date

Remove Date

Pulled

Connection Type

Formation Isolated

Description
Cement retainer for base of surface casing squeeze. 100ft above perforations and 50ft above surface shoe.

Cancel Save

Wellbore Construction Feature

* Indicates Required Field

Feature *
Cement Squeeze

Construction Status * ⓘ
Not Installed

Record Status
New

Wellbore Start * ⓘ
SURFACEHOLE 1

Wellbore End * ⓘ
VERTICALHOLE 1

Feature Top MD (ft) *
516

Feature Bottom MD (ft) *
672

Outside Diameter (decimal inches)

Inside Diameter (decimal inches)

Weight (lbs)

Grade/Type

Burst Pressure (psi)

Feature Condition

Install Date

Remove Date

Pulled

Connection Type

Formation Isolated

Description
100sks G cement. 90sks below CICR @ 572ft & 10sks on top to isolate across surface shoe

Cancel Save

Wellbore Construction Feature

Feature ID	Install Status	Record Status	Feature Top MD (ft) ↑	Feature Bottom MD (ft)	Outside Diameter (decimal inches)	Formation Isolated	Actions
Production Casing 1	Installed	Current	0	8262			Actions▾
Surface Casing 1	Installed	Current	0	622			Actions▾
Cement Squeeze 3	Not Installed	New	516	672			Actions▾
Cement Retainer 2	Not Installed	New	572	573			Actions▾
Perforation 1	Not Installed	New	672	673			Actions▾
Cement Squeeze 1	Installed	Current	3959	3990			Actions▾
Balanced Cement Plug 2	Not Installed	New	4163	4423		Dakota Group	Actions▾

▼ Advanced Filtering   Actions ▾   ⚙

Sundry Data – Adding Proposed Casing Cut and Surface Plug

Proposed features for surface plugs may include: Perforation, Cut, Cut and Pull, and Surface Plug.

In order to add the surface plug features, for each **Feature** select [*Actions*] and [*Add Feature*]:

- Add *[Cut] and [Surface Plug]* **Features**.
- **Construction Status** will be *[Not Installed]*.
- **Wellbore Start** and **Wellbore End** will be *[SurfaceHole1]* because the items are above the **SurfaceHole1** depth.
- **Feature Bottom MD (ft)** and **Feature Top MD (ft)** will be the proposed bottom and top of the **Feature**.

Wellbore Construction Feature   ✕

Indicates Required Field

Feature *   **Construction Status** *   **Record Status**
[Surface Plug   ▼] ←   ℹ   [New]
                                       [Not Installed   ▼] ←

Wellbore Start * ℹ   **Wellbore End** * ℹ
[SURFACEHOLE 1   ▼] ←   [SURFACEHOLE 1   ▼] ←

Feature Top MD   **Feature Bottom MD**   **Outside Diameter**   **Inside Diameter**
(ft) *   **(ft)** *   **(decimal inches)**   **(decimal inches)**
[0] ←   [61] ←   [ ]   [ ]

Weight (lbs)   **Grade/Type**   **Burst Pressure (psi)**
[ ]   [▼]   [ ]

Feature Condition   **Install Date**   **Remove Date**
[▼]   [📅]   [📅]

Pulled   **Connection Type**   **Formation Isolated**
[▼]   [▼]   [▼]

Description
[Estimated 30sk neat G cement surface plug thru casing cut @ 60ft ←]

                                                      [Cancel] [**Save**]

Wellbore Construction Feature

                                    [▼ Advanced Filtering] [Actions ▾] ⚙

Feature ID	Install Status	Record Status	Feature Top MD (ft) ↑	Feature Bottom MD (ft)	Outside Diameter (decimal inches)	Formation Isolated	Actions
Production Casing 1	Installed	Current	0	8262			Actions▾
Surface Casing 1	Installed	Current	0	622			Actions▾
Surface Plug 1	Not Installed	New	0	61			Actions▾
Cut 1	Not Installed	New	60	61			Actions▾

Sundry Data – Adding Cement Segments

Cement Segments must have an associated ***Feature*** from the ***Wellbore Construction Feature*** table.

To add ***Cement Segments***, for each ***Segment*** select *[Actions]* and *[Add Cement Segment]*:

- For cement squeezes on production / injection intervals or balanced plugs, select *[Inside]* for ***Inside / Outside Casing?***
- For cement squeezes due to inadequate casing cement (where cement is planned to be squeezed inside and behind casing), select *[N/A]* for ***Inside / Outside Casing***?
- The ***Top*** and ***Bottom*** of the ***Cement Segment*** will be the same depths as the ***Associated Features***.
- Details about a multi-stage cement job can be accounted for in the ***Cement Classes*** section.

Cement Segment ✕

*Indicates Required Field

Associated Feature *
Balanced Cement Plu… ←

Inside/Outside Casing? *
Inside ← ▼

Construction Status * ⓘ
Not Installed ▼

Record Status
New

Top MD (ft)
5963 ←

Bottom MD (ft)
6223 ←

Verify Method
▼

Cementing Company
ALTCEM ←

Install Date
📅

Remove Date
📅

Description
50sk (260ft) balanced plug from 50ft below top of Spearfish ←

Cancel   Save

Cement Segment ✕

*Indicates Required Field

Associated Feature *
Balanced Cement Plu… ←

Inside/Outside Casing? *
Inside ← ▼

Construction Status * ⓘ
Not Installed ▼

Record Status
New

Top MD (ft)
4163 ←

Bottom MD (ft)
4423 ←

Verify Method
▼

Cementing Company
ALTCEM ←

Install Date
📅

Remove Date
📅

Description
50sk (260ft) balanced plug from 50ft below top of Dakota Mowry ←

Cancel   Save

Cement Segment

×

* Indicates Required Field

Associated Feature *
Cement Squeeze 3 ◄ ▼

Inside/Outside Casing? *
N/A ◄ ▼

Construction Status * ⓘ
Not Installed ▼

Record Status
New

Top MD (ft)
516 ◄

Bottom MD (ft)
672 ◄

Verify Method
▼

Cementing Company
ALTCEM ◄

Install Date

Remove Date

Description
Cement squeeze to cover base of surface casing @ 622ft. CICR @ 572ft w/ 10sks (56ft) on top of CICR ◄

Cancel | Save

Cement Segment

▼ Advanced Filtering   Actions ▾   ⚙

Segment ID	Associated Feature ↑	Install Status	Record Status	Top MD (ft)	Bottom MD (ft)	Actions
C4	Balanced Cement Plug 1	Not Installed	New	5963	6223	Actions▾
C5	Balanced Cement Plug 2	Not Installed	New	4163	4423	Actions▾
C3	Cement Squeeze 2	Not Installed	New	7994	8320	Actions▾
C6	Cement Squeeze 3	Not Installed	New	516	672	Actions▾
C2	Production Casing 1	Installed	Current	3491	8262	Actions▾
C1	Surface Casing 1	Installed	Current	0	622	Actions▾

Sundry Data – Adding Cement Classes

Cement Classes must have an associated ***Cement Segment*** from the ***Cement Segment*** table.

To add ***Cement Classes*** select *[Actions]* and *[Add Cement Segment]:*

- Select the *[Associated Cement Segment]* from the list.
- Select the *[Cement Type]* from the list.
- Add all other pertinent information about the ***Cement Segment*** in the spaces provided.
- Multiple ***Cement Classes*** (e.g. stages) can be associated with a single ***Cement Segment***. An example of this is choosing a lead and tail ***Cement Class*** for a single ***Cement Segment***.

Cement Class   ✕

Associated Cement Segment *

C4 ⬅

Cement Type *

Class G Cement ⬅

Construction Status * ⓘ

Not Installed

Record Status

New

Compressive Strength (psi)

Weight (lbs/gal)

15.8 ⬅

Slurry Consistency (Bu)

Lead/Tail

Single ⬅

Volume (Sacks)

50 ⬅

Yield (cu ft per sack)

1.15 ⬅

Description

50sk balanced plug across Spearfish top ⬅

Cancel   Save

Cement Class   ✕

Associated Cement Segment *

C4 ⬅

Cement Type *

Class G Cement ⬅

Construction Status * ⓘ

Not Installed

Record Status

New

Compressive Strength (psi)

Weight (lbs/gal)

15.8 ⬅

Slurry Consistency (Bu)

Lead/Tail

Single ⬅

Volume (Sacks)

50 ⬅

Yield (cu ft per sack)

1.15 ⬅

Description

50sk balanced plug across Dakota Mowry top ⬅

Cancel   Save

Cement Class

×

* Indicates Required Field

Associated Cement Segment *

C4 ←

Cement Type *

Class G Cement ←

Construction Status * ⓘ

Not Installed

Record Status

New

Compressive Strength (psi)

Weight (lbs/gal)

15.8 ←

Slurry Consistency (Bu)

Lead/Tail

Single ←

Volume (Sacks)

100 ←

Yield (cu ft per sack)

1.15 ←

Description

100sk squeeze to cover base of surface casing @ 622ft ←

Cancel   Save

Cement Class

▼ Advanced Filtering   Actions ▾   ⚙

Cement Class Unique ID	Associated Cement Segment ↑	Install Status	Record Status	Compressive Strength (psi)	Weight (lbs/gal)	Slurry Consistency (Bu)	Lead/Tail	Actions
L1	C3	Not Installed	New		15.8		Single	Actions▾
L2	C4	Not Installed	New		15.8		Single	Actions▾
L3	C4	Not Installed	New		15.8		Single	Actions▾
L4	C4	Not Installed	New		15.8		Single	Actions▾

Sundry Data – Adding a P&A Procedure

P&A procedures may be entered into the *Sundry Description* area. *Sundry Descriptions are limited to 2000 characters*. P&A procedures may also be attached as a document (explained in the next section).

- Procedures may be typed into the *Sundry Description* area.
- Procedures may be copied from another document and pasted into the *Sundry Description* area.

Sundry Description

1. Do One-Call prior to going to well. Notify NDIC 24 hours prior to commencing work. (Jon Rumppe@ 701-XXX-XXXX).

2. Prepare location for workover. MIRU pulling unit. Discuss scope of work to be performed at this time.

3. Dig out surface casing valve and bleed off.

4. Bleed off well through hot oil truck.

5. ND wellhead. NU BOP.

6. Trip in hole with 2 7/8" workstring, bit and scraper for 7" casing to ±8,050' (Cement retainer). Circulate well with clean, 10 ppg SW. Trip out of hole with tubing, bit, and scraper.

7. Rig up wireline unit. Run cement bond log from 8,050' to Top of Cement. Trip out of hole and rig down wireline unit.

8. Trip in hole with workstring and sting into retainer. Establish injection rate. Rig up cement equipment. Mix and pump 100 sks Class G cement. Squeeze 90 sks into formation and leave 10sks on CICR. Rig down cement equipment.

a. If unable to establish injection rate, spot 45sks class G cement on top of CICR.

Back   Next   Save

SundryDescription exceeds the maximum length of 2,000 characters.

Sundry Description

See attached procedure

Back   Next   Save

Document Upload

Documents related to the sundry should be uploaded here. Documents will be available for download by any users that have permission to review the sundry.

Typical documents to include are a P&A procedure and current wellbore schematic (both required under NDAC 43-02-03-33).

To upload a document, select [*Actions*] and [*Add New*]:

- Select the *Type* of document from the dropdown menu (*[Diagram]*, *[Plugging Procedure]*, or [Sundry Attachment]).
- The *Relevant Date* in this case is the date the document is uploaded.
- Enter a brief *Description* of the document (e.g. 'Current Wellbore Diagram', 'Proposed P&A Diagram', 'P&A Procedure', etc).

Documents uploaded by the user may also be deleted by selecting *[Actions]* and *[Remove Document]*.

Form ID: 735

[Show Form Navigation]

Select documents to be uploaded, if applicable. Click Add New and complete all required fields to upload a document.

Uploaded Documents

▼ Advanced Filtering | Actions ▾ | Search | ⚙

Upload Date ↓	Uploaded By	Type	Description	Filename	Actions
01/24/2020	John Smith	Plugging Procedure	P&A Procedure	PA_PROCEDURE. PDF	Actions▾
01/23/2020	John Smith	Existing Wellbore Schematic	Diagram	Schematic.PDF	Actions▾

Document Upload [Show Form Navigation]

Select documents to be uploaded, if applicable. Click Add New and complete all required fields to upload a document.

Uploaded Documents

▼ Advanced Filtering | Actions ▾ | Search | ⚙

Upload Date ↓	Uploaded By	Type	Description	Filename	Actions
01/24/2020	John Smith	Plugging Procedure	P&A Procedure	PA_PROCEDURE. PDF	Actions▾
01/23/2020	John Smith	Existing Wellbore Schematic	Diagram	Schem	

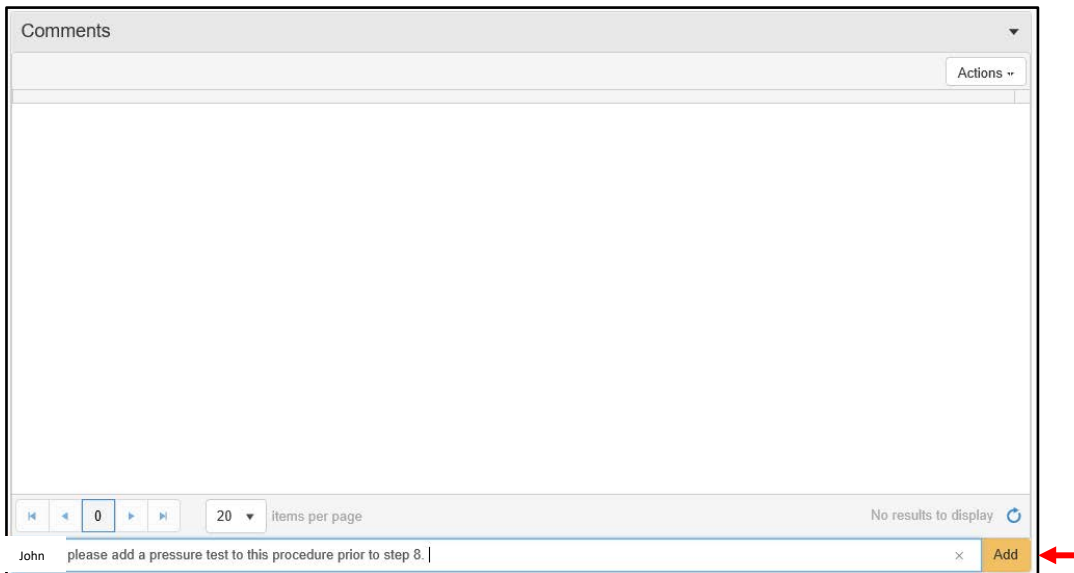View/Edit Document Details

Remove Document

Form Submit – Comments, Acknowledgement, and Final Review

Users may add comments to the sundry and read reviewers' comments in the Comments section.
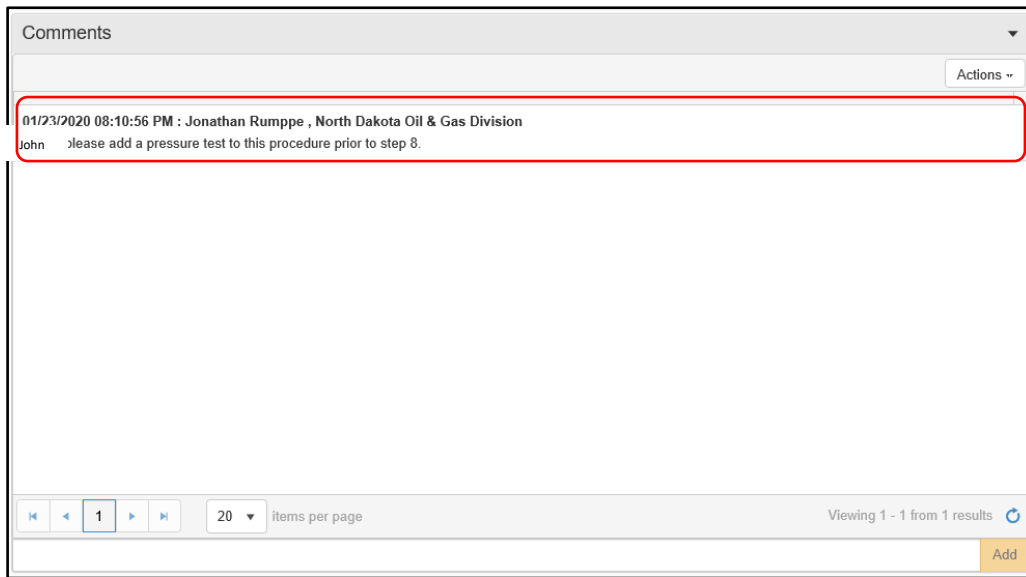
Users must eSign the sundry by clicking on the checkbox under the Acknowledgement subform.

Users may review the entire sundry by clicking on the *[Preview Submission Summary]* button.

By clicking on the *[Next]* button from this page, the user will submit the sundry. The user will not be able to file a sundry that has missing information in required fields.

Acknowledgement

Submitter

John Smith

Submitter Title *

Owner

Date Received

01/23/2020 📅

☑ I hereby certify all statements made in this form are, to the best of my knowledge, true, correct, and complete. *

Form Submit Preview

Click the button below to preview your submission summary.

Preview Submission Summary