

1. Procedure summary

This procedure describes the process to sample the monitor wells at the IABR for the Biannual requirements of Discharge Permit 1785

Related Procedures

Submission of Samples for External Analysis

<Related procedure name>

<Related
procedure
number>
<Related
procedure
number>

Procedure impacts and concerns

Safety	Use of proper PPE, and safe use of equipment	<Additional notes>
Quality	It is important that samples are collected correctly and labeled for submission so that data is preserved and can be interpreted appropriately	<Additional notes>
Delivery	Final results for external analysis are to be delivered to the New Mexico Environmental Department	<Additional notes>
Environmental	A Discharge Permit requires that three monitor wells be installed and sampled biannually, along with sampling of two evaporation ponds	<Additional notes>
Cost	There is a risk of unnecessary additional expense if efforts are duplicated or if samples are sent to a laboratory and not obtained correctly	<Additional notes>
Compliance	Some external analysis is conducted in support of environmental monitoring required by the IABR Discharge Permit	<Additional notes>

Responsibilities and owners

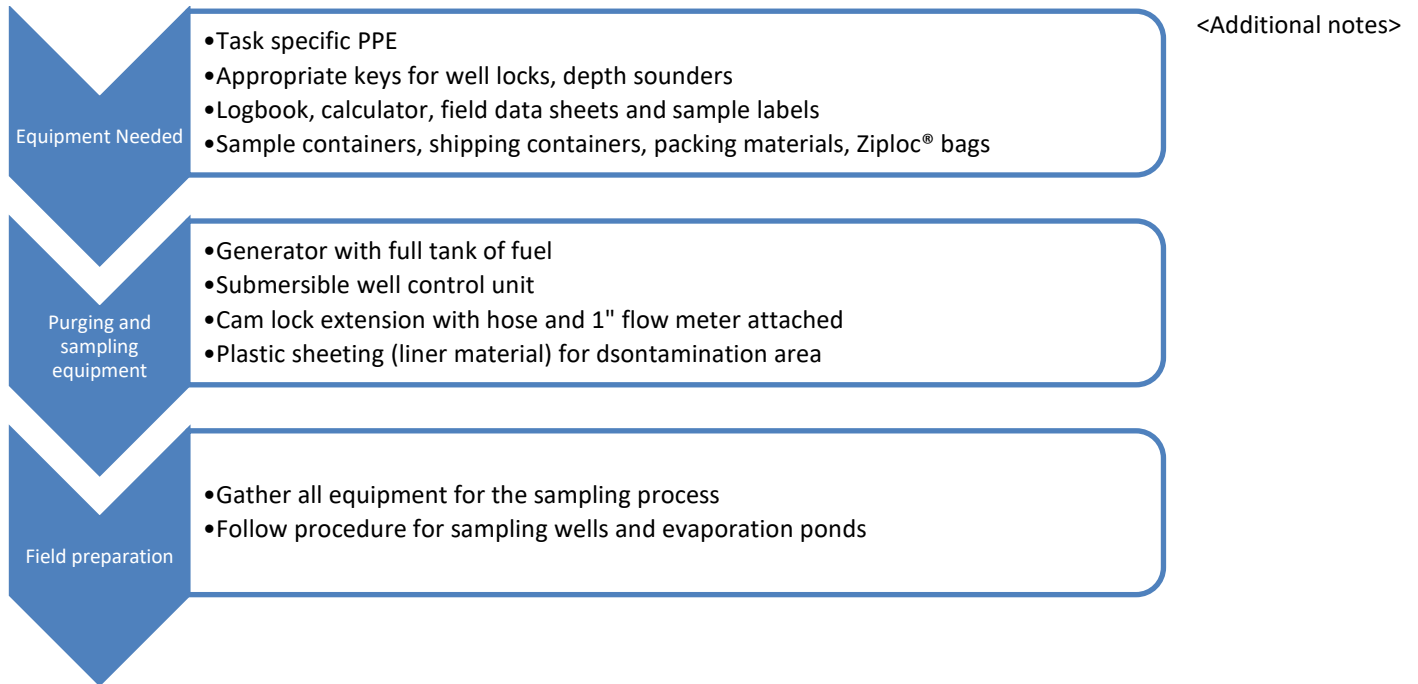
Document Owner	Manage content and distribution	Clark Gentry
Process Owner	Responsible for content and process validation	Clark Gentry
Site Manager	Responsible for implementation and conformance	Rebecca White

2. Process**2.1 Process description**

New Mexico Environmental Department has issued a Discharge Permit for Sapphire Energy IABR facility. This permit requires that three monitor wells be installed and sampled biannually. This permit also requires that two evaporation ponds, (a 6 acre, and a 1 acre) be sampled as well

Discharge Permit
1785

2.2 Process diagram: Work Instruction



<Additional diagrams, figures, and pictures to explain this procedure>

2.4 Process steps

2.4.1

Preparation for sampling should include:

1. Review of Discharge Permit 1785 for requirements to sample the monitor wells and evaporation ponds
2. Review of calculations of the water volume in the wells
3. Review of well volume purging
4. Review of QA/QC Chain of Custody for samples

2.4.2

Field Preparation:

1. Lay plastic sheeting (liner) around the well to be sampled to minimize contamination, and have area to work on
2. Remove lock on well cap, note location, time of day, and date in the site logbook.
3. Remove well-casing cap.
4. Lower depth sounder into casing in hole provided to determine the static water level.
5. Measure from static water level to top of casing and record in site logbook.
6. Calculate the volume of water in the well and volume to be purged using the calculation section of this SOP.

2.4.3

Calculations:

To calculate the water volume of a well (in gallons of water per foot of casing), utilize the following equation:

$$\text{Water volume} = p \times r^2 \times h \times (\text{cf}) \quad [\text{Equation 1}]$$

- Where:
- $p = \pi$ (approximately 3.14)
- r = radius of monitoring well casing (feet)

- h = height of the water column (feet) [This may be determined by subtracting the depth to water from the total depth of the well as measured from the same reference point.]
- cf = conversion factor (gal/ft^3) = $7.48 \text{ gal}/\text{ft}^3$

If the diameter of the monitor well is known, there are a number standard conversion factors which can be used to simplify the equation above.

3. Required documents

Input documents

Discharge Permit 1785

Calculations for water volume

<Input document
number>

Output documents

<Output document and storage instructions>

<Output document
number>

4. Document control

Revision history

R0 – Initial Release – <Editor name>	<Date>
R1 – <Editor name>	<Date>

Document approval

<Name>

<Approval date>

Document reviewers

<Name>

<Name>

<Last reviewed
date>

<Last reviewed
date>

5. Risk analysis

<Risk name>

<Mitigation plan>

<Owner> <RPN>