

Appendix B

Inspection Information

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Annual Site Inspection Check List (See RFLMA Attachment 2, section 5.3.4; 5.3.6 and 5.4.3)

Date: 3/12/12

Inspection Area: A

INSPECTION PERFORMED BY (print each name): RICK DI SALVO, CHUCK BROWN, JEREMIAH McLAUGHLIN, VERA MORITZ

CHECK ALL BOXES THAT APPLY. PUT ID# ON FLAG AND PLACE FLAG MARKER IN LOCATION OF OBSERVATION FOR FOLLOW UP.								
Flag ID#	Evidence of Soil Erosion or Deposition	Evidence of cracks, Rills, Gullies	Evidence of Sink Holes or Burrows	Evidence of Depressions or Subsidence	Evidence of Institutional Control Violation ¹	Problem with signs or other physical controls ²	Adverse biological condition	Photo(s) taken? ³
A1	WET-PONDING			✓ MINOR				✓
A2	STEEL PLATE							✓
A3	TIN ROOFING							✓
A4	CABLE PIECE							✓
A5	WIRE ANCHOR							✓
A6	REBAR							✓
A7	WIRE							✓
A8	WET-PONDING			✓ MINOR				✓

Notes (Reference Flag ID #):

- A-1 - WET AREA w/ of 371 - APPEARS TO BE FROM PONDING PRECIP. SAME AS 2011 - PHOTO ~ 6" DEEP @ DEEPEST
- A-2 - STEEL PLATE ~ 2' WIDE, STICKING UP ~ 1' - PHOTO
- A-3 - SMALL PIECE TIN ROOFING POKING UP ~ 1' - PHOTO
- A-4 - PIECE OF CABLE - STICKING UP ~ 2' - PHOTO 5917 750925 N 2083112 E
- A-5 - WIRE ANCHOR STICKING UP ~ 5' - PHOTO 751052 N 2083235 E
- A-6 - 1/2 REBAR ~ 3' LONG PROTRUDING ~ 2-3" 750098 N 2082817 E - PHOTO
- A-7 - 1/4 WIRE ~ 2' LONG PROTRUDING ~ 2" 750124 N 2082974 E
- A-8 - WET AREA w/ of 460 - PRECIP. PONDING - PHOTO 748380 N 2081048 E ~ 6" DEEP @ DEEPEST

¹ Indicate the RFLMA IC# (RFLMA Attachment 2, Table 1-7) for which violation is indicated.

² These are required to be inspected Quarterly per RFLMA Attachment 2 section 5.3.5, and completion is documented separately – documented here if problem noted during Annual inspection.

³ If photo taken, show location and orientation of photo on Area map.

Annual Site Inspection Check List (See RFLMA Attachment 2, section 5.3.4; 5.3.6 and 5.4.3)

Date: 3/12/12

Inspection Area: B

INSPECTION PERFORMED BY (print each name): Chaz Gunning, Jason Kaufman, Casey Michalski

CHECK ALL BOXES THAT APPLY. PUT ID# ON FLAG AND PLACE FLAG MARKER IN LOCATION OF OBSERVATION FOR FOLLOW UP.								
Flag ID#	Evidence of Soil Erosion or Deposition	Evidence of cracks, Rills, Gullies	Evidence of Sink Holes or Burrows	Evidence of Depressions or Subsidence	Evidence of Institutional Control Violation ¹	Problem with signs or other physical controls ²	Adverse biological condition	Photo(s) taken? ³
B1								
B2				X				
B3		channel		X depression				
B4			etch 3-11-12	X depression				
B5	rebar + concrete							
B6				X depression 4' or 5' well				
B7				X depression				
B8	old fence posts (Five found so far in a line)							
B9	old fence posts (fence)							

Notes (Reference Flag ID #):

B1 6' rebar - placed on road near SPTS (no Flag)

B2 5' x 3' depression 6" to 8" deep (grass on top) - no picture w/ flag

B3 2 parallel channels - top of hill to 3/4 of the way down (picture + flag)
+ 1 more to west (3 total)

B4 ~ 15' x 30' depression 6" to 12" deep (flag)

B5 concrete + rebar ~ 1 foot diameter (flag) + picture

B6 12' diameter depression 6-8" deep (flag no picture)

B7 80' x 4' depression 1 foot deep
Picture + flag

B8 concrete + metal pipes
flag no picture
2 fence posts
+ 1 + 2 = 5 total found

B9 old fence posts in a line - 9 found
Continuation of B8
+ 1 (10 total w/ flags)

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Annual Site Inspection Check List (See RFLMA Attachment 2, section 5.3.4; 5.3.6 and 5.4.3)

Date: 3-12-2012

Inspection Area: B

INSPECTION PERFORMED BY (print each name): Chaz Gunning, Jason Kaufman, Casey Michalski

CHECK ALL BOXES THAT APPLY. PUT ID# ON FLAG AND PLACE FLAG MARKER IN LOCATION OF OBSERVATION FOR FOLLOW UP.

Flag ID#	Evidence of Soil Erosion or Deposition	Evidence of cracks, Rills, Gullies	Evidence of Sink Holes or Burrows	Evidence of Depressions or Subsidence	Evidence of Institutional Control Violation ¹	Problem with signs or other physical controls ²	Adverse biological condition	Photo(s) taken? ³
B10				X depression				
B11	rebar 1 foot up							
B12	fence post 8" up							
B13	previously (3 other yellow flags) hole			X				
B14	metal debris							
B15	metal pipe/conduit							
B16	damage wind blown wattles							
B17	pile of metal debris (rebar stuck in ground need saw)					(flag no picture)		no pics equal point marked
B18	metal debris flag - no picture							

Notes (Reference Flag ID #):

- B10 depression - near flag B9-B 5 foot diameter, 1 foot deep
- B11 piece of rebar (flag no picture)
- B12 piece of fence post (flag no picture) - no others in row found
- B13 hole 6 foot diameter, 4-5 feet deep (flag no picture)
- B14 metal debris (3 pieces)
- B15 metal pipe conduit (flag no picture)

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B16 damaged wattles (flag no picture)
 B17 metal debris (flag no picture)

Annual Site Inspection Check List (See RFLMA Attachment 2, section 5.3.4; 5.3.6 and 5.4.3)

Date: 3-12-2012

Inspection Area: B

INSPECTION PERFORMED BY (print each name): Chaz Gunning, Jason Kaufman, Casey Michalicki

CHECK ALL BOXES THAT APPLY. PUT ID# ON FLAG AND PLACE FLAG MARKER IN LOCATION OF OBSERVATION FOR FOLLOW UP.								
Flag ID#	Evidence of Soil Erosion or Deposition	Evidence of cracks, Rills, Gullies	Evidence of Sink Holes or Burrows	Evidence of Depressions or Subsidence	Evidence of Institutional Control Violation ⁴	Problem with signs or other physical controls ⁵	Adverse biological condition	Photo(s) taken? ⁶
B19	metal debris rebar	rebar	rebar	rebar				
B20	metal debris							
B21	metal pipe (6' diameter)							
B22	metal rebar 2" diameter							
B23	2 large pieces of concrete w/ metal rebar							

Notes (Reference Flag ID #):

- B19 - metal debris
- B20 - metal debris
- B21 - metal pipe
- B22 - metal rebar
- B23 - 1 hole + 2 concrete

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⁵ These are required to be inspected Quarterly per RFLMA Attachment 2 section 5.3.5, and completion is documented separately – documented here if problem noted during Annual inspection.
⁶ If photo taken, show location and orientation of photo on Area map.

Annual Site Inspection Check List (See RFLMA Attachment 2, section 5.3.4; 5.3.6 and 5.4.3)

Date: 3/12/12

Inspection Area: B

INSPECTION PERFORMED BY (print each name): Jody, George, Casey*, Carl

CHECK ALL BOXES THAT APPLY. PUT ID# ON FLAG AND PLACE FLAG MARKER IN LOCATION OF OBSERVATION FOR FOLLOW UP.

Flag ID#	Evidence of Soil Erosion or Deposition	Evidence of cracks, Rills, Gullies	Evidence of Sink Holes or Burrows	Evidence of Depressions or Subsidence	Evidence of Institutional Control Violation ¹	Problem with signs or other physical controls ²	Adverse biological condition	Photo(s) taken? ³
B100								no
B101								no
B102								no
B103								no
B104								no
B105								no

debris
debris
debris
debris
rebar
debris

Notes (Reference Flag ID #):

B100 - close to shed near FC4
 B101 - referenced to red + yellow w walls - 50 yds west
 B102 - pick axe
 B103 - concrete w/rebar, N of 750 pad
 B104 - line of rebar from watties - E. of 991 Hillside. Jody took GPS line.
 B105 - another line of rebar from watties - NW of MRPTS across FC4 (green pipe by nprmp)

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Annual Site Inspection Check List (See RFLMA Attachment 2, section 5.3.4; 5.3.6 and 5.4.3)

Date: 3-12-12

Inspection Area: C

INSPECTION PERFORMED BY (print each name): D. HANSEN, CARL SPRENG, JERRY MATSON

CHECK ALL BOXES THAT APPLY. PUT ID# ON FLAG AND PLACE FLAG MARKER IN LOCATION OF OBSERVATION FOR FOLLOW UP.								
Flag ID#	Evidence of Soil Erosion or Deposition	Evidence of cracks, Rills, Gullies	Evidence of Sink Holes or Burrows	Evidence of Depressions or Subsidence	Evidence of Institutional Control Violation ¹	Problem with signs or other physical controls ²	Adverse biological condition	Photo(s) taken? ³
C-1	STEEL BAR	TIRE HOLES						No
C-2	↓ ↓	↓ ↓						↓
C-3	ABANDONED WELL ??	INVESTIGATE						
C-4	SLOPE SLOUGH - SEVERAL SMALL AREAS.			100' diam	50' FT N-S, 10' 50' FT E-W			
C-5	REBAR ON SLOPE.							
C-6	REBAR IN SOIL.							
C-7	SLOPE SLOUGH.	SEVERAL SMALL AREAS.			50 FT N-S, 50 FT E-W			
C-8	SINK HOLE ??	OLD COLLECTOR ??						
C-9	SLOPE SLOUGH.	OLD.			ALSO REBAR TRASH.			

Notes (Reference Flag ID #):

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Annual Site Inspection Check List (See RFLMA Attachment 2, section 5.3.4; 5.3.6 and 5.4.3)

Date: 3-12-12

Inspection Area: C

INSPECTION PERFORMED BY (print each name): DOUG HANSEN, CARL SPRENG, JERRY MATSON

CHECK ALL BOXES THAT APPLY. PUT ID# ON FLAG AND PLACE FLAG MARKER IN LOCATION OF OBSERVATION FOR FOLLOW UP.

Flag ID#	Evidence of Soil Erosion or Deposition	Evidence of cracks, Rills, Gullies	Evidence of Sink Holes or Burrows	Evidence of Depressions or Subsidence	Evidence of Institutional Control Violation ¹	Problem with signs or other physical controls ²	Adverse biological condition	Photo(s) taken? ³
C-10	SERIES OF SINKHOLES / DEPRESSIONS NEAR WELL 891WE					?? PUMP ON GROUND.		NO
C-11	PLYWOOD. METAL TRASH.							↓
C-12	LARGE PILE METAL TRASH. RR RAIL.							
C-13	LARGE PIPE IN HILLSIDE. PIPE TRASH.							
C-14	SINKHOLE. FRESHER THAN MOST ON THIS HILLSIDE.							
C-15	BLDG 891 STAIRWELL. NO FLAG. NEW SINKHOLE.							
C-16	REBAR IN SOIL.							

Notes (Reference Flag ID #):

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Date: 3/12/12

Inspection Area: Δ

INSPECTION PERFORMED BY (print each name): Judy Nelson, Andy Carpenter, Bob Darr

CHECK ALL BOXES THAT APPLY. PUT ID# ON FLAG AND PLACE FLAG MARKER IN LOCATION OF OBSERVATION FOR FOLLOW UP.

Flag ID#	Evidence of Soil Erosion or Deposition	Evidence of cracks, Rills, Gullies	Evidence of Sink Holes or Burrows	Evidence of Depressions or Subsidence	Evidence of Institutional Control Violation ¹	Problem with signs or other physical controls ²	Adverse biological condition	Photo(s) taken? ³
D1	Trash							Y

Notes (Reference Flag ID #):

You can see the depressions where most of the old trenches are located. We saw no issues w/ them however.

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Annual Site Inspection Check List (See RFLMA Attachment 2, section 5.3.4; 5.3.6 and 5.4.3)

Date: 3/12/12

Inspection Area: E

INSPECTION PERFORMED BY (print each name): Michelle Hanson, Heidi Frasure, Linda Kaiser, Andy Carpenter

CHECK ALL BOXES THAT APPLY. PUT ID# ON FLAG AND PLACE FLAG MARKER IN LOCATION OF OBSERVATION FOR FOLLOW UP.

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E1	trash -	see below						✓
E2	"							
E3	"							
E4	"							

Notes (Reference Flag ID #):

- E1 - sheet of metal in drainage channel (3' x 3') photo
- E2 - rusty metal piece (8" long)
- E3 - rusty drum lid
- E4 - rusty barbed wire

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Date: 3/12/12

Inspection Area: SW-027

INSPECTION PERFORMED BY (print each name): Linda Kaiser, Vera Moritz, George Squibb Squibb

CHECK ALL BOXES THAT APPLY. PUT ID# ON FLAG AND PLACE FLAG MARKER IN LOCATION OF OBSERVATION FOR FOLLOW UP.

Flag ID#	Evidence of Soil Erosion or Deposition	Evidence of cracks, Rills, Gullies	Evidence of Sink Holes or Burrows	Evidence of Depressions or Subsidence	Evidence of Institutional Control Violation ¹	Problem with signs or other physical controls ²	Adverse biological condition	Photo(s) taken? ³
1	debris							
2	debris							
3	X	X						✓
4	debris							
5	X	X						✓
6	trampled wattle							✓

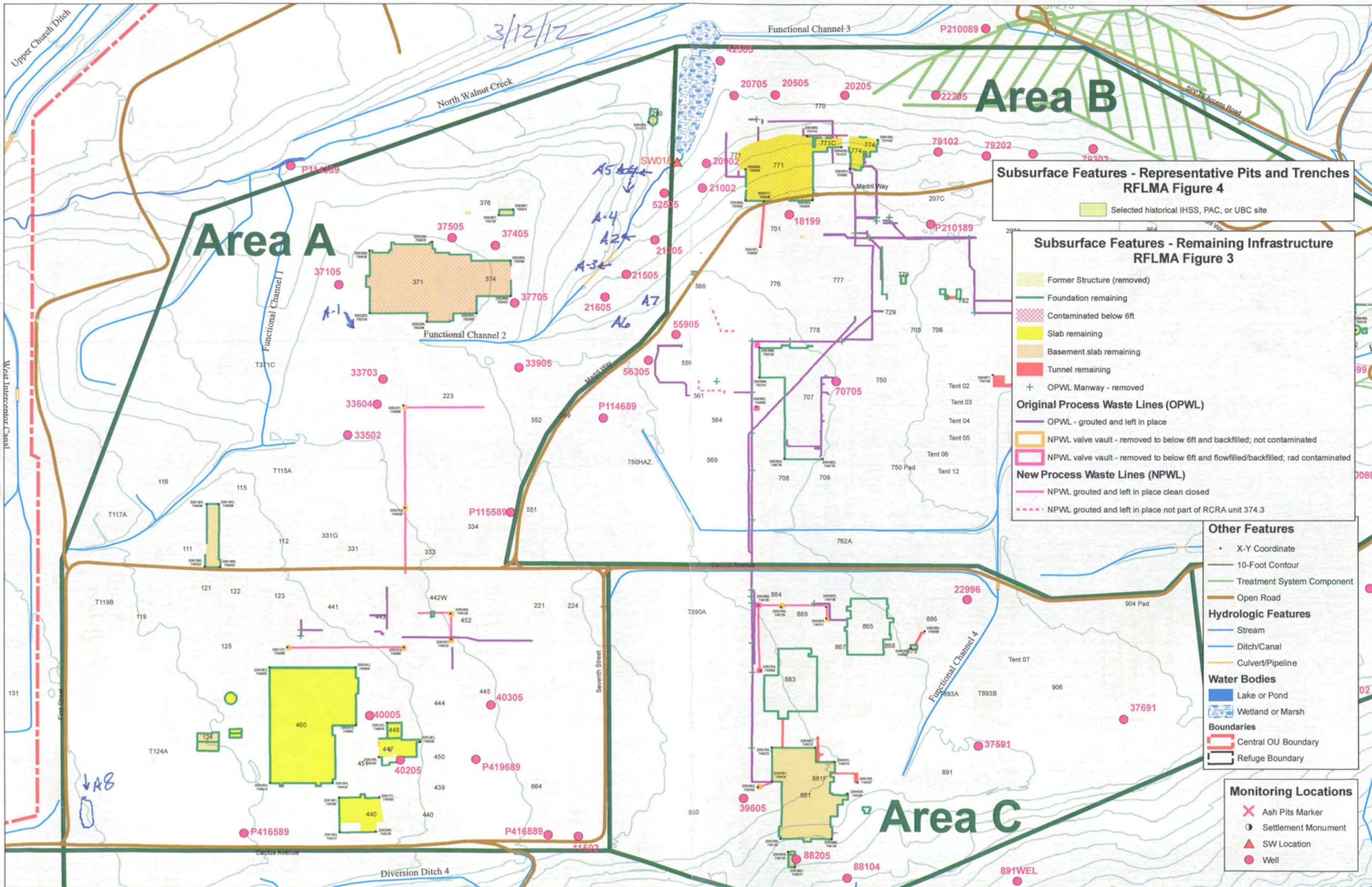
Notes (Reference Flag ID #):

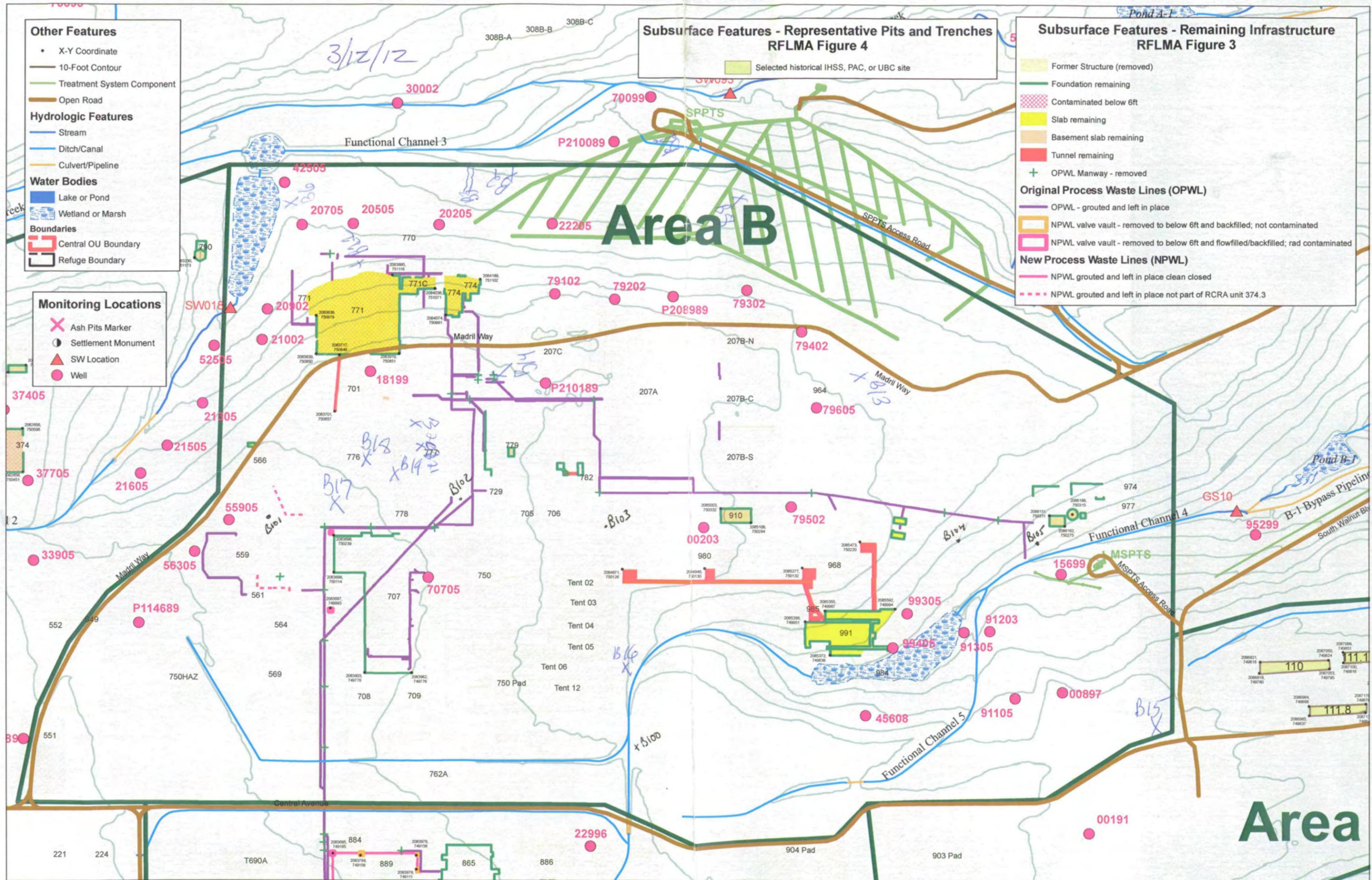
- ① debris w/ protruding nails
- ② debris w/ protruding nails
- ③ erosion (rills) - east of well 7391 - also a place 40-50 ft west of flag 3 (red flag = #3) photo
- ④ north of SID, north of "middle" south perimeter gate - pipe photo
- ⑤ erosion - deeper rills - north flag for #3
- ⑥ trampled wattle - animal trail? photo

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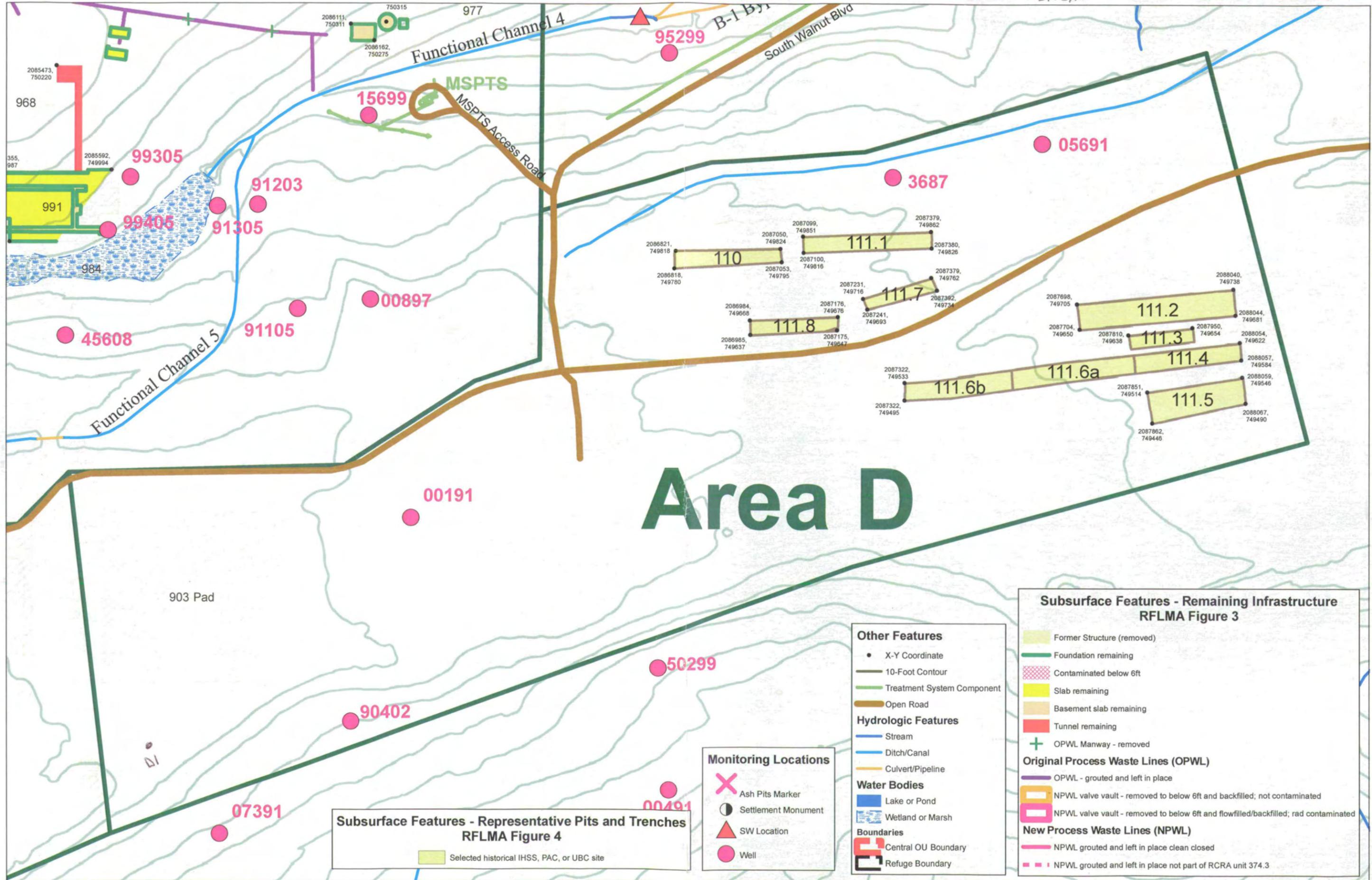
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Chaz Casey Jason



Area D

Subsurface Features - Representative Pits and Trenches
RFLMA Figure 4

- Selected historical IHSS, PAC, or UBC site

Monitoring Locations

- Ash Pits Marker
- Settlement Monument
- SW Location
- Well

Other Features

- X-Y Coordinate
- 10-Foot Contour
- Treatment System Component
- Open Road

Hydrologic Features

- Stream
- Ditch/Canal
- Culvert/Pipeline

Water Bodies

- Lake or Pond
- Wetland or Marsh

Boundaries

- Central OU Boundary
- Refuge Boundary

Subsurface Features - Remaining Infrastructure
RFLMA Figure 3

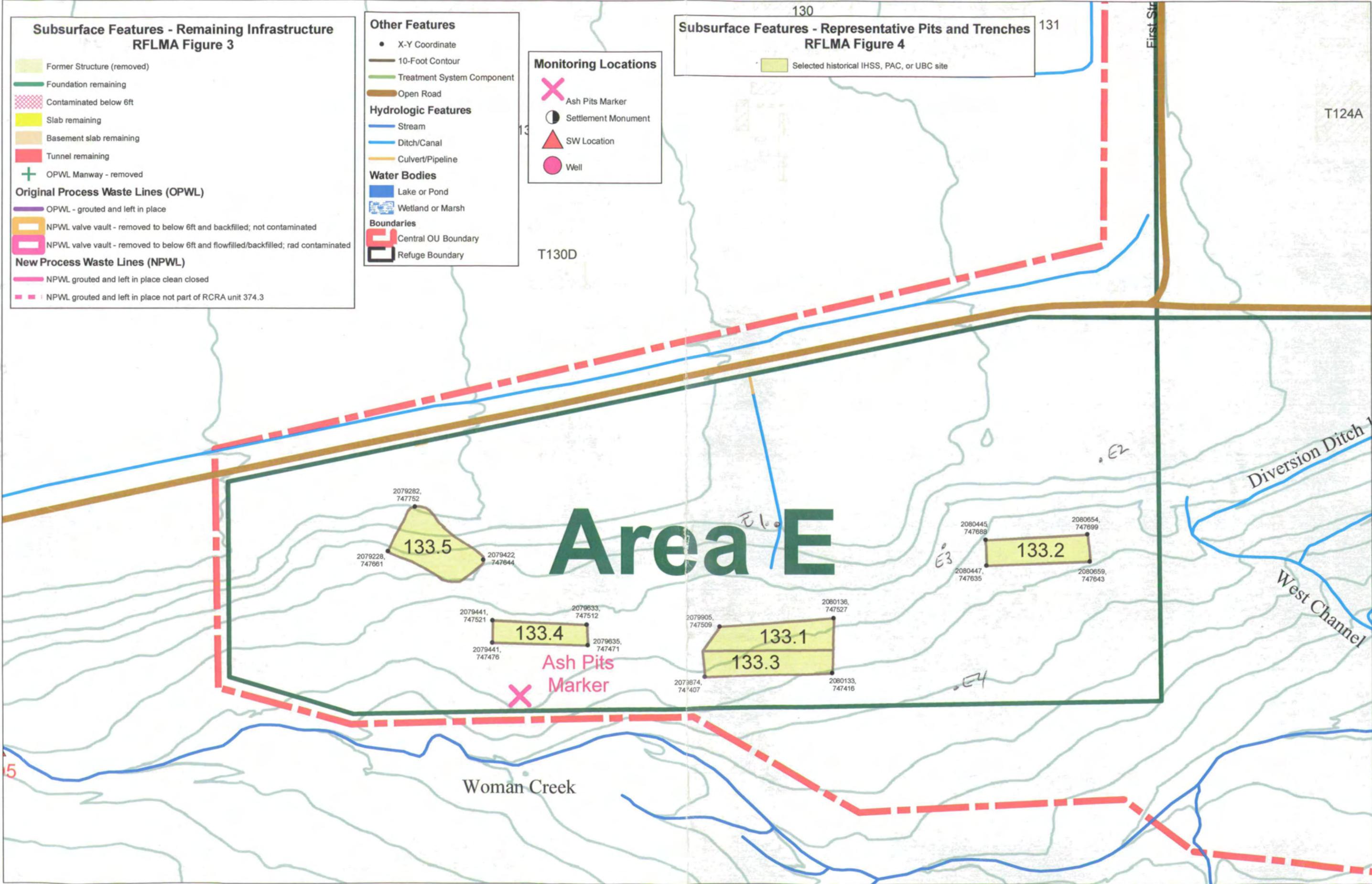
- Former Structure (removed)
- Foundation remaining
- Contaminated below 6ft
- Slab remaining
- Basement slab remaining
- Tunnel remaining
- OPWL Manway - removed

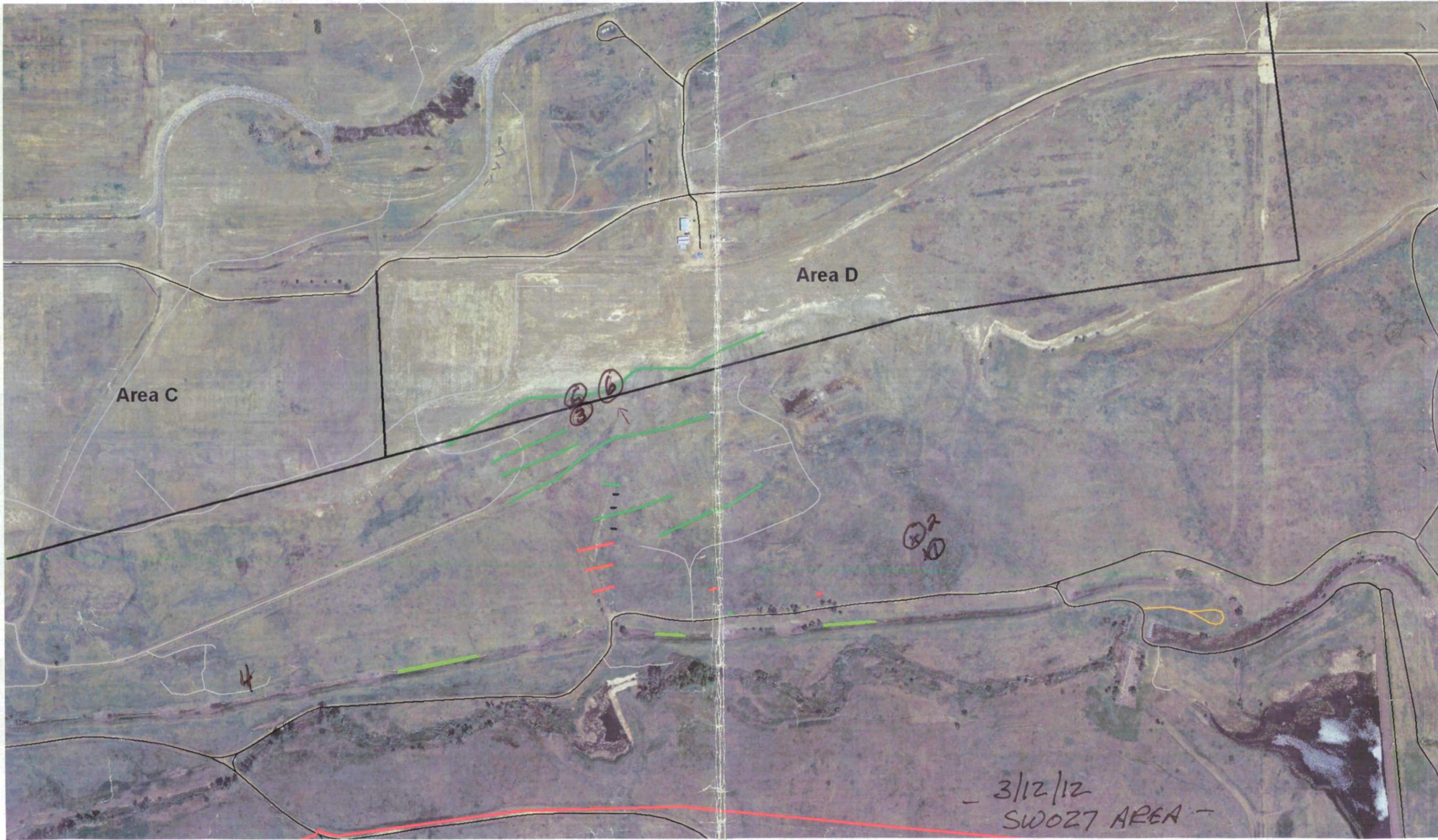
Original Process Waste Lines (OPWL)

- OPWL - grouted and left in place
- NPWL valve vault - removed to below 6ft and backfilled; not contaminated
- NPWL valve vault - removed to below 6ft and flowfilled/backfilled; rad contaminated

New Process Waste Lines (NPWL)

- NPWL grouted and left in place clean closed
- NPWL grouted and left in place not part of RCRA unit 374.3





Area C

Area D

6
3

2
1

4

3/12/12
SWOZ7 AREA

[Handwritten scribble]

Annual Site Inspection 2012 Photos



Photograph B1. Sign listing the institutional controls; posted at the west entrance road to the Central OU. Signs are posted at each of the Central OU entry/exit gates at the Central OU boundary.



Photograph B2. No trespassing sign. Signs are posted at Central OU boundary at intervals specified by RFLMA Attachment 2.



Photograph B3. Hole in the location of the former B881 stairwell



Photograph B4. Hole in the location of the former B881 stairwell



Photograph B5. Depression in the roadway in the vicinity of former B771



Photograph B6. Cracks in the roadway in the vicinity of former B771



Colorado Department
of Public Health
and Environment

OPERATION AND MAINTENANCE INSPECTION

Conducted by
Colorado Department of Public Health & Environment
February 16, 2012

Rocky Flats Site
EPA I.D. No. CO7890010526

Background

The purpose of this inspection was to observe the methods and procedures for sampling groundwater wells at the Rocky Flats Site. Inspections are required by RCRA inspection national core program requirements for Land Disposal Facilities, which the Colorado Department of Public Health and Environment has agreed to implement in a CDPHE/EPA RCRA Hazardous Waste Program Memorandum of Agreement (September 11, 2000). Groundwater sampling is conducted at Rocky Flats according to the general monitoring requirements in Attachment 2 of the *Rocky Flats Legacy Management Agreement* and the specific sampling criteria in the *Rocky Flats Site Operations Guide*.

During this inspection, sampling was observed at Well 70693, an upgradient RCRA well for the Present Landfill. Carl Spreng was the inspector for the Colorado Department of Public Health and Environment; John Boylan of S.M. Stoller was site representative; Heidi Frasure and Michelle Hanson of JGMS, Inc. were the samplers; Scott Surovchak observed as DOE-LM site manager. The weather was clear and sunny with an air temperature about 35° F and a slight to moderate breeze.

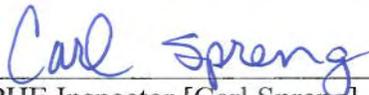
Well No. 70693 (RCRA well)

- Monitoring/sampling began at about 12:30 PM using a dedicated bladder pump and tubing.
- Observed water samples being collected for laboratory analyses of VOCs and metals. Volatile organic samples were kept at 4°C; metals samples were filtered using a 0.45 micron filter and preserved with nitric acid.
- The following field parameters were measured and recorded:
 - Water level (feet)
 - Water temperature (°C)
 - Total alkalinity (mg/L CaCO₃)
 - Turbidity (NTU)
 - Specific conductivity (µmhos/cm)
 - pH (s.u.)

- The field parameters were checked every 3 minutes and the well was sampled after field parameters stabilized. Well #70693 is designated as a Category 1, i.e., having a stable water level.
- Purge water is collected and disposed of at one of the Site's ground water treatment systems designed to treat the well-specific contaminants of concern.

Summary of Findings

All field measurement and sample handling procedures were conducted in accordance with approved monitoring requirements in the *Rocky Flats Legacy Management Agreement*, and with the quality assurance and quality control requirements in the *Legacy Management CERCLA Sites Quality Assurance Project Plan* and in current EPA guidance.



CDPHE Inspector [Carl Spreng]

Date: February 16, 2012

Appendix C

Rocky Flats Legacy Management Agreement Contact Records

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Contact Record No.	Purpose	Approval Date	Status as of April 30, 2012
2006-01	Evaluation of December 2005–May 2006 monitoring results for manganese at the Present Landfill Treatment System	3/13/07	Actions completed—closed
2006-02	Evaluation of December–July 2006 monitoring results for boron at the Present Landfill Treatment System	3/13/07	Actions completed—closed
2006-02	Evaluation of February–July 2006 monitoring results for arsenic at the Present Landfill Treatment System	3/13/07	Actions completed—closed
2007-01	Notification of adverse biological condition, March 27, 2007, Central Operable Unit boundary fence wildlife deaths	4/4/07	Actions completed—closed
2007-02	Discussion and approval of exploratory excavations to greater than 3 feet below grade around the former Interceptor Trench Pump House	6/6/07	Actions completed—closed
2007-03	Discussion and approval of excavation greater than 3 feet below grade in Functional Channel-1 soil borrow area and placement of soil south of former Building 371 to eliminate ponding around well heads for Wells 33502, 33604, and 33703	6/6/07	Actions completed—closed
2007-04	Discussion and approval of soil disturbance for Phase III road improvement work involving the construction of roadside drainage ditches that will not return excavation to preexisting grade	8/17/07	Actions completed—closed
2007-05	Grading of the slump area south of Functional Channel-4 and former Building 991	9/27/07	Actions completed—closed
2007-06	Evaluation of elevated nitrate in groundwater samples from Area of Concern well B206989	10/12/07	Actions completed—closed
2007-07	Replacement of monitoring well 45605 (former Building B991 slump)	11/29/07	Actions completed—closed
2007-08	Changes to Present Landfill inspection and monitoring frequencies and modification of the Present Landfill Monitoring and Maintenance Plan	12/21/07	Actions completed—closed
2008-01	Completion of additional ecological sampling in accordance with RFLMA Attachment 2, Table 5	4/2/08	Actions completed—closed
2008-02	Discussion and approval of excavation greater than 3 feet below grade to breach Dams A-1, A-2, B-1, B-2, B-3, and B-4	6/18/08	Actions completed—closed
2008-03	Exploratory excavations to greater than 3 feet below grade generally between the former Interceptor Trench Pump House and Solar Ponds Plume Treatment System	5/20/08	Actions completed—closed
2008-04	Notification of well replacement (well 45605) and well identification change (to well 45608)	7/2/08	Actions completed—closed
2008-05	Evaluation of boron and uranium in groundwater downgradient of the Original Landfill	7/3/08	Actions completed—closed
2008-06	Management of intercepted groundwater during Solar Ponds Plume Treatment System repair or maintenance activities	7/3/08	Continues to apply to repair or maintenance activities as needed
2008-07	Path forward for Original Landfill Seep 7 drain extension, berm maintenance and repair, perimeter channel slope cut and fill, and modification of the Original Landfill Monitoring and Maintenance Plan	9/2/08	Actions completed—closed
2008-08	Construction of collection sump for the Solar Ponds Plume Treatment System	9/8/08	Actions completed—closed

Contact Record No.	Purpose	Approval Date	Status as of April 30, 2012
2008-09	Revision of sampling locations to reflect Site reconfiguration (Sentinel well TH046992 not needed because of nearby location of Sentinel well 95099, and SPPMM01 replaced by SPOUT)	11/7/08	Actions completed—closed
2009-01	Phase II and III Upgrades to Solar Ponds Plume Treatment System	2/17/09	Construction and post-construction revegetation and erosion controls are in place. Optimization of the upgrades and monitoring is ongoing. Contact record will be closed when testing complete.
	E-mail—tracer test for Phase II cell	2/9/10	Actions completed—closed
	E-mail—application of chlorine bleach to address biofouling in SPPTS Cell 1	3/13/10	Actions completed—closed
2009-02	Excavation by Xcel Energy for valve replacement on 12-inch Golden Pipeline	6/29/09	Actions completed—closed
	Email—excavation by Xcel Energy to investigate anomaly in pipeline	3/10/10	Actions completed—closed
2009-03	Soil disturbance for road maintenance and improvement work involving the construction of roadside drainage ditches that will not return excavation to preexisting grade	8/11/09	Actions completed—closed
2009-04	Replace East Trenches Plume Treatment System media and make minor changes to the piping configuration	9/15/09	Actions completed—closed
2009-05	Installation of snow fencing north of the Original Landfill and approval of work after closeout of contact record	10/16/09	Actions completed—closed
2010-01	Targeted soil sampling at the Original Landfill to evaluate residual contamination levels in relation to the Colorado Department of Public Health and Environment's August 2008 Policy, <i>End of Post-Closure Care</i>	1/20/10	Actions completed—closed
2010-02	Approval of excavation greater than 3 feet below grade to breach dams A-3, A-4, B-5, C-2 and the Present Landfill Dam	4/15/10 Withdrawn 10/15/10	CDPHE withdrew approval to allow for further consideration of concerns raised by communities and for possible clarification of Institutional Control #2 (regarding soil excavation deeper than 3 feet) before potential reconsideration of the contact record.
2010-03	Non-RFLMA surface water monitoring project for North and South Walnut Creeks	3/15/10	Contact record will be closed after completion of the non-RFLMA sampling project described therein. After the contact record is closed, additional non-RFLMA sampling activities may be performed, and CDPHE will be kept apprised of the additional sampling through the consultative process.
2010-04	RFLMA Attachment 2: Modification to revise monitoring points	7/15/10	Actions completed—closed
2010-05	Statistically higher concentrations of analytes in groundwater downgradient of the Original Landfill and the Present Landfill	5/10/10	Actions completed—closed
2010-06	Monitoring results at surface water Point of Evaluation SW027	7/27/10	Actions completed—closed
2010-07	Monitoring results and water treatment at the Mound Site Plume Treatment System and East Trenches Plume Treatment System	11/2/10	Actions completed—closed

Contact Record No.	Purpose	Approval Date	Status as of April 30, 2012
2011-01	Replace Mound Site Plume Treatment System media and maintain/repair discharge gallery	1/14/11	Actions completed—closed
2011-02	Replace Sentinel well 33703	3/23/11	Actions completed—closed
2011-03	Resource Conservation and Recovery Act well monitoring results at Original Landfill and Present Landfill	4/25/11	Actions completed—closed
2011-04	Reportable condition for uranium at Point of Evaluation GS10	7/8/11	Contact record serves as the plan and schedule for the evaluation of the reportable condition and will be closed when evaluation completed.
2011-05	Update for reportable condition for uranium at Point of Evaluation GS10	10/4/11	Contact record serves as the plan and schedule for the evaluation of the reportable condition and will be closed when evaluation completed.
2011-06	Soil Disturbance Review Plan—Roads upgrade project involving reconfiguration of a sharp curve west of Functional Channel 1	10/18/11	Actions completed—closed
2011-07	Soil Disturbance Review Plan—Pond A-3 and Present Landfill Pond Dam Breach Project	12/5/11	Contact record will be closed when the work is completed, post-construction reseeding has been performed, and erosion controls are in place.
2011-08	Reportable condition for americium-241 at Point of Evaluation GS10	12/23/11	Contact record serves as the plan and schedule for the evaluation of the reportable condition and will be closed when evaluation completed.

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Appendix D

Selected Photographs

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Photograph D1. Aerial photograph of the Site, 1995



Photograph D2. Aerial photograph of the Site, October 2005



Photograph D3. Aerial photograph of the Site, June 2007



Photograph D4. Aerial photograph of the Site, June 2011



Photograph D5. B991, 700 Area in background, 2003



Photograph D6. Former B991, 700 Area in background, 2010



Photograph D7. Drainage between B771 and B371, 2004



Photograph D8. Drainage between former B771 and B371, 2010



Photograph D9. Aerial photograph of the Original Landfill



Photograph D10. Rocky Flats Wildlife



Photograph D11. Rocky Flats Wildlife

Appendix E
Public Participation Summary

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Public Participation Summary

The following table provides a summary of the questions and responses by the Rocky Flats Legacy Management Agreement (RFLMA) Parties at the Rocky Flats Stewardship Council Meetings on September 14, 2011; November 14, 2011; and February 6, 2012.

Question	Response
Is a formal public review and comment period provided for the report?	A formal public review and comment period is not required by Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulations and is also not specified in the U.S. Environmental Protection Agency's (EPA's) CERCLA Five-Year Review Guidance.
Is there a project plan for the review and the report?	No formal project plan is needed because the review will be conducted and the report will be prepared in accordance with the CERCLA Five-Year Review Guidance.
Will the names of all persons performing the review be published in the review report?	The Five-Year Review Guidance specifies that the agencies and contractors participating in the review be identified, but not individual names.
If recommendations for changes to monitoring requirements are made in the five-year review, how will the changes be incorporated into remedy implementation requirements?	Recommendations for changes to monitoring requirements made by the U.S. Department of Energy (DOE) resulting from the five-year review will be followed up in accordance with RFLMA requirements for modifications to existing requirements. The public will be notified of proposed modifications through RFLMA contact records or other written correspondence, and proposed modifications are subject to review and approval by the Colorado Department of Public Health and Environment (CDPHE) and EPA. Modifications that constitute a significant change from existing requirements shall be subject to public comment.

Abbreviations:

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act

CDPHE = Colorado Department of Public Health and Environment

DOE = U.S. Department of Energy

EPA = U.S. Environmental Protection Agency

The following table provides a summary of the questions and the responses by the U.S. Environmental Protection Agency (EPA) and the Colorado Department of Public Health and Environment (CDPHE) RFLMA Project Coordinators at a February 13, 2012, meeting requested by staff members from local municipal governments of several downstream communities and from the Woman Creek Reservoir Authority. Questions were initially transmitted by e-mail to the EPA and CDPHE RFLMA Project Coordinators on February 10, 2012. The EPA and CDPHE RFLMA Project Coordinators provided this information to the U.S. Department of Energy (DOE) RFLMA Project Coordinator. The DOE RFLMA Project Coordinator agreed that, although the questions were not also sent to DOE by e-mail on February 10, 2012, these questions and the other questions raised at the meeting (which are synopsized in the following table) and the responses should be included in the public participation summary.

Question	Response
Will the RFLMA Project Coordinators have meetings with downstream communities or a "series of public meetings" to discuss the five-year review process/scope?	There is no restriction on discussing any five-year review items at any stakeholder meeting. These include opportunities at the April 4, 2012, Rocky Flats Stewardship Council public meeting and the April 4, 2012, Rocky Flats Adaptive Management Plan (AMP) annual status report public meeting.
Will the plans for dam breaches be discussed in this five-year review, or is that "off-limits" in this review because dams not part of remedy?	Dam breaches are included in the introductory part of the Five-Year Review Report to explain changes in the surface water configuration in the Central Operable Unit (OU), but there is no plan to specifically include dam breach plans in the technical review of remedy performance. RFLMA monitoring results are used to evaluate protectiveness regardless of the dam breaches.

Question	Response
<p>Related to the foregoing question regarding dam breaches, will the Rocky Flats AMP sampling be discussed? If yes, can the review include the purpose and evaluation of AMP results in subsequent 5-year reviews?</p>	<p>AMP data, like other non-RFLMA sampling data, such as the Los Alamos National Laboratory (LANL) analysis to compare pre-and post-closure uranium signatures, could be useful in relation to RFLMA-required data for some limited purposes. Since the AMP is a commitment by DOE as part of its National Environmental Policy Act evaluation of the dam breach environmental impacts, it should not be confused with the purpose of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) five-year review. All monitoring data collected under the AMP monitoring plan is evaluated by DOE and reported to the public.</p>
<p>There have been reportable conditions at Points of Evaluation GS10 and SW027 during this review period. Given DOE's intent to breach the terminal dams, will EPA ask for a careful watch of water quality at the reportable condition locations and will the water quality be addressed in issues, recommendations, and follow-up actions?</p>	<p>Yes, the status of reportable conditions will be included in the review. But evaluation and monitoring of reportable conditions is being done in accordance with the RFLMA consultative process regardless of the five-year review. Contact records, other written correspondence, and RFLMA-required reports will be used to report the status of the evaluations and what, if any, mitigating actions are required to be taken by DOE in response to the reportable conditions to protect human health and the environment.</p>
<p>Will there be an evaluation of the comparability of results based on parallel data collection for the new Points of Compliance (POCs)—i.e., WALPOC, WOMPOC, and POCs GS01 and GS03—over the next 2 years? Will such an evaluation be required before GS01 and GS03 are removed as RFLMA POCs?</p>	<p>There is no plan to do this as part of a five-year review. POC data are continuously evaluated per RFLMA requirements. Maintaining GS01 and GS03 as RFLMA POCs for 2 years was the RFLMA Parties' response to requests in public comments regarding continuing enforceability and reportable condition evaluations outside of the Central OU boundary for some period of time after new POCs were operational.</p>
<p>Is there anything new being discussed by the RFLMA Parties in terms of data analysis not presented in 2007 Five-Year Review Report?</p>	<p>Nothing new was being discussed at the time of this question. Since there is extensive data analysis in the RFLMA annual reports prepared during this review period, there was no need to include any new data analysis in this review.</p>
<p>For five-year review Question C, will LANL results showing a different uranium signature at GS10, or similar topics, be discussed?</p>	<p>As discussed above, additional data that could be relevant to the technical evaluation will be considered.</p>
<p>Given that institutional controls (ICs) are preventing onsite exposure, would there have to be exceedances of RFLMA surface water standards at the Central OU boundary POCs for the RFLMA Parties to have concerns about remedy protectiveness?</p>	<p>The review evaluates remedy implementation of ICs as well as other remedy components, such as the results of monitoring at locations upstream of the POCs that are intended to provide short- and long-term protectiveness. An exceedance at a POC at the Central OU boundary would certainly trigger evaluation (and would be an RFLMA reportable condition) to determine if it indicates remedy components are not performing as intended to provide adequate protection.</p> <p>POC results are not the only remedy performance indicators evaluated by the RFLMA Parties. Other indicators include surface water monitoring results from locations upstream of POCs, groundwater monitoring results, landfill inspection results, treatment systems O&M monitoring and performance monitoring results, and observations during inspections.</p>
<p>If the terminal pond dams are breached, the remedy requires any new monitoring and compliance points to consider groundwater in alluvium. What's the intent – is it assuring that the monitoring at WOMPOC measures all water exiting the Central OU that is surface water?</p>	<p>This question was addressed in the response to comments for the RFLMA Attachment 2 modification regarding the establishment of the new POCs, WALPOC and WOMPOC. Groundwater in alluvium was considered in determining that the new POCs would be as effective as the upstream POCs being replaced in determining impacts to surface water quality from contaminated groundwater in the alluvium.</p>
<p>Are there plans to quickly terminate post-closure care at the Original Landfill (OLF)? If so, is this initiative about eliminating monitoring or just reducing it?</p>	<p>The steps being taken to monitor the OLF now are to evaluate post-closure performance in accordance with the CDPHE policy for termination of post-closure care criteria. DOE is following the CDPHE process and, while some recommendations to reduce monitoring may result, there is no plan to quickly terminate post-closure care.</p>

Question	Response
What is the status of review of the groundwater flow model?	At the time of this question the review was in progress. The conclusions are included in this report.
Would the same quality assurance criteria apply to POC samples that were applied to the evaluation and disposition of the results of the rerun of the plutonium/ americium for the 7/21/11-8/24/11 Point of Evaluation GS10 sample, as discussed in Contact Record 2011-08?	Yes.

Abbreviations:

AMP = Adaptive Management Plan
 CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
 IC = institutional control
 LANL = Los Alamos National Laboratory
 OLF = Original Landfill
 OU = Operable Unit
 POC = Point of Compliance

Additional Information Regarding Operable Unit (OU) 3 and the Peripheral OU

This third five-year review is for the remedy in the Central OU, but DOE is aware of several press reports at the end of 2011 and the beginning of 2012 related to residual levels of plutonium in soil in eastern edge of the Peripheral OU and OU 3. The articles DOE is aware of are listed in the References section, below.

The RFLMA Parties believe that these reports should be considered similar to information that might be raised in interviews.

Interviews were not conducted for this five-year review for the reasons discussed in this Five-Year Review Report, Section 6.2, and the topics raised by the press reports were in fact raised in previous public review and comment periods for RFLMA Attachment 2 modifications and the Corrective Action Decision/Record of Decision (CAD/ROD) amendment during this five-year review period.

The press reports were related to public controversy over the U.S. Fish and Wildlife Service proposed action to transfer the 300-foot-wide strip of land on the eastern edge of the Refuge for a transportation corridor as provided in the Refuge Act. The transportation corridor, if transferred, would be part of a proposed highway known as the Jefferson Parkway. In summary, concerns were reported regarding whether the residual plutonium levels in soils would pose a significant risk for the construction and subsequent use of the land for a highway.

To help keep the public informed as part of the five-year review process, DOE believes it would be helpful to provide references related to the risk from residual contamination, including plutonium contamination in the soil, on and east of the Refuge.

OU 3 RCRA Facility Investigation/Remedial Investigation (OU 3 RFI/RI) (DOE 1996)

In addition to summarizing the results of the environmental investigations in OU 3, the OU 3 RFI/RI contains a human health and ecological risk assessment.

The OU 3 RFI/RI is available on the electronic Rocky Flats Administrative Record (Volumes I, II, and III, respectively):

http://www.lm.doe.gov/cercla/documents/rockyflats_docs/OU03/OU03-A-000465.pdf

http://www.lm.doe.gov/cercla/documents/rockyflats_docs/OU03/OU03-A-000466.pdf

http://www.lm.doe.gov/cercla/documents/rockyflats_docs/OU03/OU03-A-000467.pdf

The human health and ecological risk assessments are in Volume II.

OU 3 Final Corrective Action Decision/Record of Decision (DOE, EPA, and CDPHE 1997)

The OU 3 CAD/ROD concluded that the excess cancer risks calculated in the Human Health Risk Assessment of the RFI/RI Report from exposure to the contaminants of concern are all within or well below the EPA guidance for protecting human health.

Radiation exposures calculated for OU 3 resulting from contamination there were extremely small compared to the soil action levels and compared to average background radiation doses. Conditions in OU 3 pose no unacceptable or significant risks to human health or the environment; future unacceptable or significant exposures will not occur there as a result of past contamination. DOE concludes that no action is necessary in OU 3 for the protection of human health and the environment. Low levels of hazardous substances will remain in the soils and reservoir sediments in OU 3, but in concentrations so low that they pose no threat to human health and the environment and will not compromise natural resource values.

The OU 3 CAD/ROD is available in the electronic Rocky Flats Administrative Record at:

http://www.lm.doe.gov/cercla/documents/rockyflats_docs/OU03/OU03-A-000551.PDF

Agency for Toxic Substances and Disease Registry (ATSDR) Public Health Assessment (ATSDR 2005)

The ATSDR was established by Congress in 1980 under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Since 1986, ATSDR has been required by law to conduct a public health assessment at each of the sites on the EPA National Priorities List (NPL). The aim of these evaluations is to find out if people are being exposed to hazardous substances and, if so, whether that exposure is harmful and should be stopped or reduced. If appropriate, ATSDR also conducts public health assessments when petitioned by concerned individuals. Public health assessments are carried out by environmental and health scientists from ATSDR and from the states with which ATSDR has cooperative agreements. The public health assessment program allows the scientists flexibility in the format or structure of their response to the public health issues at hazardous waste sites. For example, a public health assessment could be one document or it could be a compilation of several health consultations—the structure may vary from site to site. In any case, the public health assessment process is not considered complete until the public health issues at the site are addressed.

The 2005 ATSDR public health assessment included assessment of onsite and offsite exposures, including residual contamination in OU 3. The 2005 ATSDR report, Section VII, “Conclusions,” states:

The conclusions for past exposures are based largely on the extensive dose reconstruction study conducted by expert scientists and critically reviewed by CDPHE and an independent health advisory panel. The conclusions for current and future exposures are based largely on ATSDR’s interpretation of sampling data recently collected by multiple parties. Overall, ATSDR did not identify any environmental exposures at levels of public health concern for past and current exposures ...

The 2005 ATSDR report also references ATSDR’s 1997 *Health Consultation, Rocky Flats Environmental Technology Site, Operable Unit 3*. This consultation evaluated soil, sediment, and surface water contamination found in areas east of the site. The 1997 health consultation concluded that concentrations of uranium, radium, and fission products were present at, or near, natural background levels, but that levels of plutonium and americium isotopes were higher than would be normally expected in the environment. ATSDR’s dose calculations, however, found that residents are not exposed to plutonium or americium isotopes at levels that would pose a public health hazard for current or anticipated future land uses at the site.

The 1997 ATSDR health consultation report is available on the electronic Rocky Flats Administrative Record at:

http://www.lm.doe.gov/cercla/documents/rockyflats_docs/OU03/OU03-A-000530.PDF

EPA’s Notice of Intent for Partial Deletion and Notice of Partial Deletion

The CAD/RODs for OU 3 and the Peripheral OU (DOE, EPA, and CDPHE 2006) determined that conditions in those OUs are suitable for unrestricted use.

EPA published a Notice of Intent for Partial Deletion (NOIPD) of the Rocky Flats Site (also known as the Plant) from the NPL on March 13, 2007 (*72 Federal Register* [FR] 11313, March 13, 2007) (EPA 2007a) to delete the Peripheral OU and OU 3 from the NPL. The NOIPD was based on the results of the remedial investigations leading to the CAD/ROD no action remedies being selected for these OUs. The NOIPD states that no hazardous substances occur in the OUs above levels that allow for unlimited use and unrestricted exposure, and therefore no five-year review is required for these OUs. EPA subsequently published a Notice of Partial Deletion from the NPL for the Peripheral OU and OU 3, which includes a responsiveness summary, on May 25, 2007 (*72 FR 29276*, May 25, 2007) (EPA 2007b).

The two EPA notices provide a summary of the investigation of the release of hazardous substances and the risk assessments for OU 3 and the Peripheral OU. The EPA notices are available on the electronic Rocky Flats Administrative Record at:

http://www.lm.doe.gov/cercla/documents/rockyflats_docs/PD/PD-A-000013.PDF

http://www.lm.doe.gov/cercla/documents/rockyflats_docs/PD/PD-A-000020.PDF

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