

TRI-PARTY AGREEMENT

Change Notice Number TPA-CN- 0835	TPA CHANGE NOTICE FORM	Date: 01/31/19
Document Number, Title, and Revision: DOE/RL-2014-42-ADD1, 300-FF-5 Operable Unit Remedy Implementation Sampling and Analysis Plan Addendum for Stage B Uranium Sequestration, Rev. 0 <i>1243694</i>		Date Document Last Issued: December 2016

Approved Change Notices Against this Document: TPA-CN-0828

Originator: D.A. St. John Phone: 509-373-9775

Description of Change:
DOE/RL-2014-42-ADD1 is revised to reflect changes to the Stage B project schedule and to include analytes required for sampling discussed in section 3.2.1.

M.W. Cline and B.W. Simes agree that the proposed change **DOE Lead Regulatory Agency** modifies an approved workplan/document and will be processed in accordance with the Tri-Party Agreement Action Plan, Section 9.0, *Documentation and Records*, and not Chapter 12.0, *Changes to the Agreement*.

- Section 1.3 has text changes and Figure 1 has been replaced to reflect the new Stage B project schedule following one year of performance monitoring after completion of Stage B enhanced attenuation treatment.
- Table 5 is amended to add constituents arsenic, manganese, total alkalinity, and bicarbonate alkalinity for daily, weekly, and monthly groundwater monitoring as discussed in Section 3.2.1.
- Figure 6 is replaced to reflect the correct well types.



Additions are shown using double underline. Deletions are shown using ~~strikeout~~.

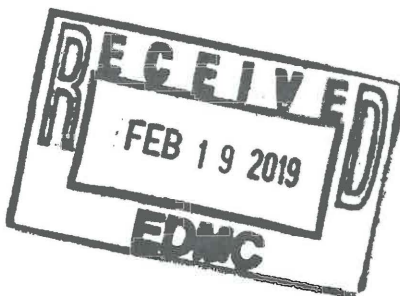
Note: Include affected page number(s): Pages 2, 17, and 19.

Justification and Impacts of Change:

The 300-FF-5 OU sampling and analysis plan (SAP) addendum (DOE/RL-2014-42-ADD1) was written in December 2016 to guide Stage B enhanced attenuation installation and implementation in 2017. In May 2017 Stage B was postponed for one year in accordance with TPA-CN-0784 for the Remedial Design Report/Remedial Action Work Plan Addendum for the 300 Area Groundwater (DOE/RL-2014-13-ADD2). TPA-CN-0828 added the one-year postponement to the Stage B project schedule in the SAP Addendum. TPA-CN-0828 also corrected the Stage B project schedule to extend the Stage B post-treatment monitoring from six months to one year. This change notice makes the same six-month adjustment to the schedule for the uranium sequestration completion report.

Approvals:

 DOE Project Manager	<u>2/4/2019</u> Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved
 EPA Project Manager	<u>2/4/2019</u> Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved
N/A Ecology Project Manager	_____ Date	<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved



300-FF-5 OU. The following PSQ was developed for the Stage B EA of uranium: Will the operation of Stage B meet the design objectives?

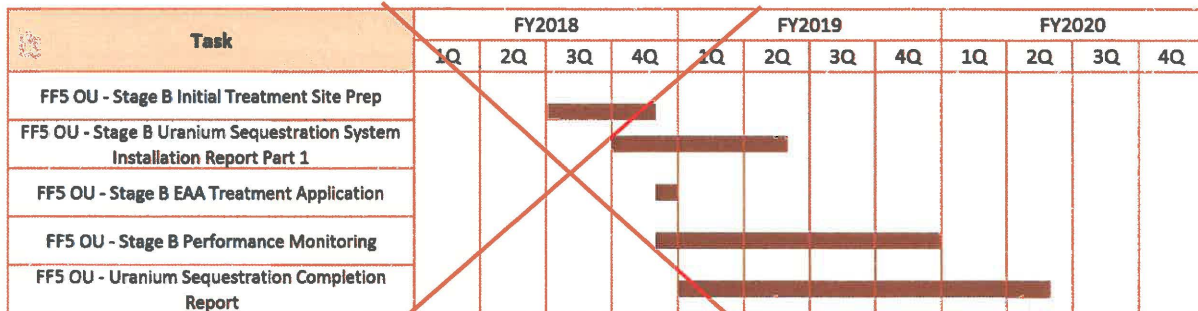
Stage B includes the following design objectives:

- Achieve treatment solution concentrations; achieve injection flowrate and volume.
- Evaluate the distribution of phosphate over time in the LVZ, PRZ, and top of the aquifer.
- Determine the short-term impact (<1 year) to local uranium groundwater concentrations and chemistry.
- Determine the change, if any, observed in the leachability of uranium after treatment.

Output of the DQO process for implementation of Stage B is summarized in Appendix A.

1.3 Project Schedule

This SAP addendum will direct *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) remedy performance monitoring activities related to Stage B EA for the 300-FF-5 OU. The original schedule for these activities in the *Remedial Design Report/Remedial Action Work Plan Addendum for the 300 Area Groundwater* (DOE/RL-2014-13-ADD2) did not include a six-month waiting period after completion of the treatment application prior to drilling the post-treatment boreholes. This waiting period is needed to allow the geochemical reactions additional time to progress prior to analyzing the soil borings for uranium leachability characteristics. TPA-CN-700, approved in November 2015, revised the schedule to include this six month waiting period, the postponement of Stage B. In 2017, Stage B was postponed for one year. TPA-CN 0784, approved in June 2017, revised the schedule in DOE/RL-2014-13-ADD2 to include this one year postponement. TPA-CN-0828, approved in August 2018, added the one-year postponement to the schedule in this addendum. TPA-CN-0828 also extended the schedule for Stage B performance monitoring following treatment from six months to one year, consistent with this addendum. The schedule for completion of the uranium sequestration report was subsequently also extended by six months. This addendum includes the revised schedule (Figure 1).



EAA = enhanced attenuation area FY = fiscal year OU = operable unit

Figure 1. Stage B Uranium Sequestration Project Schedule

2 Operational Design Parameters

The following sections describe the operational concept for Stage B phosphate injections.

2.1 Operational System Design

Stage B injection operations will follow the same general design approach as used during the Stage A treatment. The treatment area consists of two spatially distinct segments where injections are required. The segments will be equipped with 48 injection wells, up to 24 monitoring wells, and an electrical

300-FF-5 OU. The following PSQ was developed for the Stage B EA of uranium: Will the operation of Stage B meet the design objectives?

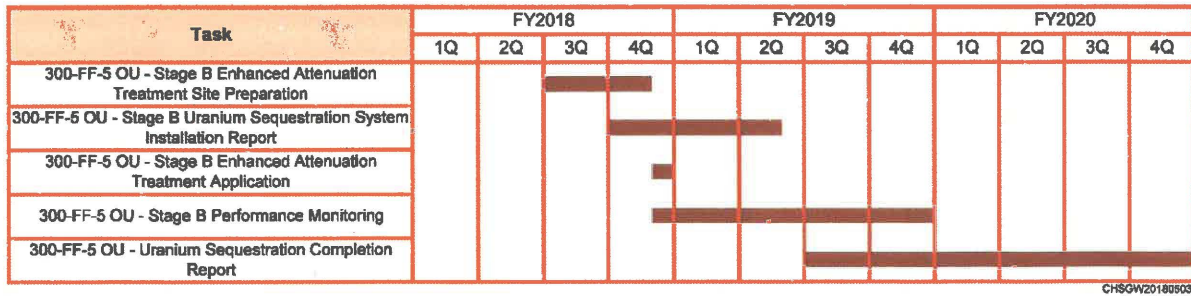
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Table 5. Summary of Stage B Performance Monitoring

Design Objective	Method/Analysis	Sampling Information (Locations, Number of Samples, and Frequency)		
		Pre-Treatment	During Treatment	Post-Treatment
Determine short-term impact to local U concentrations and groundwater chemistry (if minimal, assume no impact to river)	Groundwater grab samples analyzed for uranium, total phosphorus (reported as phosphate), anions (chloride, sulfate, nitrate, bicarbonate, and carbonate), cations (calcium, magnesium, sodium, potassium, and iron, manganese, and arsenic), <u>total alkalinity and bicarbonate alkalinity</u> , field parameters (specific conductance, temperature, pH, DO, and oxidation reduction potential).	Sample 13 wells (399-1-23, 1-17A, 2-2, 1-16A, 1-7, 1-55, 1-62, 1-72, 1-158, 1-159, 1-162, 1-2, and 1-12) monthly before treatment, starting one month after approval of this addendum.	--	Same wells, sampled monthly for 1 year after treatment.
	Groundwater grab samples analyzed for uranium, total phosphorus (reported as phosphate), anions (chloride, sulfate, nitrate, bicarbonate, and carbonate), cations (calcium, magnesium, sodium, potassium, and iron, manganese, and arsenic), <u>total alkalinity and bicarbonate alkalinity</u> , field parameters (specific conductance, temperature, pH, DO, and oxidation reduction potential).	Sample once, 1 to 4 weeks before treatment. Target 24 wells (19 new wells plus existing wells: 399-1-72/1-73, 1-17A, 1-23, and 1-7).	Same wells, sampled daily during treatment plus 1 week after treatment.	Same wells, sampled weekly for 4 weeks post-treatment (after end of daily sampling), then the new aquifer wells monthly for 6 months after treatment.
	Water elevation and field parameters of groundwater. Retrieve depth to water table from AWLN weekly during treatment and quarterly following treatment. Install data loggers in all aquifer monitoring wells without instrumentation. Manual daily measurements during any sampling.	AWLN (399-1-10A, 1-15, 1-16A, 1-23, 3-18, 3-19, 4-7, 6-1, 8-1, 8-5A, and 699-S27-E14), non-AWLN (wells 399-1-17A, 399-1-12, and 399-2-2), and transducers in Stage B aquifer monitoring wells.	Same network, hourly measurements, throughout treatment.	Same network, hourly measurements for 1 year, except the Stage B aquifer monitoring wells will only be measured for 6 months after treatment.

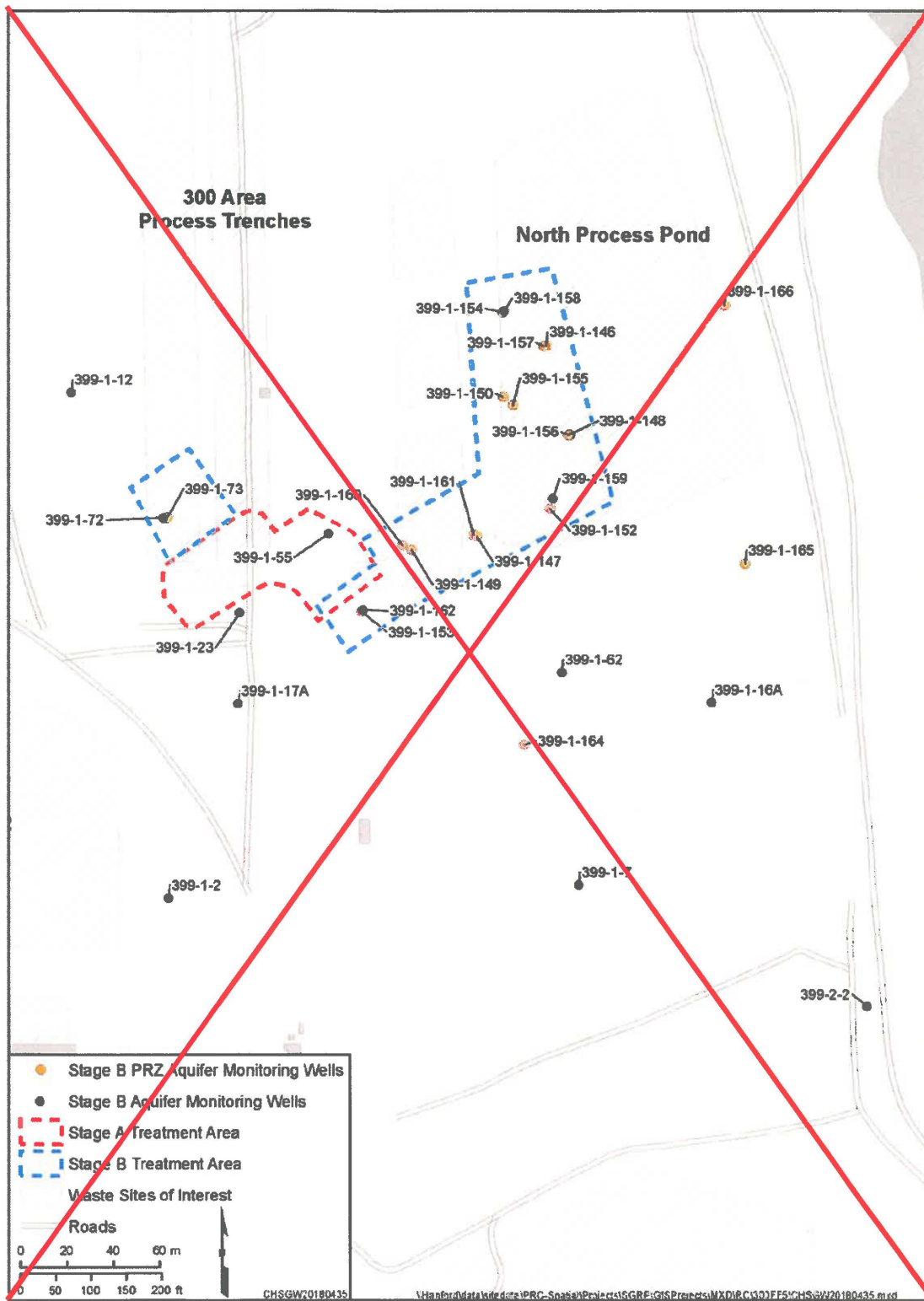


Figure 6. Location of Stage B Monitoring Wells

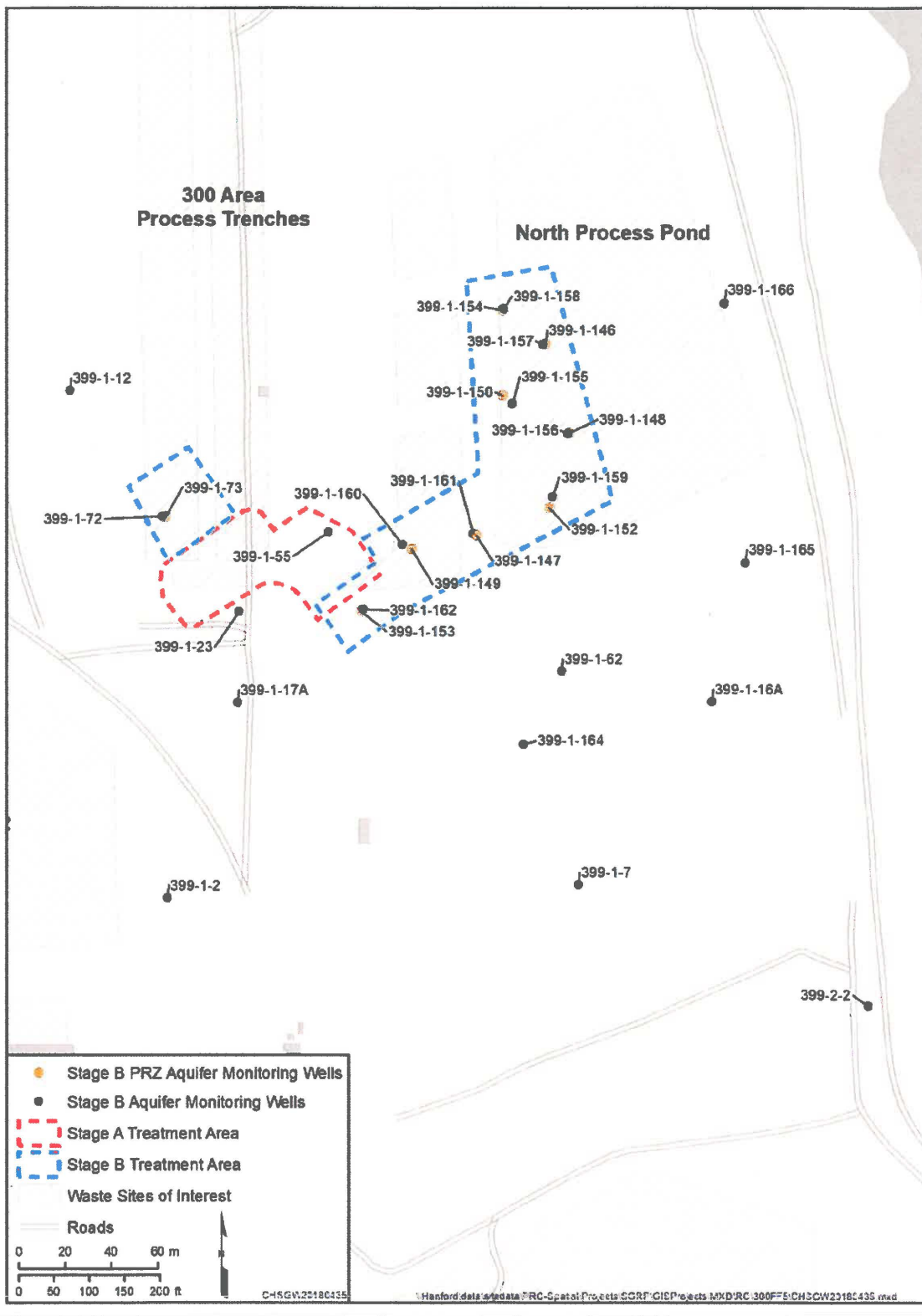


Figure 6. Location of Stage B Monitoring Wells