EP-DIV-RS-20040, R0

CAP Packer Pressure Roundsheet

Effective Date: 5/14/12

Subject Matter Expert: Steve Pearson	Signature: Steve Pearson	Date: 4-27-12
Procedure Owner: Craig Douglass	Signature:	Date: 5/14/12

REVISION HISTORY

Document No./Revision No.	Issue Date	Action	Description
EP-DIV-RS-20040, R0	5/14/12	New document	This procedure states the responsibilities and describes the process for monitoring of BASKI™ sampling system packers and temporary inflatable packers installed in ground water monitoring wells.

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1. PURPOSE

This roundsheet states the responsibilities and describes the process for monitoring of BASKI™ sampling system packers and temporary inflatable packer systems installed in ground water monitoring wells that are owned by the Environmental Programs Directorate. This procedure applies to pressure inflated packers which have a liquid inflation chamber as well as to packers of an older design which are inflated only by nitrogen. This procedure also applies to temporary packers of any manufacture. This procedure does not apply to mechanical packers.

2. BACKGROUND AND PRECAUTION

2.1 Background

These packer systems must be maintained within a range of pressures in order to maintain hydraulic isolation of multiple screen intervals within the well. For this reason it is necessary to monitor packer pressures on a regular basis, especially shortly after installation, and to maintain leaking packer systems to keep them within a functional operational range of pressures.

Each packer has a minimum pressure needed to maintain isolation, and a maximum pressure above which it may be permanently damaged. This operation pressure range is determined by the drilling/well maintenance Technical Lead at the time the packer is installed, based on the detailed characteristics of each well and the positions of the packers.

2.2 Precautions

- All personnel conducting this work SHALL be authorized for this work in the U-Train WQAS
- Comply with all FOD entry requirements
- Follow IWD, *Corrective Action Program (CAP) General Field Work Activities and Site Visits in Undeveloped Areas for the Monitoring Well Network, Well Plug and Abandonment, and Data Retrieval Activities, EP-CAP-IWD-1021*
- Personnel SHALL wear safety glasses with side shields.
- Personnel SHALL wear safety shoes and leather type gloves for well security cap removal, two person lifting requirement, as needed.
- Not Applicable (N/A) is documented on the roundsheet indicating information that is NOT applicable

3. REFERENCES

- P315, *Conduct of Operations Manual*
- P101-34, *Pressure Safety*
- EP-CAP-IWD-1021, *Corrective Action Program (CAP) General Field Work Activities and Site Visits in Undeveloped Areas for the Monitoring Well Network, Well Plug and Abandonment, and Data Retrieval Activities*
- EP-DIR-AP-10003, *Records Management Procedure for ADEP Employees*

4. RESPONSIBILITIES

4.1 CAP Operations Manager

- ENSURE the overall execution of this RS and the disposition of observed items by the Technical Lead and the SOM.

4.2 Operator/Inspection Personnel

- PERFORM inspections of packers in accordance with these instructions.
- COMPLETE all summary tables and request final review before distribution.
- PROVIDE all notification in a timely manner.

4.3 Shift OPS Manager (or designee)

- PERFORM or oversees any follow up work required to bring the packer system into a fully functional configuration.
- COORDINATE and provide status to the other Technical Leads.

4.4 Technical Lead

- EVALUATES all noted observations with the SOM.
- COORDINATE and provide status to the other Technical Leads, Engineering and the Project Manager.

4.5 Project Manager

- PERFORMS all notifications to PD, AD and to external agencies.

5. STEP-BY-STEP PROCESS DESCRIPTION

5.1 Nitrogen Cylinder Pressure Check

Operator

[1] **CHECK** Well Configuration

IF a nitrogen cylinder (or tube trailer) is installed, **THEN** observe inlet pressure gauge (gauge closest to the cylinder or trailer) on the pressure regulator.

IF no nitrogen cylinder is installed, then **PROCEED** to step 5.2.a

[A] **RECORD** inlet pressure reading on the roundsheet in block labeled "cylinder (psi)" (Attachment 1).

[B] **ENSURE** inlet pressure reading is a minimum of 400 psi.

IF the pressure is below 400 psi, **THEN** red circle that reading, and notify the SOM.

[C] **OBSERVE** outlet pressure gauge (gauge closest to safety manifold).

[D] **RECORD** outlet pressure on roundsheet under "Regulator (psi)".

[E] **ENSURE** outlet pressure is set to the target pressure designated for the particular well under inspection.

IF the outlet pressure is either below or above the target pressure, **THEN** red circle the reading and notify the SOM.

5.2 Packer Pressure Check

Operator/Inspection Personnel

[1] **UNLOCK** well head security cap.

[2] **REMOVE** well head security cap (**NOTE: Use** Two-persons to move/ lift, as needed)

[3] **OBSERVE** packer pressure gauge and

[4] **RECORD** Packer pressure in roundsheet in block labeled "Packer (psi)".

[5] **ENSURE** packer pressure is within the "operating range".

[A] **IF** the packer pressure is either below or above the operating range then red circle the reading, notify the SOM and Technical Lead following completion of rounds for additional actions.

[B] **IF** the packer pressure is not within the operating range then,

ENSURE the packer pressure is above the (Min) minimum pressure as defined on the roundsheet.

[C] **IF** the packer pressure is below the minimum, then **IMMEDIATELY verbally** notify the Technical Lead.

[6] Verbally **NOTIFY** the SOM (or OM) to ensure that Packer Re-inflation Procedure is initiated and that data downloaded is performed.

5.3 SOM/OM Instruction

[1] When notified of packer pressure below minimum, issue work instruction to reinflate as soon as safely possible following the Packer Re-inflation SOP.

[2] Once the packer is re-inflated, schedule data download for a period of at least 12 hours later, but within the next working day.

6. POST-PERFORMANCE ACTIVITY

6.1 Disposition

Operator

[1] **ENSURE** date, time and initials are recorded on the roundsheet.

[2] **FORWARD** the applicable attachments to the SOM.

SOM

[1] **REVIEW** the roundsheet and any supporting documentation for acceptance.

[2] **CHECK** that any deficiencies have been identified and red circled.

[3] **IF** any deficiencies were identified,

THEN initiate actions to correct the deficiency [e.g., Engineering Service Request (ESR) System], and **DOCUMENT** the actions taken (e.g., ESR Issue Number) in the Comments section of the applicable attachments.

[4] **RECORD** name, signature, Z#, and date of review on the roundsheet.

[5] **FORWARD** the roundsheet and applicable attachments to the Technical Lead or designee.

Technical Lead

[1] **REVIEW** the roundsheet and any supporting documentation for acceptance.

[2] **RECORD** name, signature, Z#, initials, and date of review on the roundsheet.

6.2 Reporting

Operator/Inspector

Shall observe all packer pressure gauges and if the packer pressure gauge is found below the minimum pressure they must immediately notify the Technical Lead and the Operations Manager. The packer will be re-inflated and a transducer data download conducted as described in Section 5.2. The Technical Lead will assess the transducer data and determine if there has been cross flow between the separated zones. If it is determined that cross flow has occurred, the Technical Lead will notify the Project Manager (PM). The PM will notify the Program Director (PD) and notify the ENV-RCRA. The PM and ENV-RCRA will make notification to the NMED. (Attachment 2)

7. RECORDS MANAGEMENT

CAP-FS

[1] Field crews shall document packer pressure at time of inspection, nitrogen tank pressure at time of inspection, packer pressure following maintenance, and nitrogen tank pressure following maintenance. Any other activities will also be documented at the end of the roundsheet. The updated summary spreadsheet will be provided to the groundwater project manager on a weekly basis.

[2] Submit records and/or documents generated from:

- Packer Pressure Roundsheet
- Excel spreadsheet and/or any related documentation.

Record Identification	Record Type Determination	Protection/Storage Methods	Processing Instructions
Monitoring Well Packer Pressure Summary Spreadsheet	Excel Worksheet	Submit records in accordance with EP-DIR-AP-10003, *Records Management Procedure for ADEP Employees.*	When the records are ready for final disposition, the record is transferred to Records Management in accordance with EP-DIR-AP-10003, *Records Management Procedure for ADEP Employees.*

8. ATTACHMENTS

Attachment1, Monitoring Well Packer Pressure Spreadsheet
Attachment 2, Packer Pressure Round Sheet Decision Tree

Click here for "Required Read" credit.

Attachment 1

Monitoring Well Packer Pressure Spreadsheet

Document No.: _____

Approval Date: _____

Period Covered: (Month)_____, 2012

		Week #1 ->			Week #2 ->			Week #3 ->			Week #4 ->			Week #5->		
		Date/Time/Initials			Date/Time/Initials			Date/Time/Initials			Date/Time/Initials			Date/Time/Initials		
Operating Range	(Min)	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)
R-10	217															
	261-305															
*Notes:																
R-12	121															
	170-220															
*Notes																
R-16	329															
	342-355															
*Notes:																
R-17 Tues	128															
	178-227															
Notes:																
R-17 Fri	128															
	178-227															
Notes:																

* During the performance of the Rounds, follow SOP "Pressure Monitoring of Packer Systems in Monitoring Wells" EP-DIV-SOP-20006, for notification instructions. Maintenance should be performed when packers are found underinflated, Cylinders are found under pressurized, etc. Notes should be made on the round sheet describing these maintenance actions. For additional room for notes utilize last page of this Round sheet, provide, wells #, Date and Time

Monitoring Well Packer Pressure Spreadsheet

		Week #1 ->			Week #2 ->			Week #3 ->			Week #4 ->			Week #5->		
		Date/Time/Initials			Date/Time/Initials			Date/Time/Initials			Date/Time/Initials			Date/Time/Initials		
(Min) Action Range		Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)
R-20	182-230															
	245-260															
*Notes:																
R-22 Upper	194															
	248-302															
*Notes:																
R-22 Lower	349															
	387-425															
*Notes:		OUT of Service														
R-23i	120															
	167-214															
Notes:																
R-33	141															
	186-231															
Notes:																
R-37 Tues	124															
	167-210															
Notes																

Monitoring Well Packer Pressure Spreadsheet

		Week #1 ->			Week #2 ->			Week #3 ->			Week #4 ->			Week #5->		
		Date/Time/Initials			Date/Time/Initials			Date/Time/Initials			Date/Time/Initials			Date/Time/Initials		
(Min) Action Range		Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)
R-37	124															
	167-210															
*Notes:																
R-40	116															
	161-206															
*Notes:																
R-43	131															
	181-231															
*Notes:																
R-44	126															
	176-226															
Notes:																
R-45	125															
	175-225															
Notes:																
R-49	135															
	179-223															
Notes																

Monitoring Well Packer Pressure Spreadsheet

		Week #1 ->			Week #2 ->			Week #3 ->			Week #4 ->			Week #5->		
		Date/Time/Initials			Date/Time/Initials			Date/Time/Initials			Date/Time/Initials			Date/Time/Initials		
(Min) Action Range		Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)
R-50	123															
	172-222															
*Notes:																
R-51	128															
	176-225															
*Notes																
R-52	129															
	179-228															
*Notes:																
R-53	134															
	183-221															
Notes.																
R-54	126															
	175-225															
Notes:																
R-55	149															
	196-243															
Notes																

Monitoring Well Packer Pressure Spreadsheet

		Week #1 ->			Week #2 ->			Week #3 ->			Week #4 ->			Week #5->		
		Date/Time/Initials			Date/Time/Initials			Date/Time/Initials			Date/Time/Initials			Date/Time/Initials		
	(Min) Action Range	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)	Packer (psi)	Regulator (psi)	Cylinder (psi)
R-56	138															
	187+237															
	*Notes:															
R-57	131															
	180-230															
	*Notes.															
R-61	123															
	173-223															
	*Notes:															
CdV R-15-3	157															
	198-239															
	Notes:															
CdV R-37-2	185															
	217-249															
	Notes:															
	Notes:															

Attachment 2

Decision Tree for Packer Pressure Roundsheet