0090509

Date Received for Clearance Process (MM/DD/YYYY)	INFORMATION CLEARANCE FORM
09/15/2010	

A. Information Category

- ☐ Abstract
- ☐ Journal Article
- ☐ Summary
- ☐ Internet
- ☐ Visual Aid
- ☐ Software
- ☐ Full Paper
- ☐ Report
- ☒ Other Meeting Minutes

B. Document Number TRAC-1278

C. Title: Scoping Meeting for Data Quality Objectives for Evaluation of Locations for Installation and Use of Monitoring Wells for the Low Level Burial Ground 3 (218-W-5), Trenches 31 and 34

D. Internet Address

E. Required Information (MANDATORY)

1. Is document potentially Classified? ◉ No ○ Yes
   Stuart Luttrell — Manager Required (Print and Sign)
   If Yes ____ ADC Required (Print and Sign) ◉ No ○ Yes Classified
2. Official Use Only ◉ No ○ Yes Exemption No. ____
3. Export Controlled Information ◉ No ○ Yes OUO Exemption No. 3
4. UCNI ◉ No ○ Yes
5. Applied Technology ◉ No ○ Yes
6. Other (Specify) ____

7. Does Information Contain the Following:
   a. New or Novel (Patentable) Subject Matter? ◉ No ○ Yes
      If "Yes", OUO Exemption No. 3
      If "Yes", Disclosure No.: ____
   b. Commercial Proprietary Information Received in Confidence, Such as Proprietary and/or Inventions? ◉ No ○ Yes If "Yes", OUO Exemption No. 4
   c. Corporate Privileged Information? ◉ No ○ Yes
      If "Yes", OUO Exemption No. 4
   d. Government Privileged Information? ◉ No ○ Yes
      If "Yes", Exemption No. 5
   e. Copyrights? ◉ No ○ Yes If "Yes", Attach Permission.
   f. Trademarks? ◉ No ○ Yes If "Yes", Identify in Document.
8. Is Information requiring submission to OSTI? ◉ No ○ Yes
9. Release Level? ◉ Public ○ Limited

F. Complete for a Journal Article

1. Title of Journal NA

RECEIVED SEP 24 2010 EDMC

G. Complete for a Presentation

1. Title for Conference or Meeting N/A
2. Group Sponsoring ____
3. Date of Conference ____ 4. City/State ____
5. Will Information be Published in Proceedings? ○ No ○ Yes 6. Will Material be Handed Out? ○ No ○ Yes

H. Information Owner/Author/Requestor: Scot C. Adams (Print and Sign) 9/14/2010

Responsible Manager: Stuart P. Luttrell (Print and Sign)

Approval by Direct Report to President (Speech/Articles Only) N/A (Print and Sign)

I. Reviewers	Yes	Print	Signature	Public Y/N (If N, complete J)
General Counsel	☒	Raymond T. Swenson	per email 9/14/10	(Y) / N
Office of External Affairs	☐			Y / N
DOE-RL	☒	R. D. Hildebrand	Approved by kleen SA 9/16/2010	(Y) / N
Other	☐			Y / N
Other Clearance	☒	GE Bratton	GE Bratton	(Y) / N

J. Comments

These meeting minutes for 9-1-2010 between DOE/RL, WA Depart. of Ecology, and CHPRC RCRA Monitoring initiates a discussion of monitoring well locations for Low Level Burial Ground 3 (218-W-5) Trenches 31 & 34. The meeting listed a path forward for monitoring of these trenches.

If Additional Comments, Please Attach Separate Sheet

Information Clearance Approval

APPROVED FOR RELEASE OFFICIAL DOCUMENT Date 9/15/2010

A-6001-401 (REV 2)

Adams, Scot C

From: Swenson, Raymond T
Sent: Tuesday, September 14, 2010 6:31 PM
To: Adams, Scot C
Cc: Swenson, Raymond T
Subject: RE: Meeting Minutes for Legal Review

I have reviewed the document and see no legal issues.

Raymond Takashi Swenson
Senior Counsel

CH2M Hill Plateau Remediation Company
Richland, Washington
509-376-3511 Office
509-308-7456 BlackBerry
509-376-0334 Fax
Raymond_T_Swenson@rl.gov

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From: Adams, Scot C
Sent: Tuesday, September 14, 2010 2:18 PM
To: Swenson, Raymond T
Subject: Meeting Minutes for Legal Review

Ray,

These are meeting minutes that Ecology requested be sent to the AR. As part of the same meeting, Dan Gamon is sending a set of revised viewgraphs, which are currently in the clearance process. These are due 9-15-2010. Ecology and DOE (Hildebrand) already looked at them.

Scot C. Adams
376-1035

CH2MHILL
Plateau Remediation Company

MEETING MINUTES

Title: Scoping Meeting for Data Quality Objectives for Evaluation of Locations for Installation and Use of Monitoring Wells for the Low Level Burial Ground 3 (218-W-5), Trenches 31 and 34.

Attendees: (Electronic Distribution)		
NAME	**ORGANIZATION**	**FUNCTION/ROLES**
Jeff Ayres	Washington Department of Ecology	Hydrologist/ DQO Decision Maker
Dib Goswami	Washington Department of Ecology	Hydrologist
Asopuro Okemgbo	Washington Department of Ecology	Chemist
Deborah Singleton	Washington Department of Ecology	Project Manager
Joanette Biebesheimer	Washington Department of Ecology	Permit Writer
Doug Hildebrand	Department of Energy	Area Manager/ DOE DQO Decision Maker
Stuart Luttrell	CHPRC	RCRA Monitoring Manager
Daniel Gamon	CHPRC	RCRA Monitoring Hydrologist
Gustavo Aljure	CHPRC	Environmental Protection/ RCRA Subject Matter Expert
Scot C. Adams	CHPRC	DQO Facilitator

Other Distributions:
Jane Hedges, Ecology, MSIN H0-57
John G Morse, DOE/RL, MSIN A5-11
Tony Miskho, CHPRC, MSIN T4-10
Craig Swanson, CHPRC, MSIN R3-50
Cliff Narquis, CHPRC, MSIN R3-50
Bonnie Howard, CHPRC, MSIN R3-60
Rick W Oldham, CHPRC, MSIN R3-60
Administrative Record

From: Scot C. Adams

Date: September 1, 2010

Location: This meeting was held in the Washington Department of Ecology building

Objective:

The general purpose of the meeting was to discuss where new monitoring wells needed to be drilled and how many were needed. Potential use of existing wells and point of compliance were reviewed.

Topics Discussed:

Groundwater modeling, WAC 173-303-645 requirements, interaction of facility monitoring, flow paths and chemistry related to the ZP-1 treatment facility.

A summary of the discussion follows.
The potential locations of mixed waste TSD monitoring wells were discussed. Ecology identified that the driving requirement was WAC 173-303-645.

Dan Gamon presented a description of the trenches, a stratigraphic section, cross sections, and a conceptual model. Doug Hildebrand requested that one more cross section be presented (C-C').

Dan Gamon and Doug Hildebrand discussed the Cold Creek stratigraphy and possible perched water and lateral movement of leachate in the vadose zone. This potentially could impact the points of compliance for locating wells.

Dan Gamon presented working figures and modeling inputs supplied through S.S Papadopulos & Associates. The 200-ZP-1 Version 3 hydrologic model and particle tracking were applied specifically to Trenches 31 and 34. Aspect were:

1. The current flow path for 2010-2011was represented from the model. This path represents current conditions.
2. The flowpath from 2011 through 2014 was presented to show the impact of ZP-1 extraction and injection. The Trench 31 & 34 area flow path is impacted by new injection wells northeast and south east of the facility. The groundwater elevation contours are shifted by the treatment process. Dib Goswami interpreted the impacts to mean that there would be a progressive shift and mixing of the waters and that water chemistry would be dynamically shifting. The ZP-1 IW4 well will have the greatest impact on the groundwater flow, because of proximity and injection at 150 gallons per minute.
3. The flow path for 2014 through 2017 was presented. The flow path would continue to be dominated by ZP-1 extraction and injection wells.

Extensive discussion followed on how to locate up and down gradient wells in the environment of change in the flow regime. The relative merits of multiple locations were discussed.

Doug Hildebrand noted that a good understanding of the complex water chemistries will be needed.

Asopuro Okemgbo noted that statistical methods to interpret water chemistries will be needed.

Stuart Luttrell emphasized that specific chemical indicators need to be identified for interpreting monitoring results. He suggested that control charts might be the best way to interpret the data in the environment of change and mixing of waters. Unique chemical indicators must be identified.

Deborah Singleton and Joanette Biebesheimer stated that specific indicators would be needed for inclusion in the revised permit. All of the details of a monitoring plan will be needed to write the permit.

Dan Gamon identified that the waste inventory and waste acceptance criteria needed to be understood and would be the primary bases for developing monitoring parameters. Discussion was held as to whether waste contaminants would be released or detected owing to the existing packages, absorbent, and liners, as well as the absence of liquid waste.

All agreed that the location of wells should be the primary focus for the short term. Chemical aspects should be deferred and addressed later in a separate meeting. Planning is needed for that.

The duration of the renewed permit was planned by Ecology to be for 10 years. There needs to be enough flexibility in planning for changing conditions and drilling additional wells, as needed. Primary planning should be for 5 years with flexibility to extend monitoring to 10 years. Deborah Singleton elaborated that a compliant monitoring network and monitoring plan are needed now, regardless of changing conditions later.

Doug Hildebrand identified that internal CHPRC work is needed to try to determine what effect the Cold Creek zone will have on vadose zone flow and the point-of-compliance issue. Potential lateral flow in the vadose zone needs to be considered.

Doug Hildebrand noted that potential well locations are constrained by operational needs of the active disposal facility and the wells need to be protected from operational activities.

Dib Goswami initiated a summary process for the meeting as follows:

1. One more cross section is needed
2. A groundwater monitoring plan will be needed for the facility.
3. Down gradient points of compliance are needed. This will be determined by Ecology and discussed with EPA in a separate meeting.
4. The number of new wells and use of existing wells will be evaluated by Ecology and discussed with EPA.
5. As a minimum, at least one up gradient well and one down gradient well will be needed.
6. The M-24 drilling priorities need to be re-evaluated. Some of these wells may be higher priority than some other wells already scheduled for drilling. Dib Goswami will evaluate drilling and compliance issues.
7. Technical and regulatory justification will be needed for the placement and number of wells.

Agreements Made:

DOE will deliver meeting minutes for approval and release and released viewgraph figures to Ecology in the middle of September. This material will provide technical input to Ecology and EPA discussion of points of compliance.

See other tasks below.

Action Items:

Name of responsible party	Task	Due date by month, day, year
Dan Gamon	Prepare cleared viewgraphs of presentation and submit to the Administrative Record	September 15, 2010
Scot C. Adams	Prepare cleared meeting minutes for this meeting and submit to the Administrative Record	September 15, 2010
Dan Gamon	Prepare cross section C-C' to supplement the view graphs	September 15, 2010
Dan Gamon	Verify an up-gradient screen design on an existing potential up-gradient well.	September 15, 2010
Dan Gamon	Evaluate the Cold Creek Formation in surrounding/adjacent wells: 1. Continuity 2. Lithology 3. Thickness	September 15, 2010
Dan Gamon	Compile hydrologic test information for adjacent wells	September 15, 2010

Ecology and EPA	Meet and define : 1. The point of compliance for down gradient wells 2. The number of needed wells 3. The location of needed wells.	TBD
Ecology	Prepare a Fact Sheet for Trench 31 & 34	TBD
Scot C. Adams	Prepare a draft analyte list for monitoring and hold a DQO planning session with Ecology and DOE	October 1, 2010
DOE/RL and CHPRC	Prepare a draft monitoring plan for the Trench 31 & 34 unit	December 1, 2010
Dib Goswami	Evaluate TPA M-24 for potential modification and reprioritization of well drilling.	TBD
DOE	Schedule well drilling DQO planning and sampling and analysis plan	TBD

Adams, Scot C

From: Adams, Scot C
Sent: Thursday, September 16, 2010 9:25 AM
To: Ayres, Jeff; Goswami, Dibakar; Singleton, Deborah; Hildebrand, Doug D; Luttrell, Stuart P; Gamon, Daniel A; Aljure, Gustavo A; Adams, Scot C; 'aoke461@ecy.wa.gov'; 'jbie461 @ecy.wa.gov'
Cc: Hedges, Jane; Morse, John G.; Miskho, Anthony G; Swanson, L Craig; Narquis, Clifford T; Howard, Bonnie J; Oldham, Richard W; Childers, Heather M; Horton, Lori J
Subject: Cleared Meeting Minutes and Viewgraphs from 9-1-10 Initial Trench 31 & 34 DQO
Attachments: CHPRC Mtg Minutes - 9 14 10.docx; CHPRC1009-11 LLBG_Trench31_34Rev0.pptx

Attached are cleared meeting minutes from September 1 that identify a path forward for monitoring of the mixed waste Trenches 31 & 34. Ecology, DOE/RL, and CHPRC attended.

Title:

Scoping Meeting for Data Quality Objectives for Evaluation of Locations for Installation and Use of Monitoring Wells for the Low Level Burial Ground 3 (218-W-5), Trenches 31 and 34.

Also attached are the revised and cleared viewgraphs from the meeting:

Low-Level Burial Ground 3 Trenches 31 and 34 DQO Process

Scot C. Adams

376-1035

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Low-Level Burial Ground 3 Trenches 31 and 34 DQO Process

Presented to: Washington State Department of Ecology

Presented by: Daniel Gamon

CHPRC1009-11

U.S. DEPARTMENT OF ENERGY

CH2MHILL
Plateau Remediation Company

Slide 1

dag3 tHIS IS A GOOD TEMPLATE AND YOU CAN KEEP ALOT OF LANGUAGE. YOU JUST NEED TO CHANGE THE TENSE OF ALOT OF VERBS AND ADJECTIVES TO THE PRESENT AND DESCRIBE OUR TEST PLAN VERSUS THE RECCOEMENDATIONS (SLIDE 6)
h0610051, 8/23/2010

Low-Level Burial Ground-3 Trenches 31 and 34 DQO Process for New Well Locations

Contributors:

Scot Adams (CHPRC DQO Facilitator)
Daniel Gamon
Stuart Luttrell (CHPRC RCRA Reporting Manager)

ZP-1 Modeling Data and Support by:
S. S. Papadopulos & Associates, Inc.

U.S. DEPARTMENT OF ENERGY

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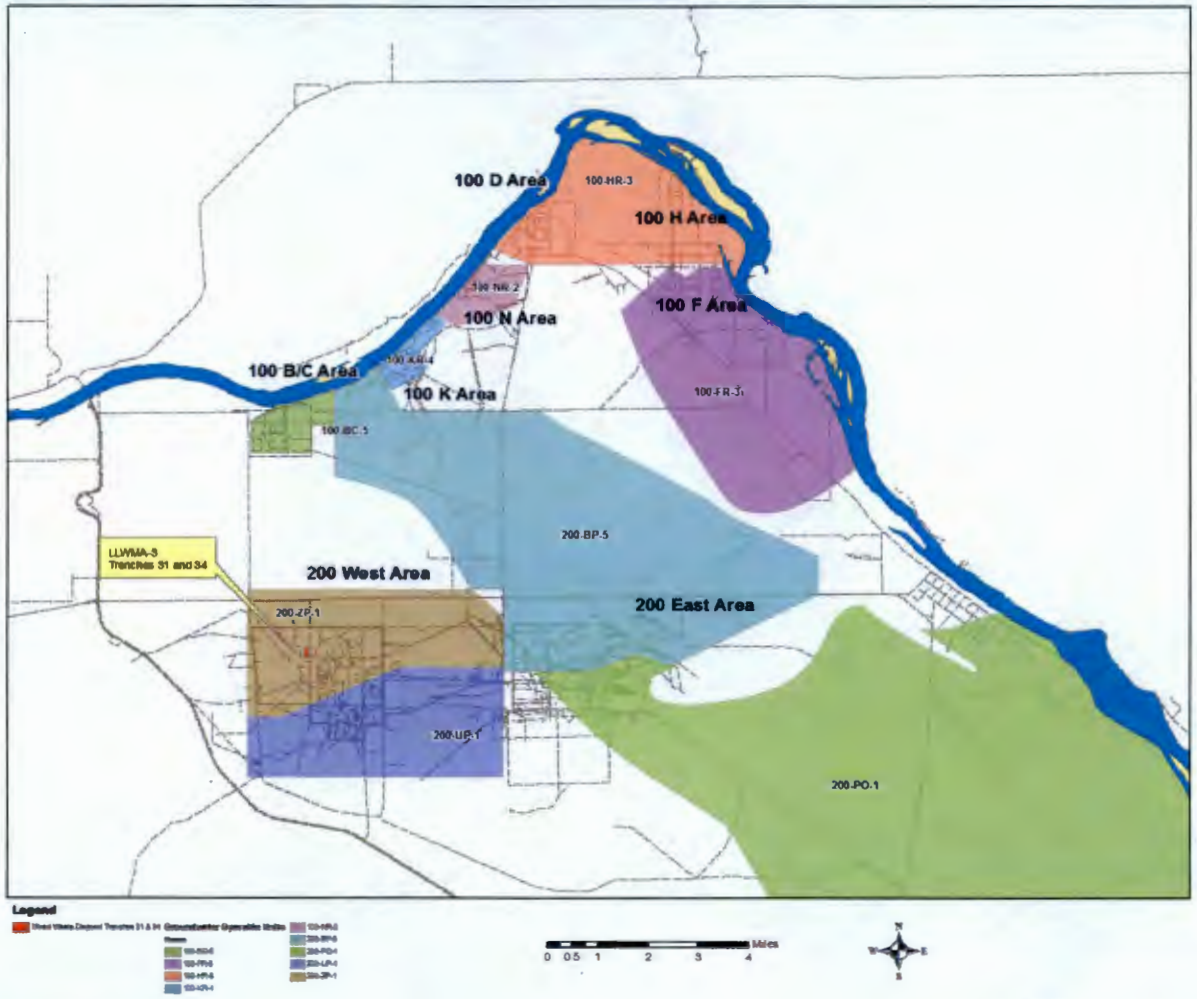
Plateau Remediation Company

Key Element of DQO Process

In order to comply with RCRA Dangerous Waste TSD requirements, monitoring wells need to be located for Trenches 31 and 34 in the 218-W-5 Low Level Burial Ground. The locations need to consider planned hydrologic impacts from CERCLA injection wells with respect to water elevations, flow directions, and water chemistry.

Location Map of Study Area



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Conceptual Site Model – Well Location Variables

- Local hydrogeology under the TSD Unit
- Flow path of conceptual dangerous waste to water table from a release from the TSD Unit
- Define "up-gradient" in relation to LLWMA-3 Trenches 31 & 34
- Define "down-gradient" in relation to Trenches 31 & 34
- Present time series of estimated ZP-1 Pump and Treat operations hydrologic effects relative to the possible new monitoring well locations
- Discuss relevant timing of monitoring well construction and ZP-1 Pump and Treat operations

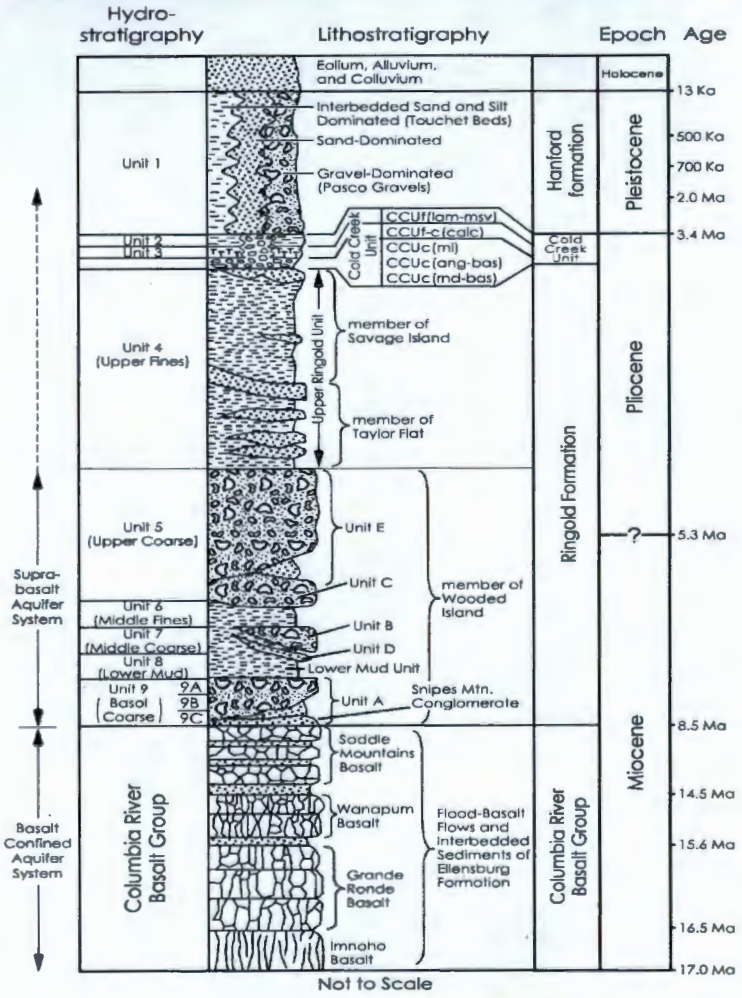
Trench 31 and 34 Details

- The double lined trenches were constructed in 2000 and are 36 m (118.1 ft) wide at the bottom, 9.1 m (29.9 ft) deep, and 230 m (754.6 ft) long.
  - Adjacent to the double lined mixed waste trenches are leachate collection tanks.
- The two 218-W-5 Burial Ground double-lined mixed waste trenches are the only trenches that continue to receive mixed waste.
  - The 218-W-5 Burial Ground received packaged waste materials from 200 West Area operations, as well as other wastes from the Hanford Site and offsite.
  - Examples of waste disposed to this burial ground include rags, paper, rubber gloves, disposable supplies, and broken tools.

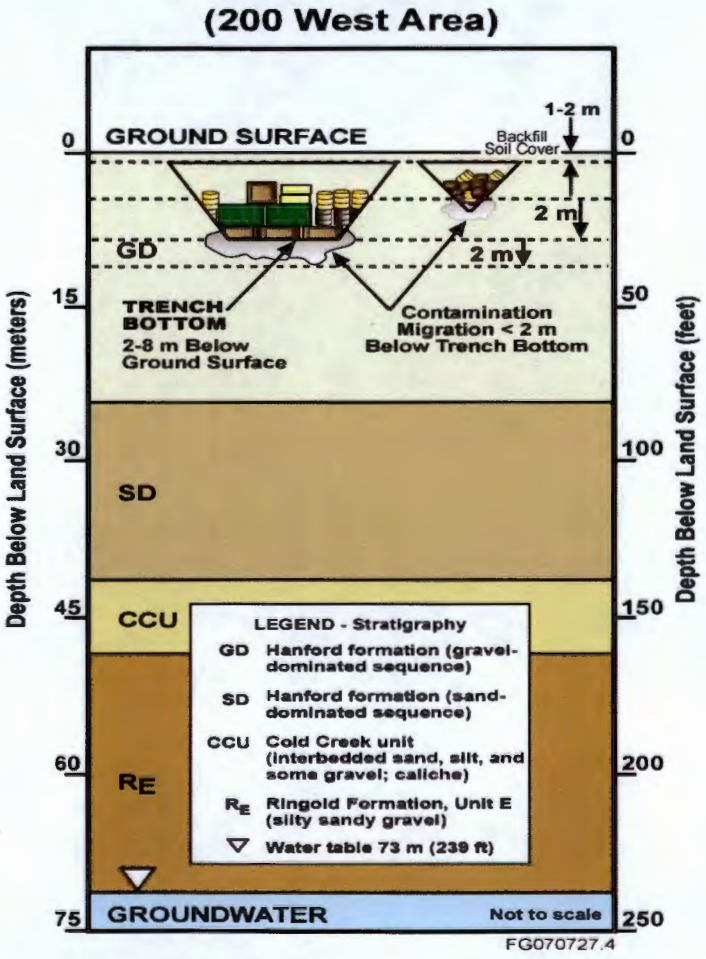
200-West Area Stratigraphy

Figure 2-1. Generalized Stratigraphic Column for the Hanford Site (modified from Lindsey 1996).

Note: The member of Savage Island, the member of Wooded Island units C, B, and D, and the Snipes Mountain Conglomerate are not present at Waste Management Area TX-TY (southeast and adjacent to LLWMA-3).



Generalized Profile



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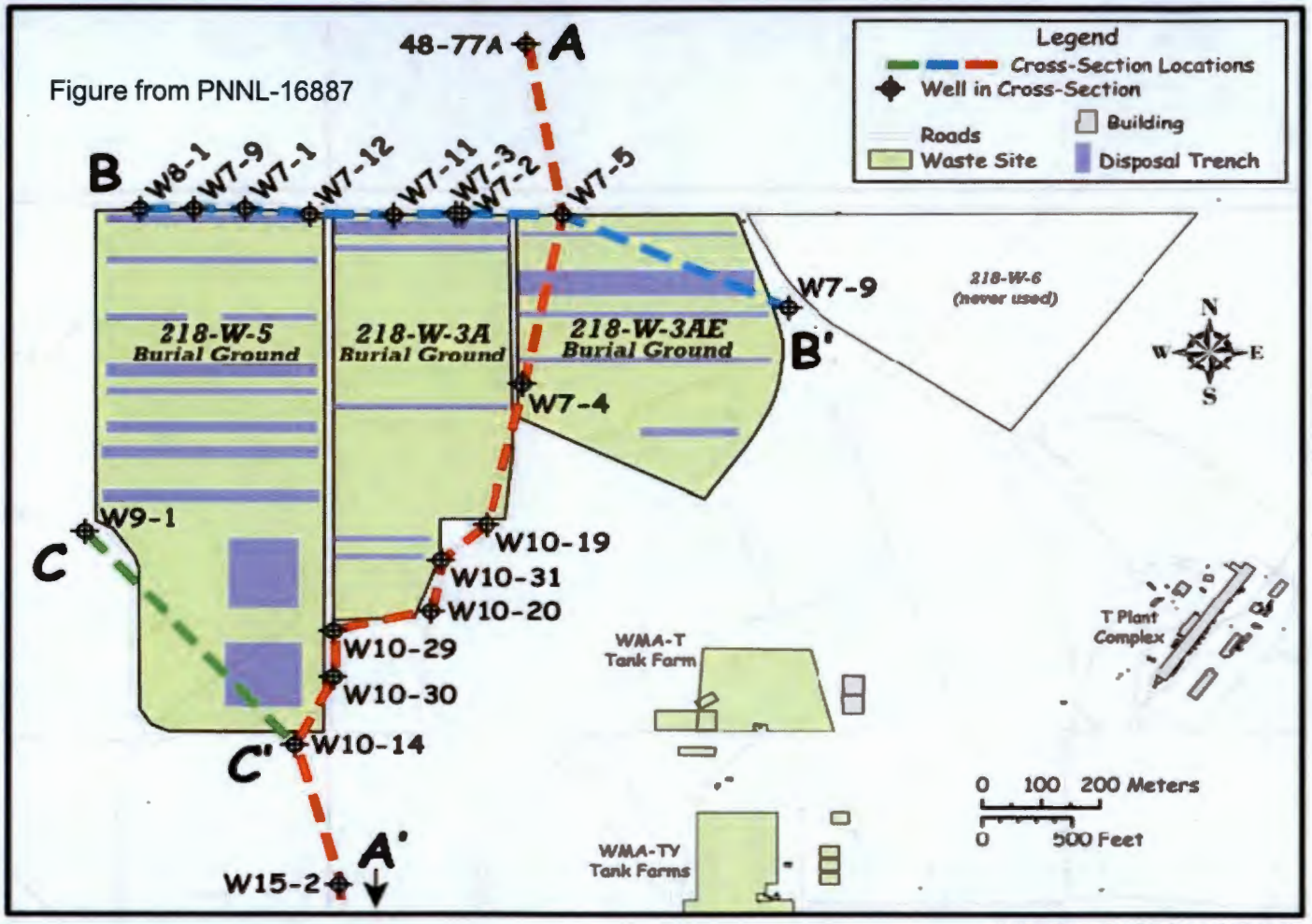
Study Area Stratigraphy



2007/DCL/LLBG/010 (07/23)

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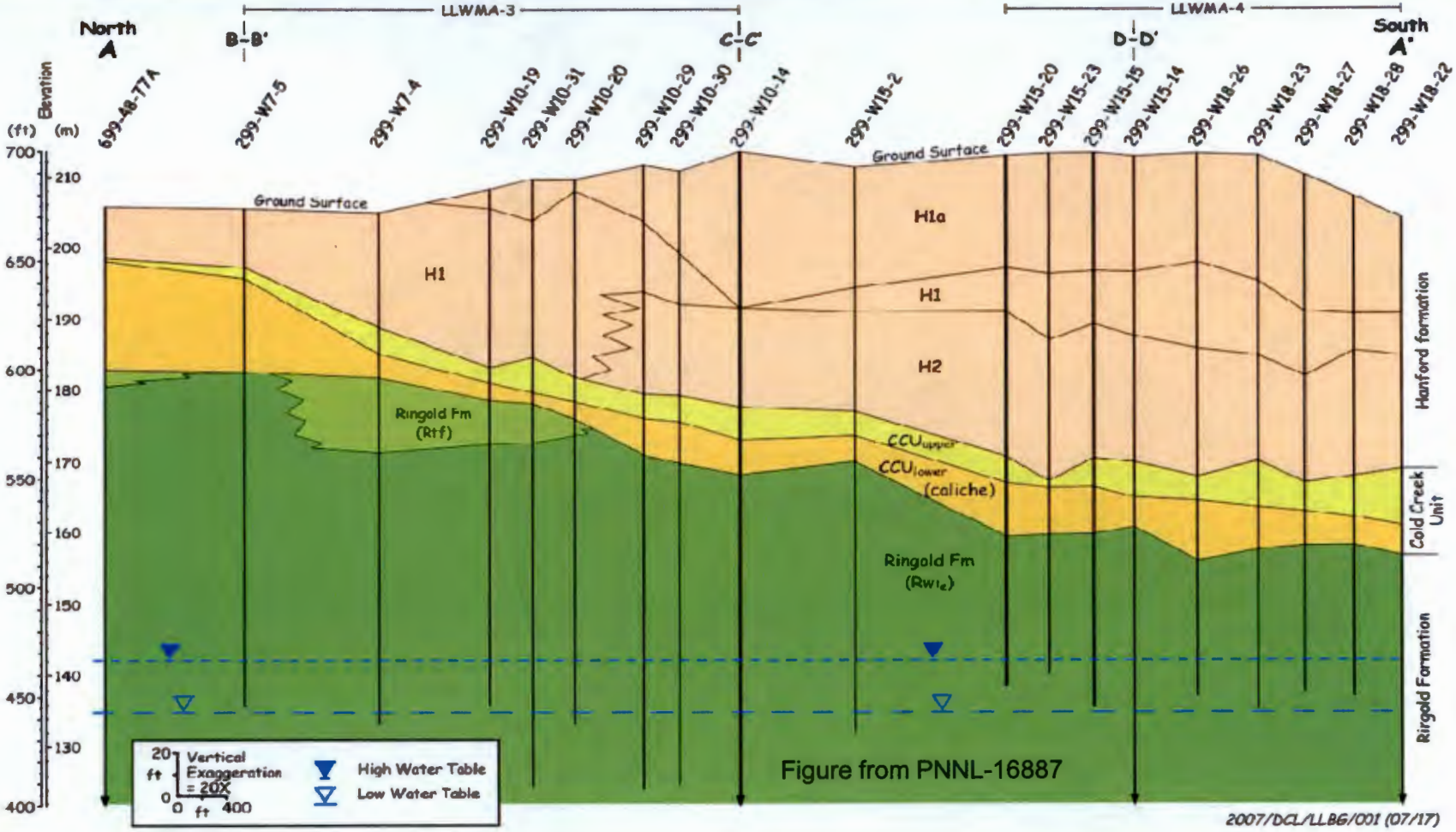
Plateau Remediation Company

Study Area Stratigraphy continued..



Study Area Stratigraphy continued..

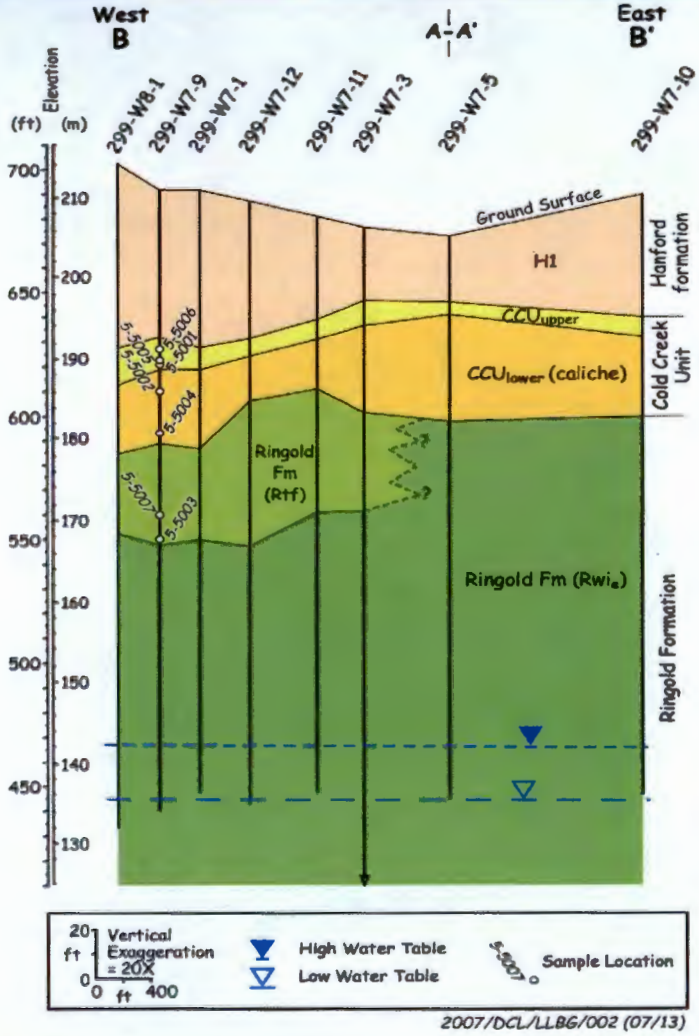


Figure from PNNL-16887

Study Area Stratigraphy continued..

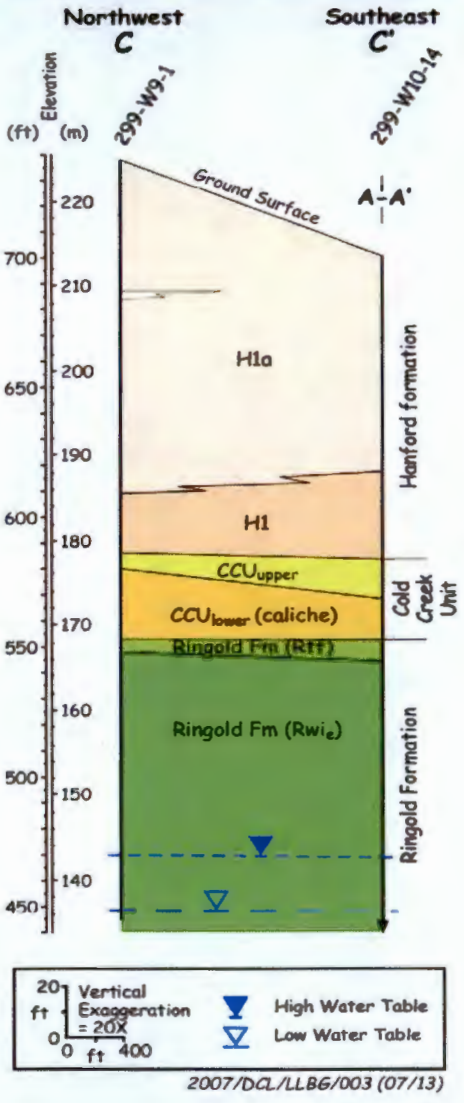


Figure from PNNL-16887

U.S. DEPARTMENT OF ENERGY

CH2MHILL Plateau Remediation Company

Conceptual Site Model – Hydrogeologic Considerations

- The Cold Creek unit ranges from approximately 95 to 130 feet below ground surface in the area under the trenches.
- The Cold Creek unit may retard downward movement of moisture and contaminants because of the finer textured sediment and calcium carbonate cementing that characterize this stratigraphic feature in the vadose zone.
- The Cold Creek unit dips at a low angle from north to south beneath the LLWMA, so any lateral spreading on top of the Cold Creek unit will be toward the south-southwest.
- If contaminants do break through to groundwater beneath LLWMA-3, the contaminants would move toward the east-northeast.

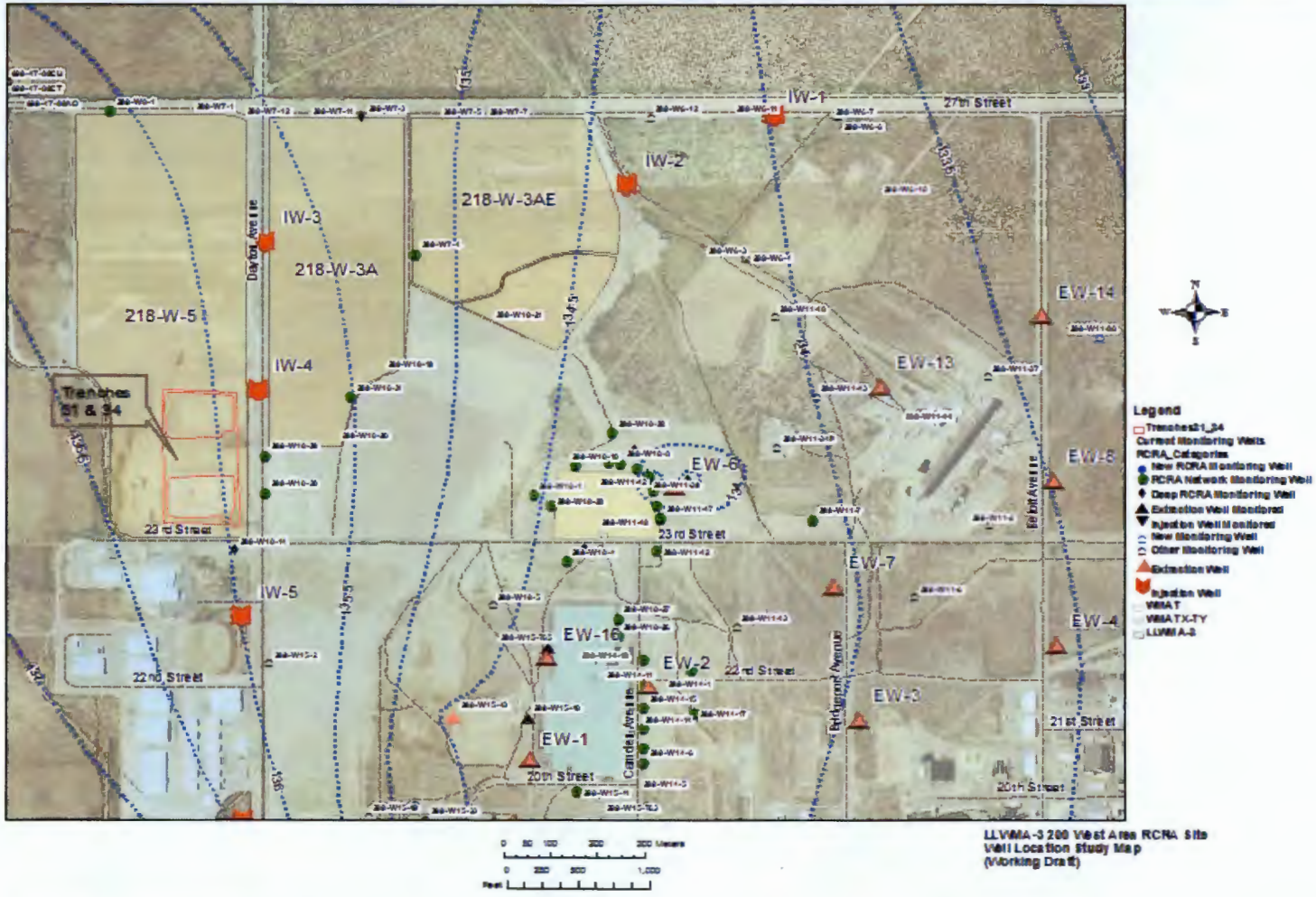
Conceptual Site Model – Hydrogeologic Considerations

- Because the trenches are considered dry waste disposal areas and waste is disposed in containers, un-expected leaks or releases probably would have small volumes (Less than 500 gallons, assuming ten 50 gallon drums leak at once and are full of liquid waste)
- Moisture retention properties for certain lithologies, such as the Cold Creek Unit and the Taylor Flat member of the Ringold Formation, within the vadose zone have high capacity to absorb and retain contaminant moisture.
- If contaminants do break through to groundwater beneath LLWMA-3, the contaminants would move toward the east-northeast.

Conceptual Site Model – Hydrogeologic Considerations

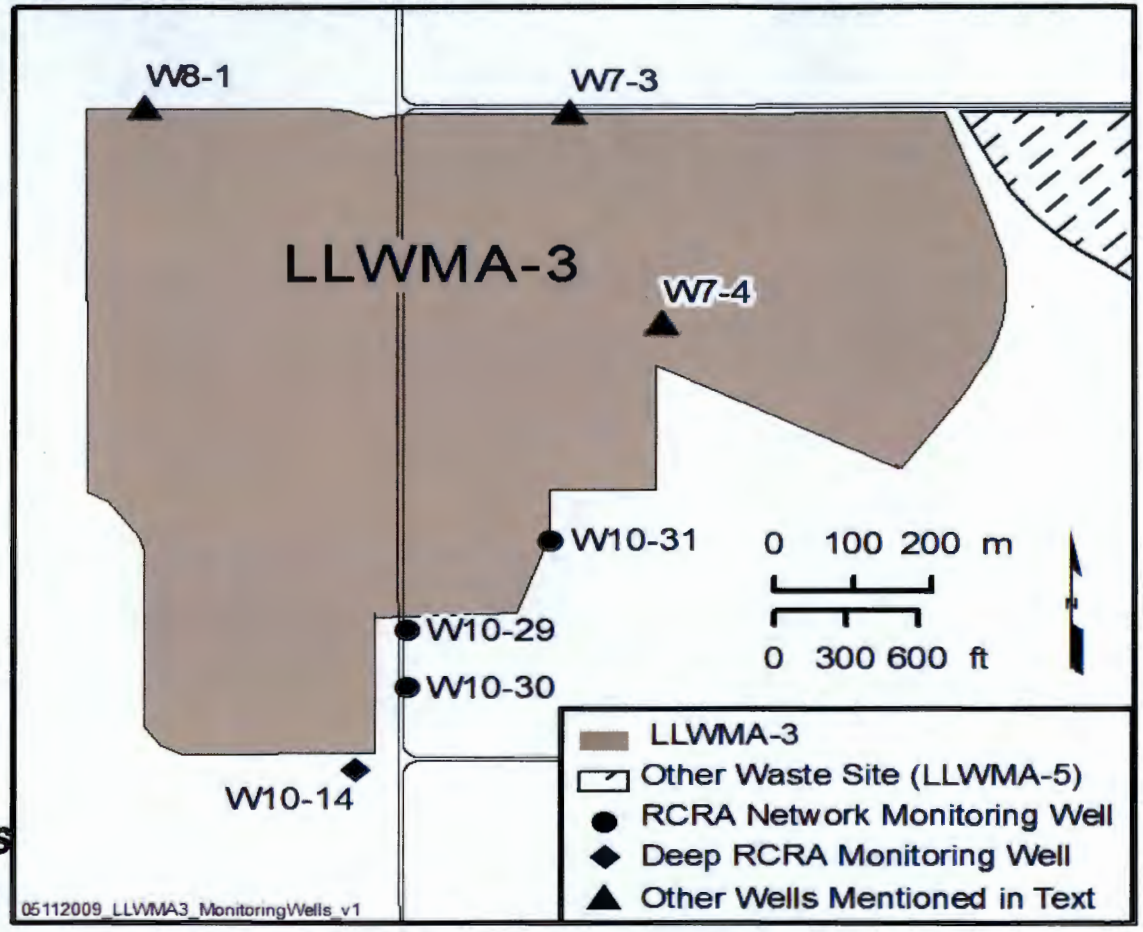
- The flow direction has shifted from nearly north to northeast and is slowly changing eastward as the influence of the groundwater mound subsides.
- The hydraulic conductivity values derived from aquifer testing in wells completed in the upper portion of the unconfined aquifer at LLWMA-3 varied from 0.02 to 9.8 m/day (0.07 to 32.2 ft/day).
  - Assuming an average effective porosity of aquifer materials between 0.1 and 0.3, and a hydraulic gradient of 0.0014, the average flow rate is calculated at 0.0001 to 0.14 m/day (0.000328 to 0.459 ft/day).

Current Water Table Elevations at Burial Ground LLWMA-3

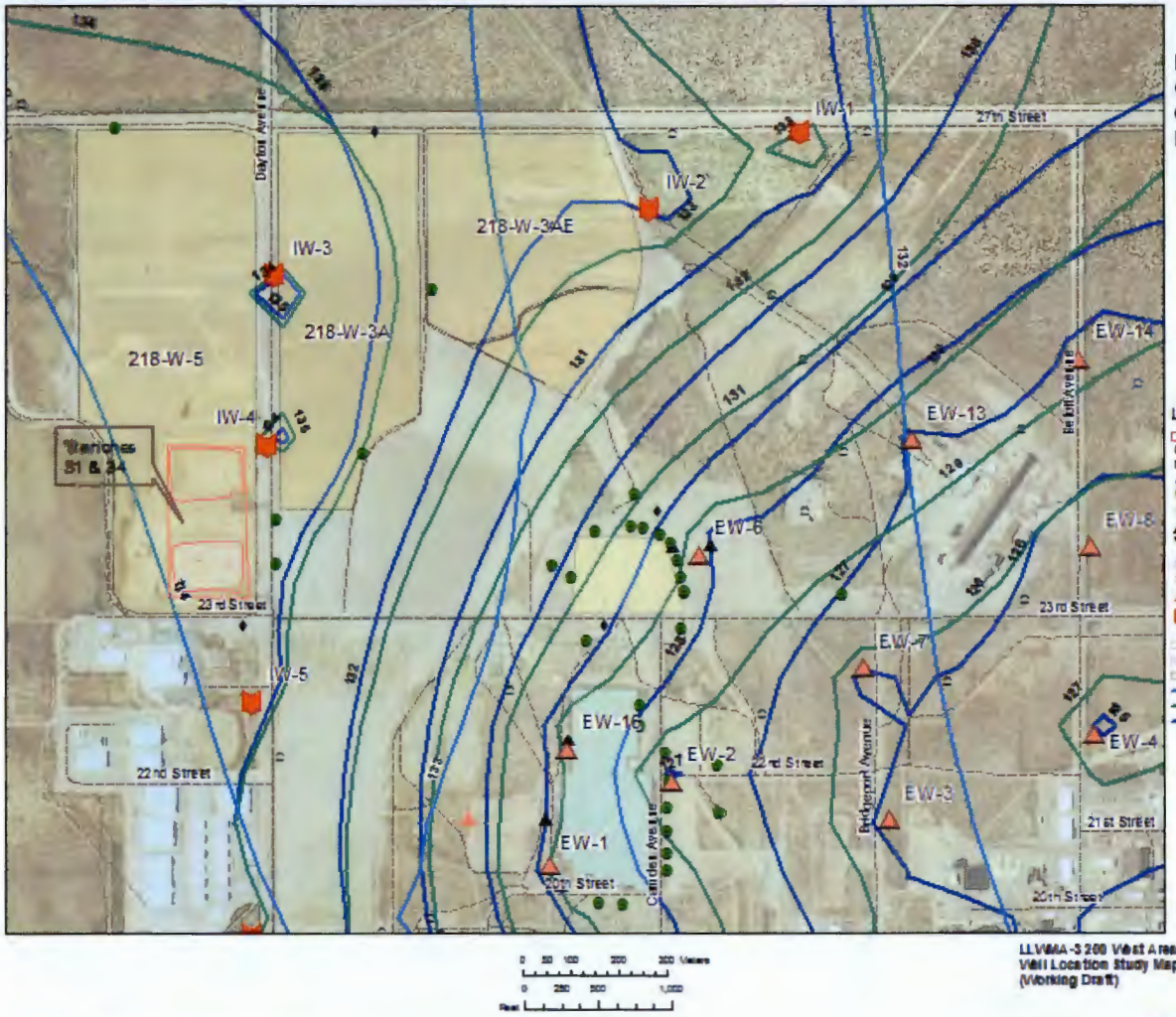


Current (2010) LLWMA-3 Monitoring Network

- Groundwater monitoring sampling frequency is semi-annual.
- Four active monitoring wells:
  - 299-W7-3 (removed)
  - 299-W7-4 (back in network)
  - 299-W8-1 (removed)
  - 299-W10-14 (removed/deep well)
  - 299-W10-29
  - 299-W10-30
  - 299-W10-31
- No upgradient wells
- Note: Figure from DOE/RL-2009-68, Rev. 0 (*Interim Status Groundwater Monitoring Plan for the LLBG WMA-3)*

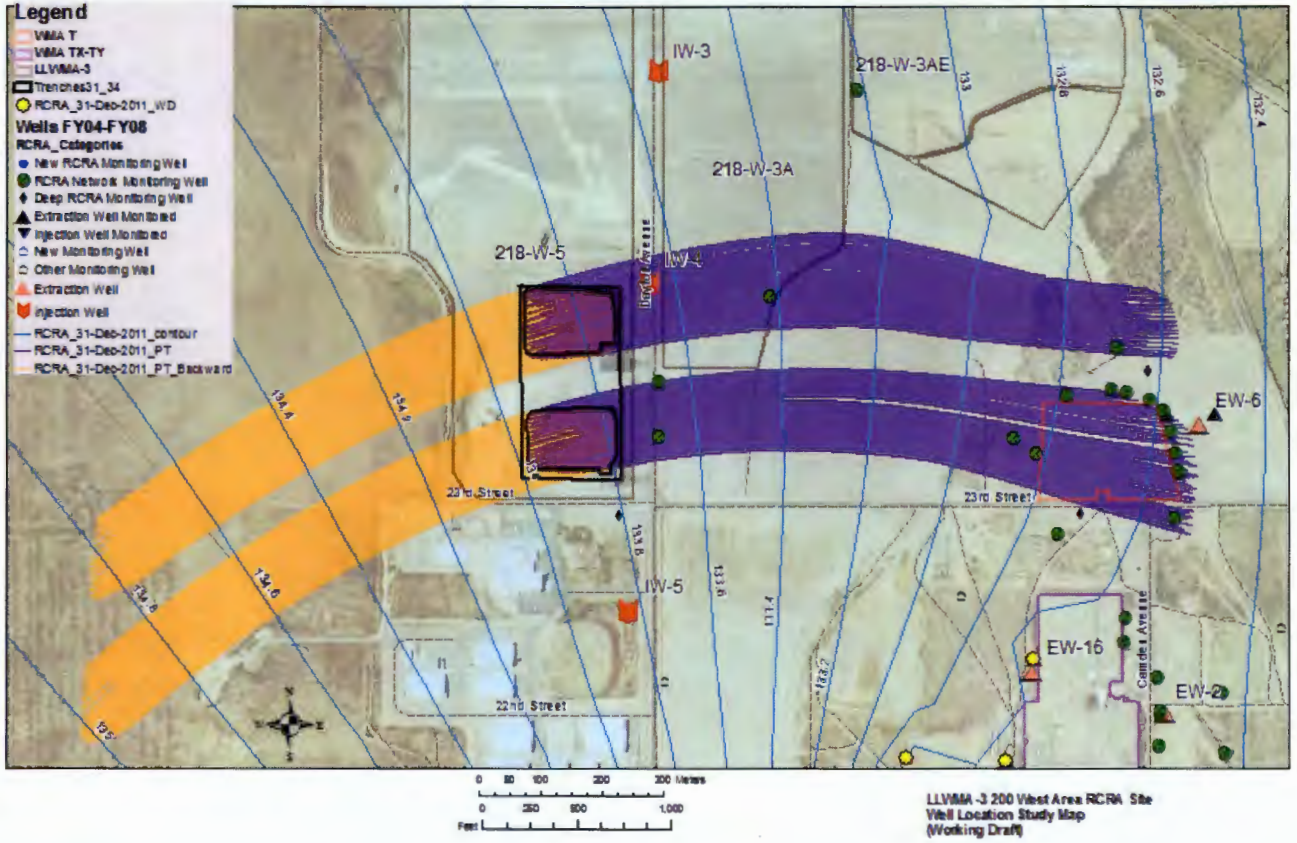


Hydrologic Model Showing P&T Effects on Water Table (2011 – 2017)

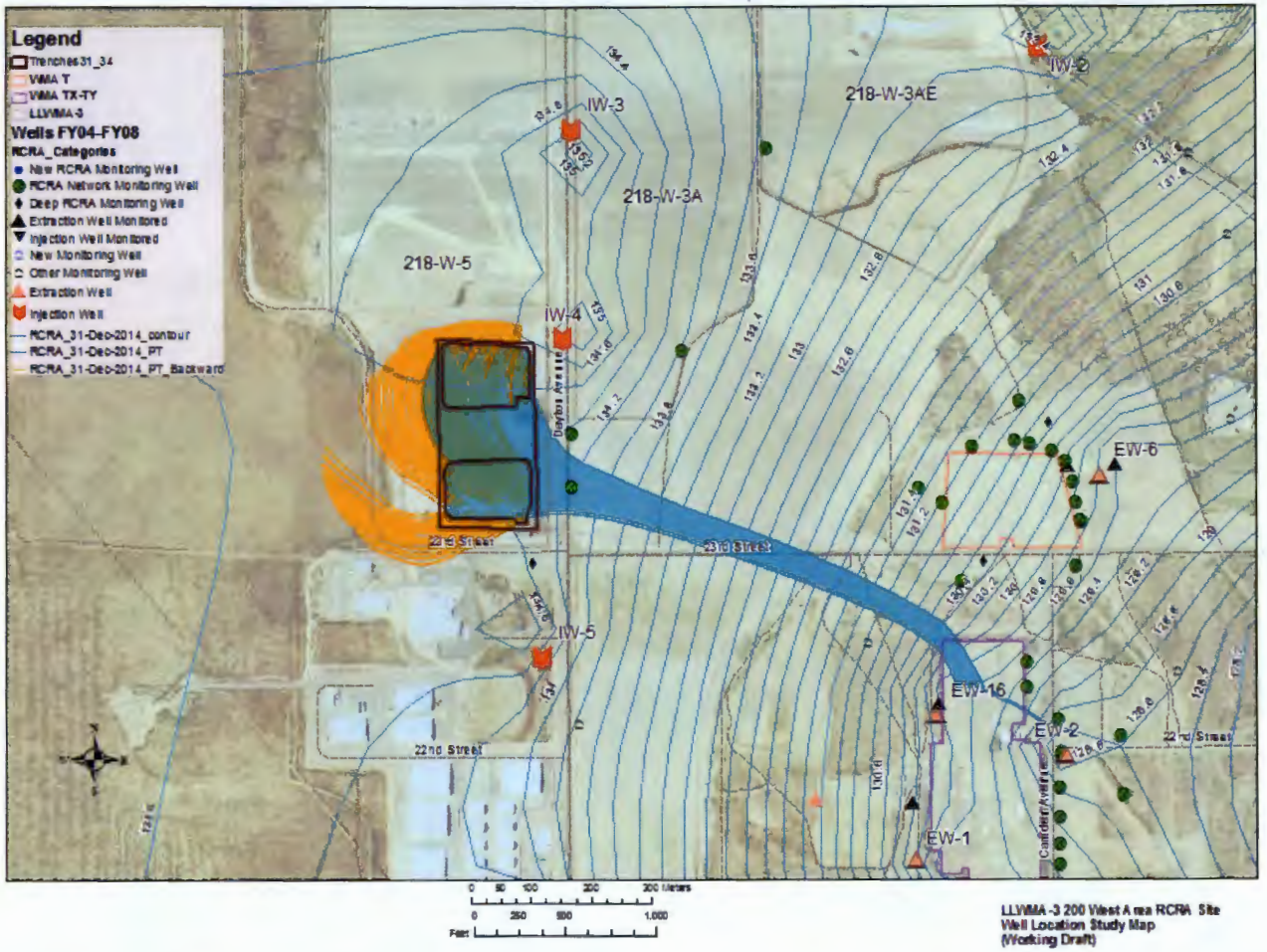


Hydrologic Model, ECF-HANFORD-10-0371, Central Plateau MODFLOW Model Version 3, CH2M HILL Plateau Remediation Company, Richland, WA.

Hydrologic Model Showing Current P&T Effects – 2010 - 2011



Hydrologic Model Showing New P&T Effects - 2011 - 2014



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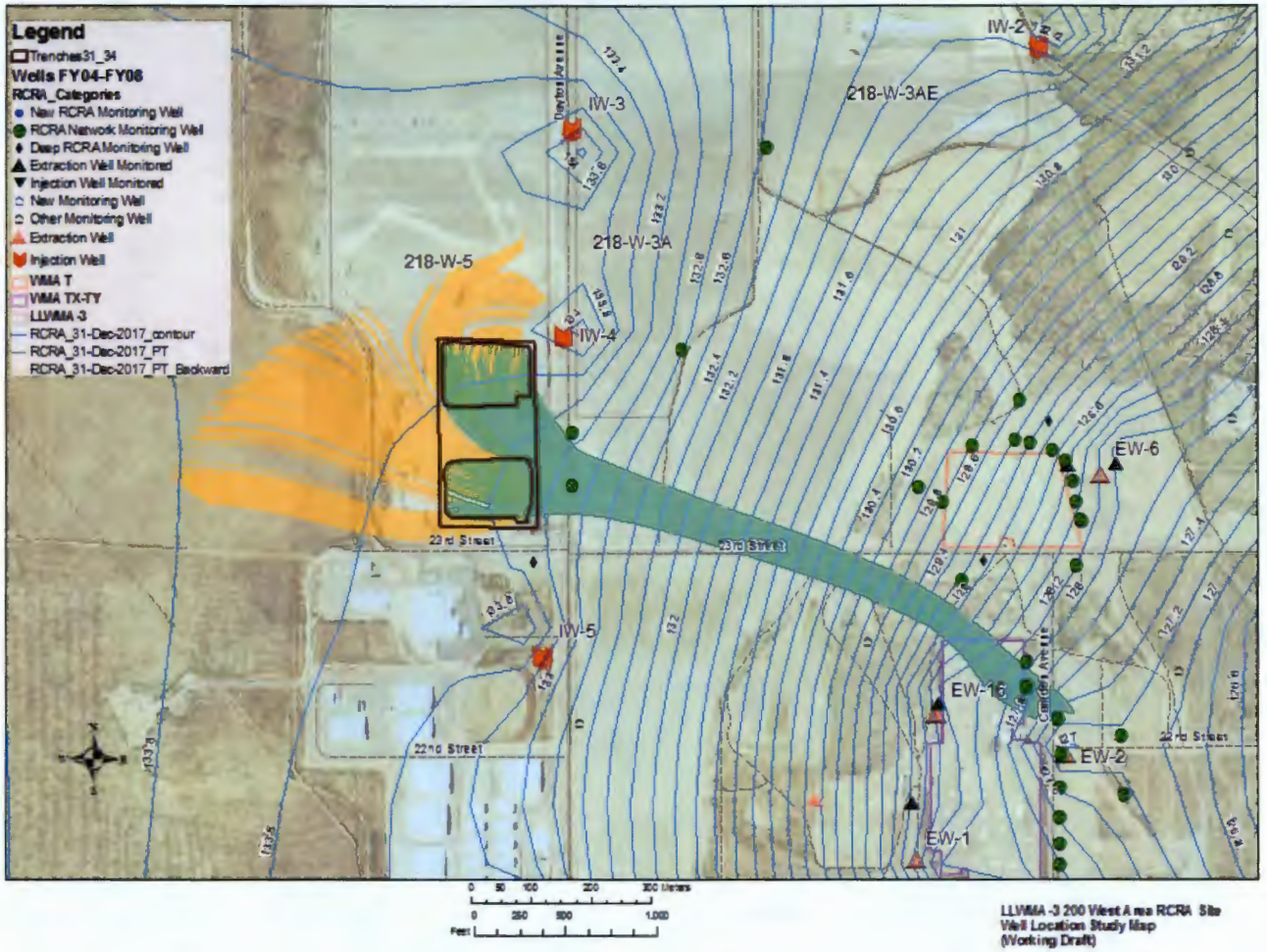
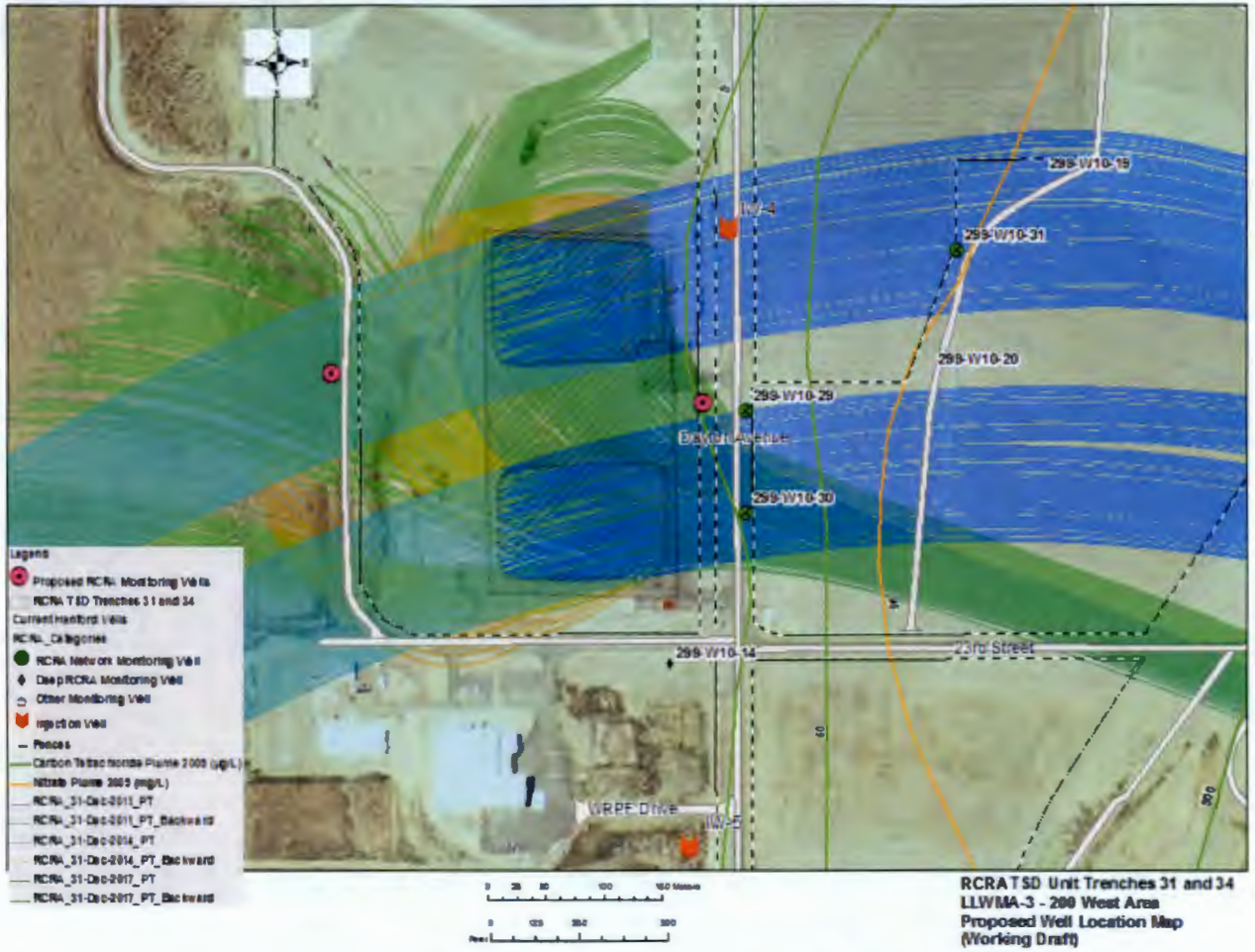
Hydrologic Model Showing New P&T Effects – 2014 - 2017



Well Location Site Proposals

- Using the superimposed particle tracking potential monitoring well locations were plotted.
- Upgradient well could be installed as soon as possible.
- Three downgradient wells exist under current hydrologic gradient (299-W10-29, 299-W10-30 and 299-W10-31)
- IW-4 may be considered a temporary downgradient well. *(Proposal was dismissed by group consensus)*



RCRA TSD Unit Trenches 31 and 34
LLWMA-3 - 200 West Area
Proposed Well Location Map
(Working Draft)

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Well Location Site Proposals

- One upgradient well west of the Trenches
- One new downgradient well east of the Trenches

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