Overview of the 2nd Quarter 2008 Surveillance and Maintenance Report for the DOE-LM Rocky Flats Site

U.S. DEPARTMENT OF ENERGY | Office of Legacy Management

Surface-Water Monitoring and Operations

2nd Quarter 2008

Pond Operations – 2nd Quarter 2008

- Terminal Pond Discharges
  - None
- Transfers
  - A-3 to A-4; 3/24/08 to 4/15/08 (3.89 MG)
- Pond Levels
  - As of 6/30/08, Ponds A-3, A-4, B-5, and C-2 and the Landfill Pond were holding approximately 16.2 MG (16.4% of capacity).

Recent Pond Levels (10/20/08)

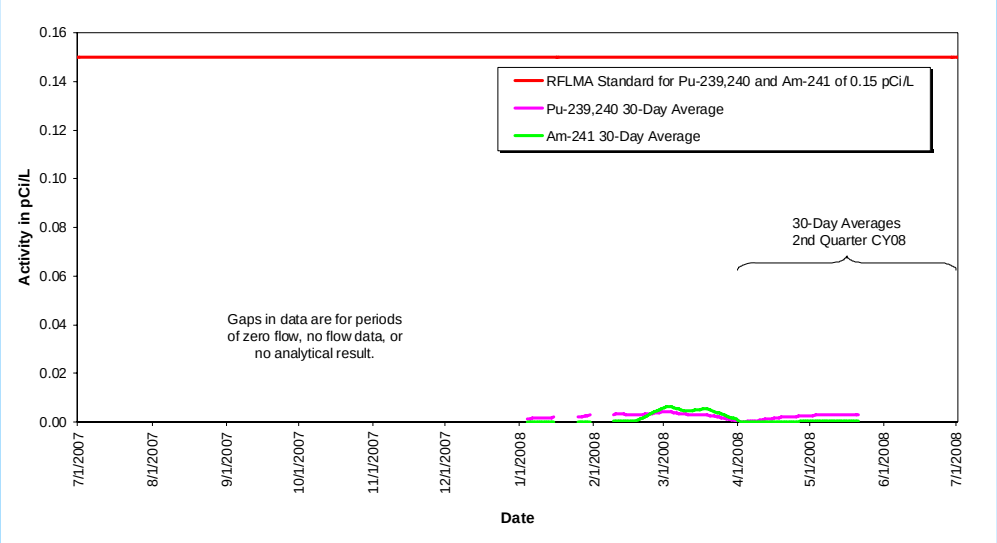
- Landfill (21.5%)
- A-3 (10.5%)
- A-4 (9.3%)
- B-5 (22.1%)
- C-2 (12.8%)

Hydrologic Data – 2nd Quarter 2008

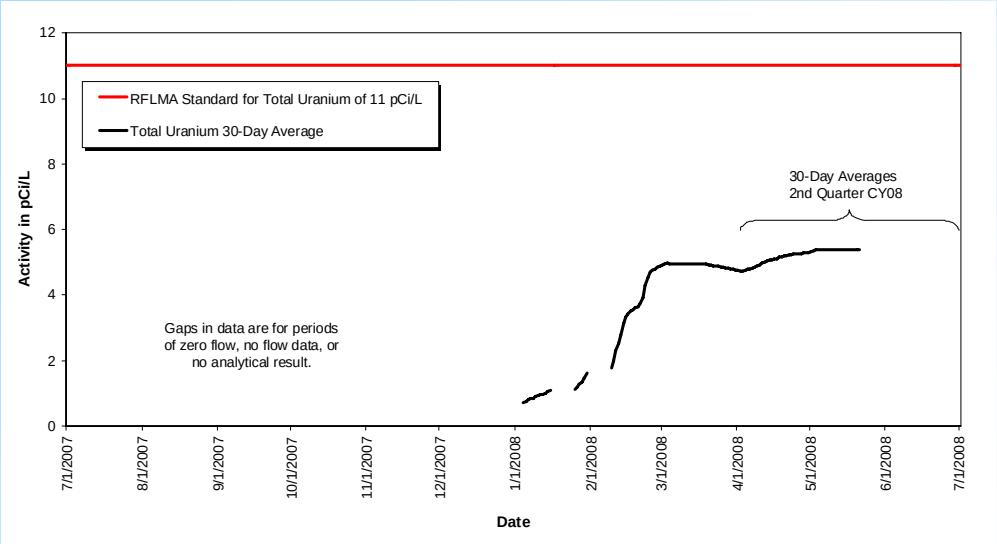
- Precipitation
  - 3.4” total precipitation
  - 62% of WY93-07 average
- Flow rates (percentage of average)
  - GS01 (4%)
  - GS03 (No Flow)
  - GS10 (8%)
  - SW027 (No Flow)
  - SW093 (5%)

POC GS01

- Plutonium and Americium

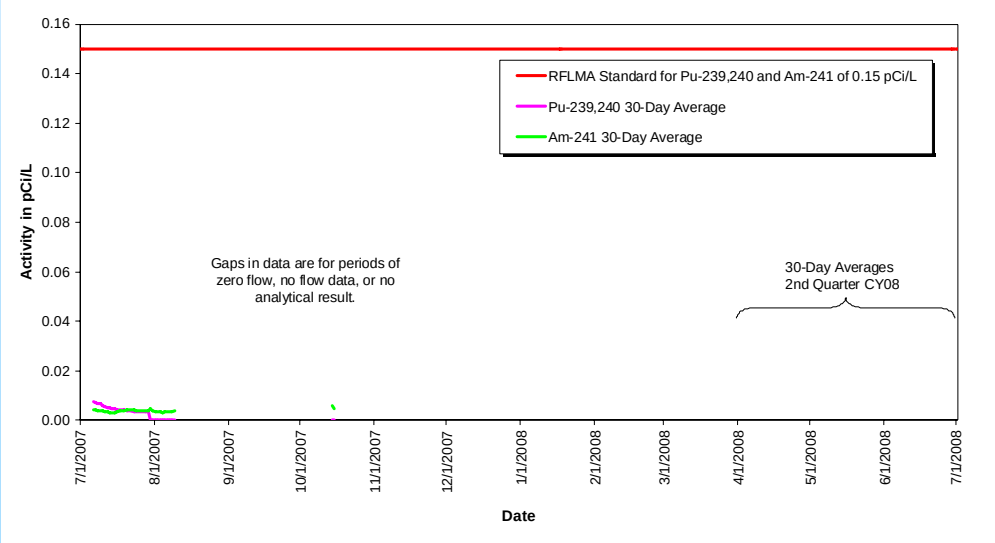


- Total Uranium

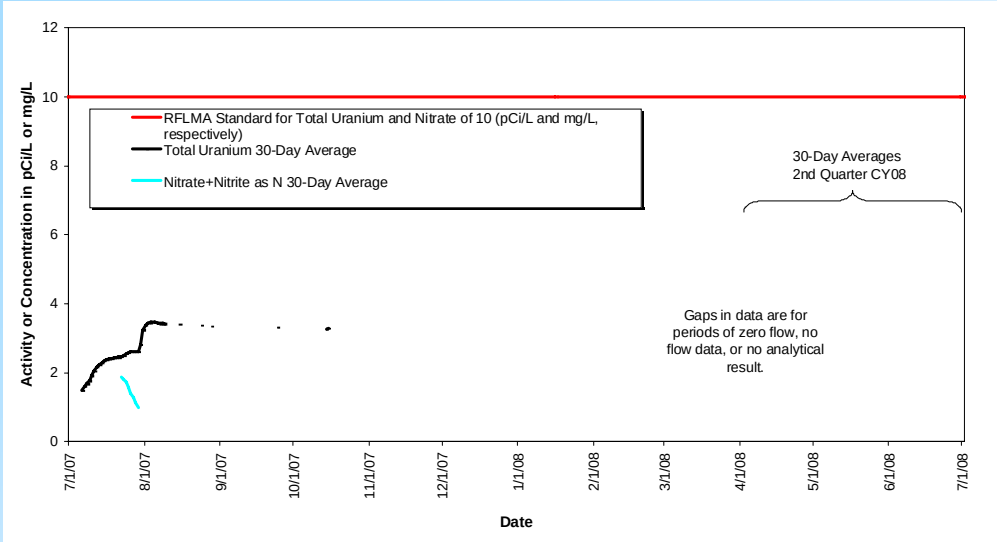


POC GS03

- Plutonium and Americium

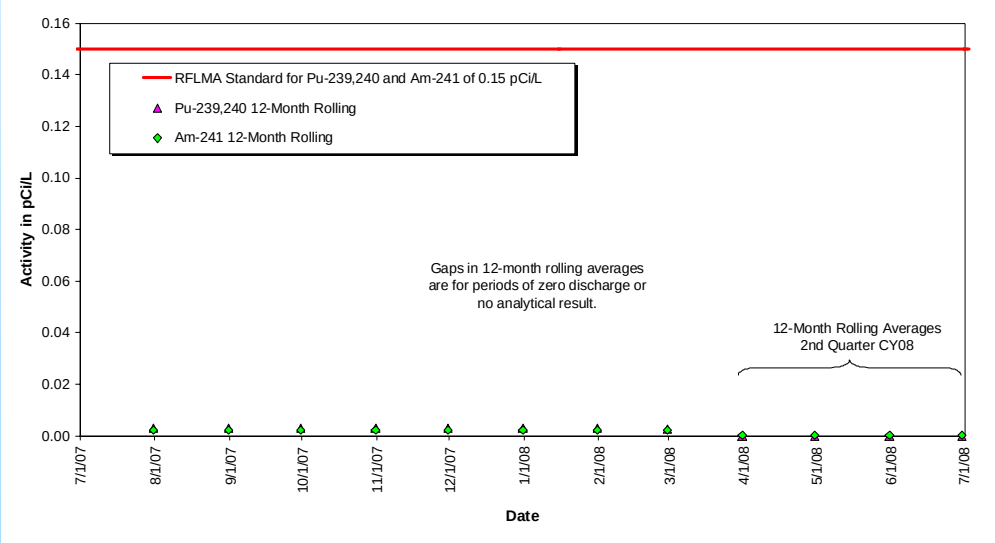


- Total Uranium and Nitrate + Nitrite as N

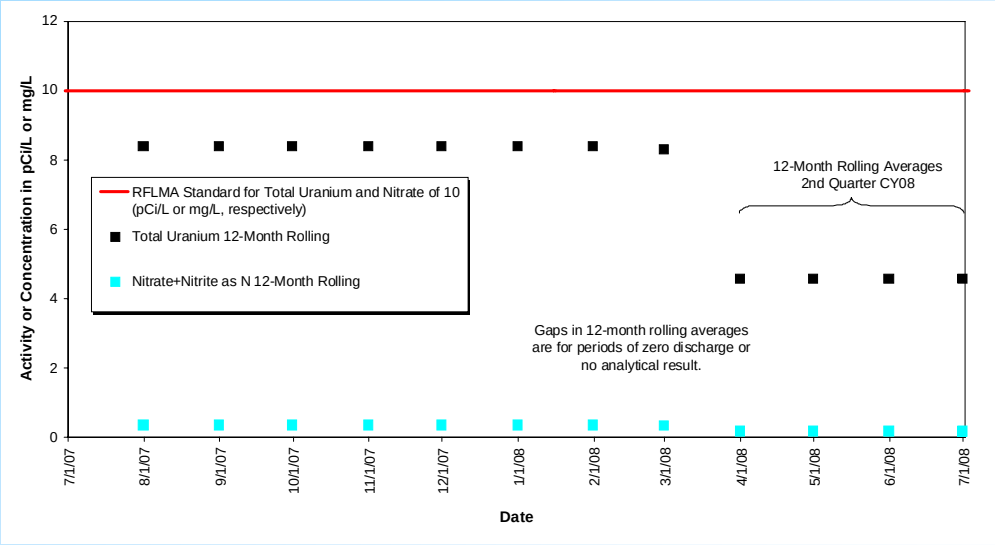


POC GS08

- Plutonium and Americium

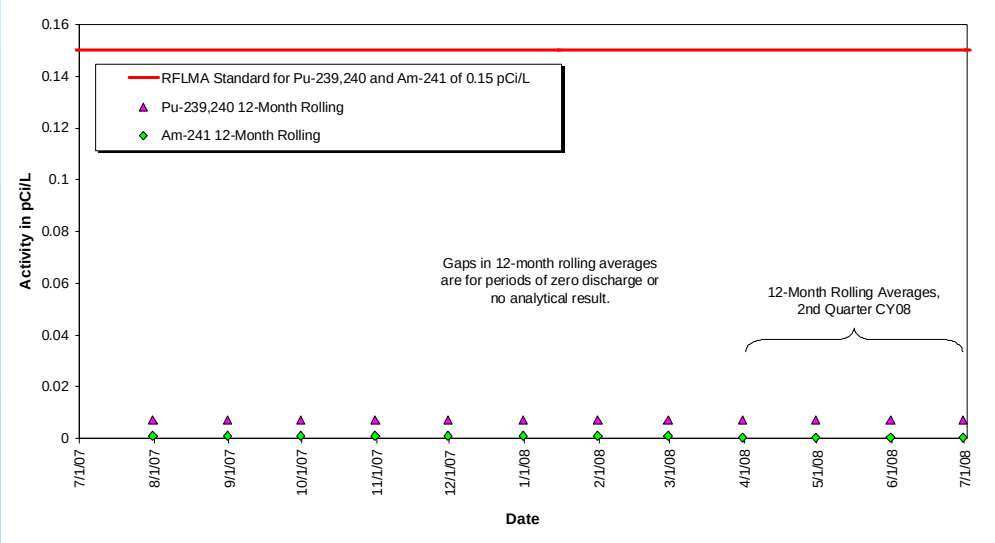


- Total Uranium and Nitrate + Nitrite as N

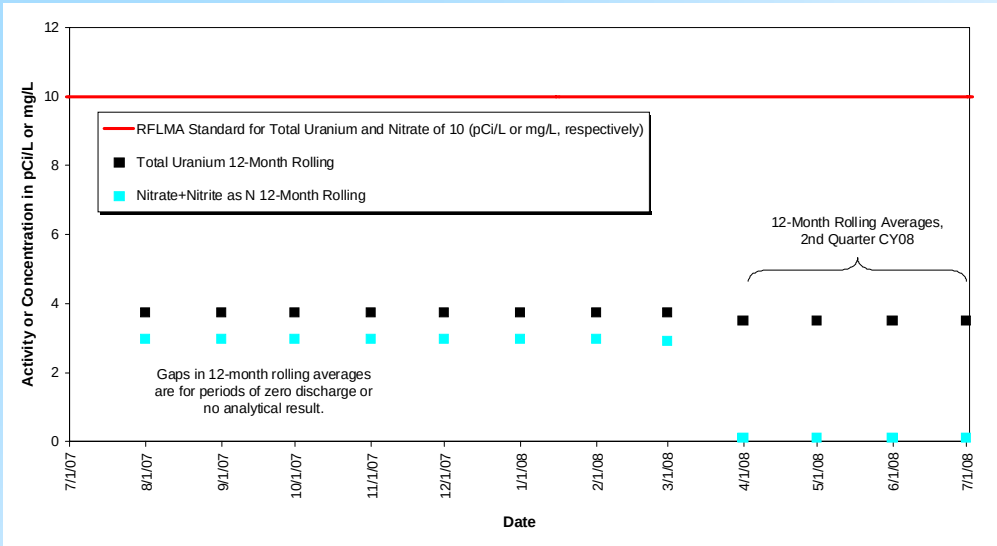


POC GS11

- Plutonium and Americium



- Total Uranium and Nitrate + Nitrite as N



POC GS31

- Plutonium and Americium

No Pond C-2 discharge during the last 12 months.

- Total Uranium

Point of Evaluation Monitoring – 2nd Quarter 2008

- Water quality at all Points of Evaluation, except GS10, was below applicable standards.
  - Reportable values for total uranium at GS10 continue to be observed and are likely caused by groundwater contributions of naturally occurring uranium to South Walnut Creek.

Performance Monitoring – 2nd Quarter 2008 Original and Present Landfills

- Original Landfill: Surface-water quality results triggered monthly sampling for selenium.
  - Selenium was not detected in the third monthly sample; monthly sampling was discontinued.
- Present Landfill: Surface-water quality results triggered monthly sampling for selenium.
  - Selenium was not detected in the third monthly sample; monthly sampling was discontinued.

Questions?

Groundwater Monitoring and Operations

2nd Quarter 2008

John Boylan
S.M. Stoller

RFLMA Monitoring

- All RFLMA wells and groundwater-related locations monitored
  - RCRA wells (quarterly)
  - AOC wells (semiannually)
  - Surface Water Support (semiannually)
  - Sentinel wells (semiannually)
  - Treatment systems (semiannually)
  - Boundary wells (annually)
  - Evaluation wells (biennially)

  Results will be evaluated in 2008 Annual Report

SPPTS Update

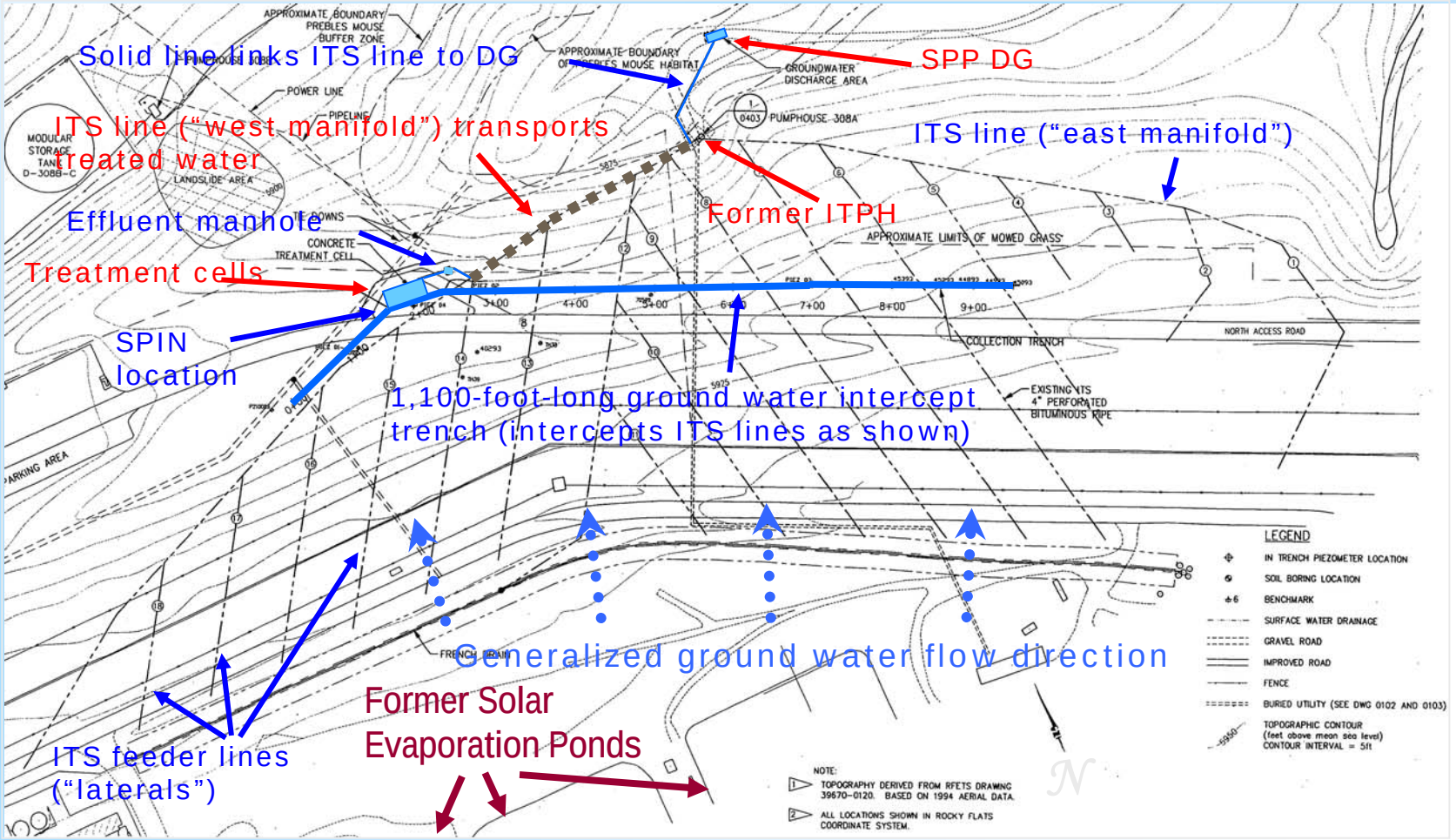
- Phase I upgrades are complete.
  - Water intercepted by the ITS is now routed to a collection sump, then pumped to the SPPTS for treatment.
  - Treated effluent is discharged via a separate, non-perforated line. It still exits at the Discharge Gallery.
  - Have new metering vault at SPIN.
    - Monitors flow from SPIN into SPPTS and from ITSS (the collection sump) to SPIN.
  - Have new discharge monitoring vault near ITSS to monitor treated effluent (SPOUT). se1

Slide 15

se1 Both "ITS" and "ITSS" appears on this slide and in this presentation. Please make consistent.
Stacey Elza, 10/22/2008

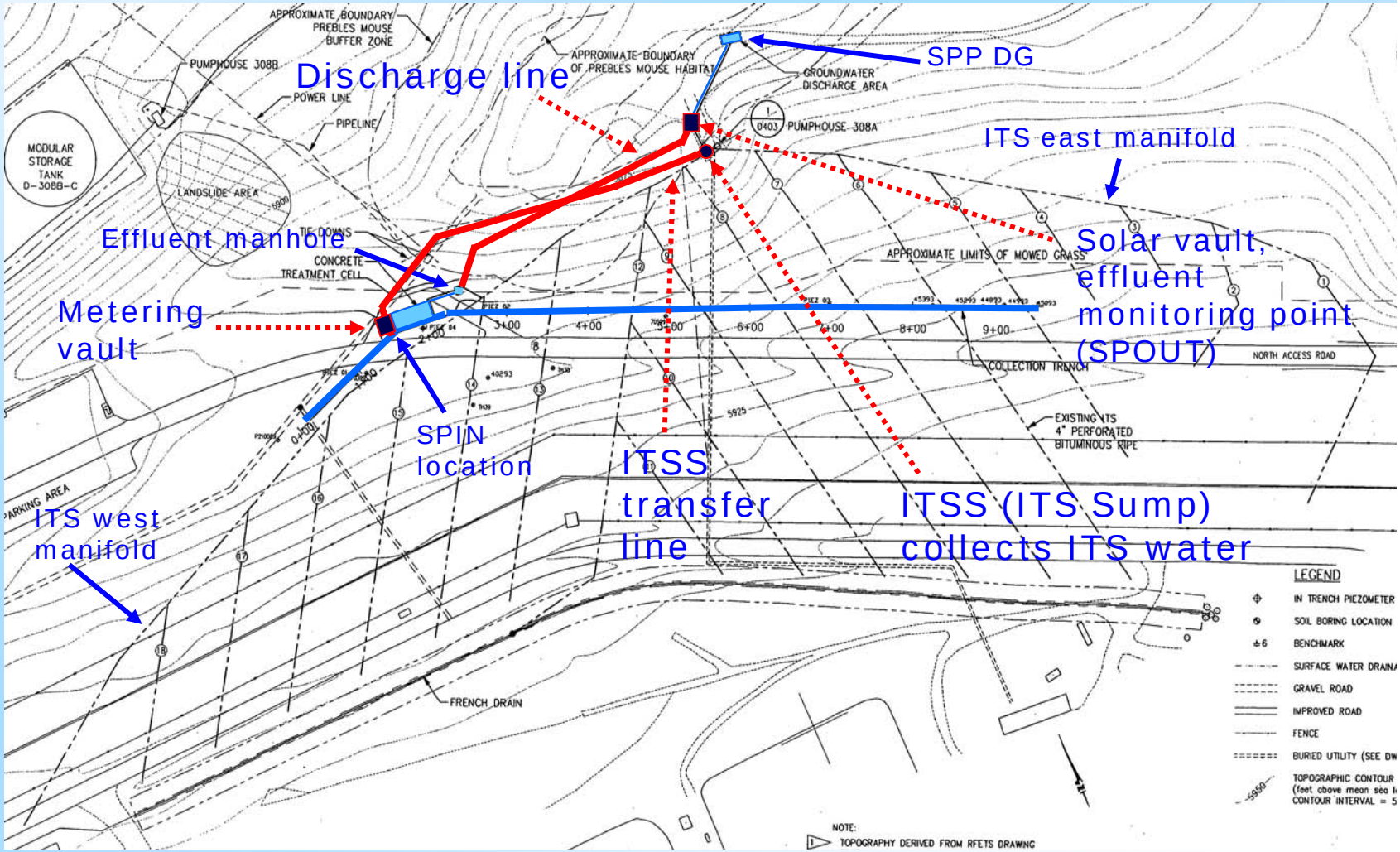
SPPTS Update (continued)

Previous SPPTS and ITS Configuration



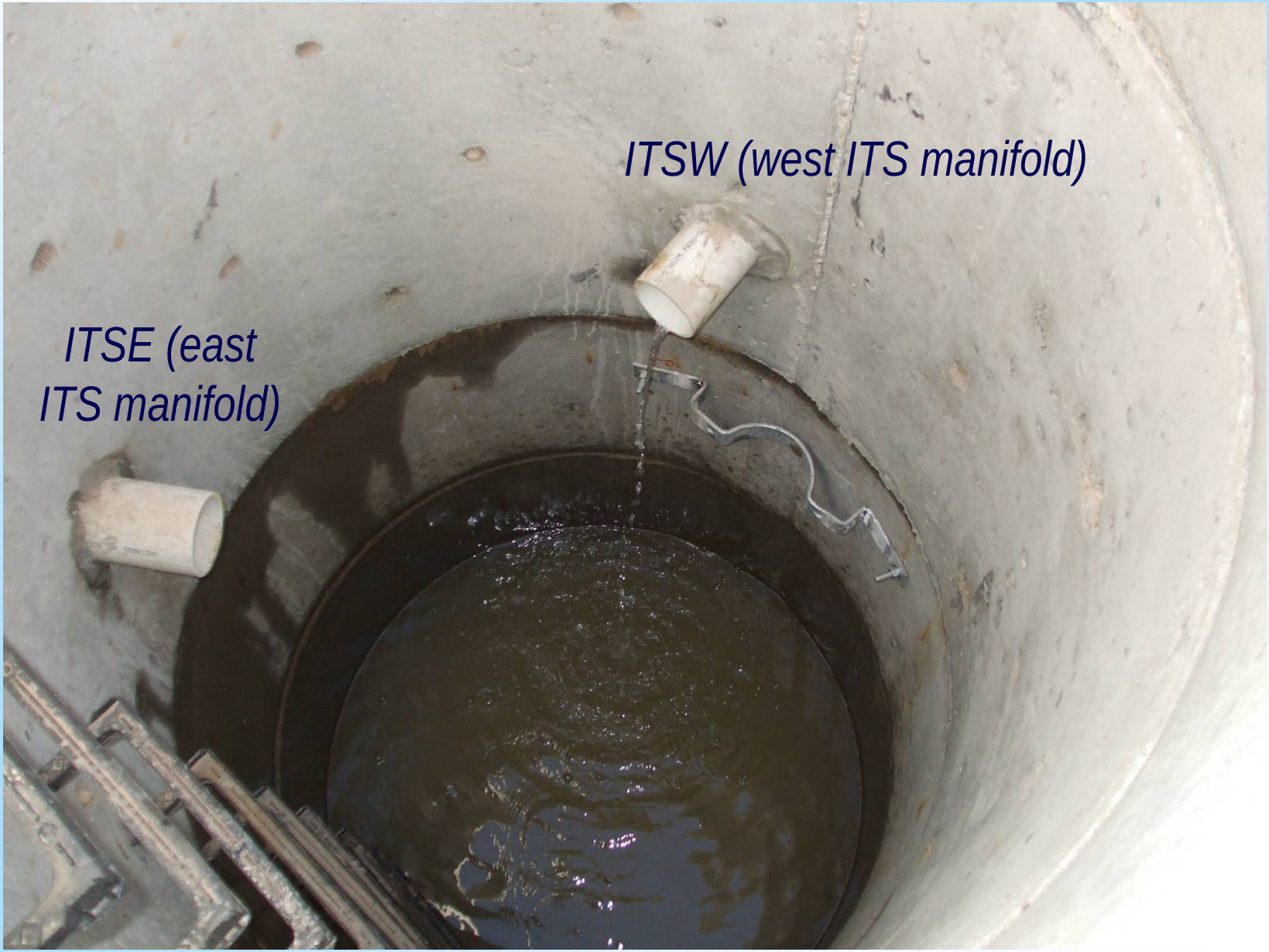
SPPTS Update (continued)

Schematic of Current SPPTS and ITS Configuration



B1

Questions?



Slide 18

B1 BoylanJ, 7/17/2008

Update on WQCC Rulemaking

- Petition to adopt statewide basic uranium standard (MCL 30 ug/L ~ 20 pCi/L): Hearing 1/09
  - Eliminate site-specific standards (10 pCi/L Walnut Creek; 11 pCi/L Woman Creek)
  - Natural uranium in groundwater now higher proportion of surface water
- LANL sampling in 2007 and 2008 completed; some analysis pending
  - Except for SPPTS Discharge Gallery, results to date show predominantly natural uranium

Post-Closure LANL Data (Q-2 samples)

Post-Closure High Resolution Uranium Isotopic Analysis			
Location	Sample Date	Total U (ug/L)	% Natural
GS03	7/9/2007	3.7	77
GS10	7/23/2007	10.1	71
GS10	8/25/2008	pending	
GS13 (Lo)	12/6/2007	47.3	71
GS13 (Hi)	5/15/2008	21.5	75
SW093 (Lo)	12/6/2007	9.93	91
SW093 (Hi)	5/15/2008	7.11	93
POM2	8/28/2008	pending	
SPIN (Lo)	6/6/2008	pending	
SPIN (Hi)	8/20/2008	pending	
SPPDG	9/12/2007	62	43
SPPDG (Lo)	12/6/2007	60.7	42
SPPDG (Hi)	5/14/2008	58.7	41
B206989	9/2/2008	pending	
00193	8/25/2008	pending	
10594	9/11/2007	103	97
15699	8/24/2008	pending	
80205	9/7/2007	79.2	100
99405	9/12/2007	439	100
PLF Pond Eff	9/16/2008	pending	
A3 Pond	9/16/2008	pending	
A4 Pond	9/16/2008	pending	
B5 Pond	9/16/2008	pending	
C2Pond	9/16/2008	pending	

Update on WQCC Rulemaking (continued)

- Expiring Temporary Modifications (TMs) Annual Review: Hearing 12/08
  - Current Rocky Flats TMs (six VOCs; nitrate/nitrite) set to expire 12/31/09
  - SPPTS upgrade should reduce nitrate loading to North Walnut Creek
- Triennial Review South Platte River Basin
  - Issues Formulation Hearing 11/10/08; Rulemaking Hearing 6/09
  - Potential Rocky Flats Issues
    - Rocky Flats TMs expire 12/31/09
    - New statewide basic standard for arsenic (10 ug/L) below site-specific standard (50 ug/L)

Site Operations

2nd Quarter 2008

Slide 22

se2 Insert comma between "McLaughlin" and "S.M."
Stacey Elza, 10/22/2008

Site Operations – 2nd Quarter 2008

Original Landfill – Inspections

Landfill inspections were completed on April 30, May 29, and June 24.

A vegetation inspection was completed on May 19.

Site Operations – 2nd Quarter 2008 (continued)

Original Landfill – Seeps and Slumps

Seep #7 was dry throughout the 2nd quarter.

Seeps #4 and #8 showed active groundwater seepage throughout the 2nd quarter (~ 1-3 gpm).

Slumping areas of OLF continued to be monitored (no significant changes).

Site Operations – 2nd Quarter 2008 (continued)

Original Landfill – Settlement Monuments and Inclinometers

Settlement monuments were surveyed on June 26; data are within expected range per OLF Monitoring and Maintenance Plan.

Consolidation monitors were surveyed on April 4, May 2, and June 5. There was no significant movement.

Inclinometers were measured from April 2 through 23, from May 8 through 12, and on June 17.

Site Operations – 2nd Quarter 2008
(continued)

Present Landfill – Inspections and Surveys

The quarterly inspection was completed May 29.

The vegetation inspection was completed May 21.

The settlement monument surveys were completed June 21.

Annual Site (Central OU) Inspection 4/14/08

- Inspection and monitoring for evidence of significant erosion
  - Conduct visual observation for precursors of significant erosion
  - Evaluate proximity of any significant erosion to subsurface features
- Inspect effectiveness of institutional controls (ICs)
  - Determine effectiveness by any evidence of violation of ICs and determine whether required signs are in place
  - Verify that Environmental Covenant is in AR and on file with Jefferson County (verified 4/8/08)
- Evidence of any adverse biological conditions observed during inspection

Annual Site (Central OU) Inspection (continued)

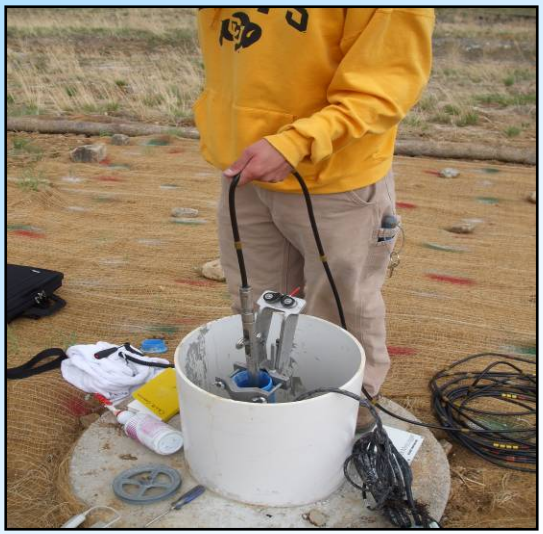
- Central OU divided into 5 areas:
  - A – Former 300 and 400 Areas
  - B – Former 700 and 991 Areas
  - C – Former 800 Area
  - D – Former 903 Pad and East Trenches Area
  - E – Former Ash Pits Area
- Landfills, treatment systems, and water monitoring stations inspected during the year on a routine basis.
- Team walked down surface of each area (A-E) to observe conditions.

Annual Site (Central OU) Inspection (continued)

- No significant erosion noted – minor holes, small animal evidence, and depressions identified
  - Very limited aerial extent – Filled in
  - Debris and trash collected or flagged for pick up
- No adverse biological conditions noted
- No evidence of IC violations
- Signs in place

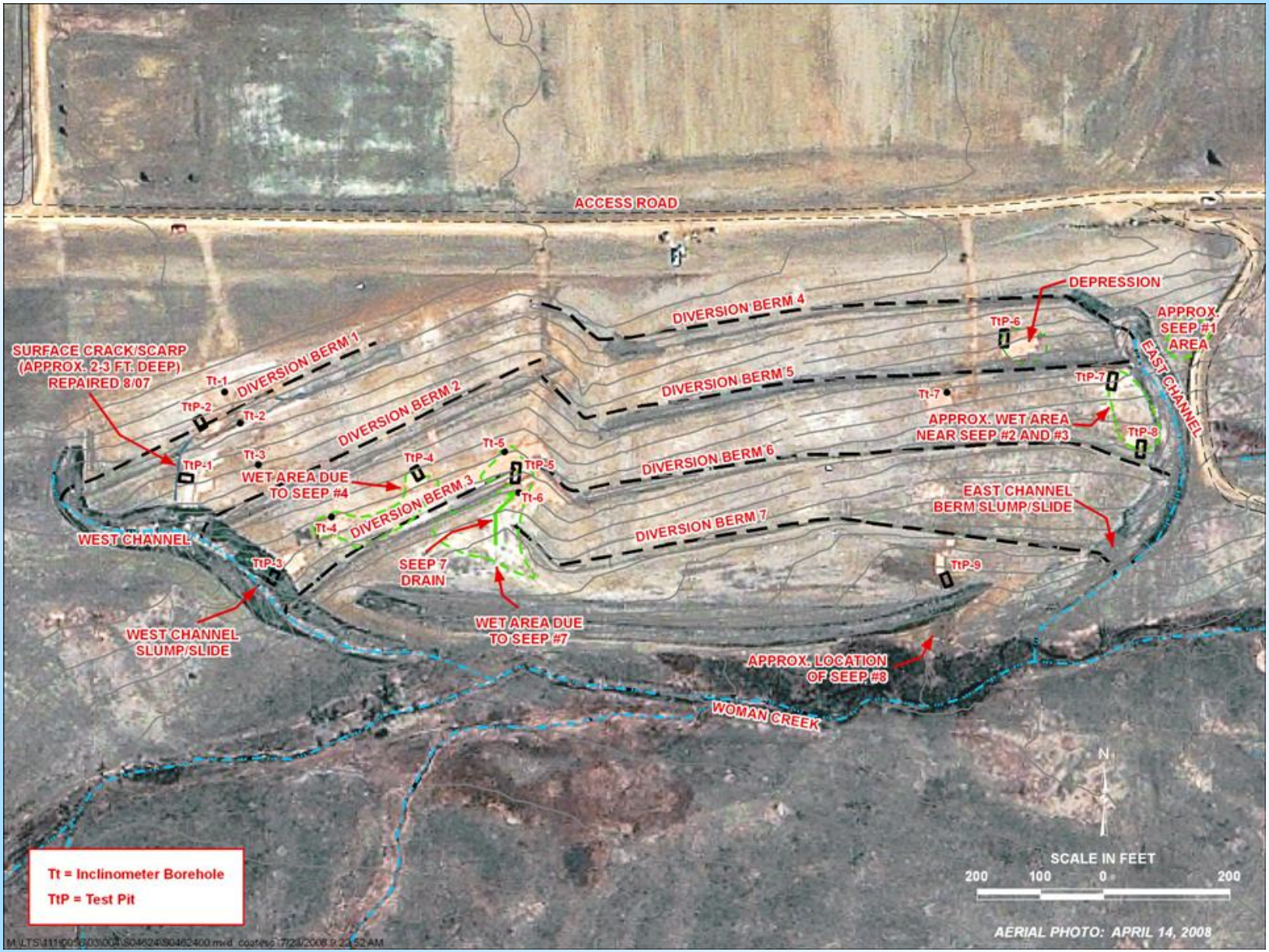
Questions?

Original Landfill Investigation and Path Forward



Original Landfill Investigation

- Field work completed early 4/08
- Geotechnical Investigation Report completed 6/4/08
- CDPHE found report acceptable 6/28/08
- Consultation for path forward
  - Contact Record 2008-07
  - Geotechnical Investigation Report posted to website with Contact Record
- Construction in 4th quarter FY08 and 1st quarter FY09


ACCESS ROAD
DEPRESSION
APPROX. SEEP #1 AREA
EAST CHANNEL
DIVERSION BERM 4
DIVERSION BERM 5
DIVERSION BERM 6
DIVERSION BERM 7
DIVERSION BERM 1
DIVERSION BERM 2
DIVERSION BERM 3
SURFACE CRACK/SCARP (APPROX. 2-3 FT. DEEP) REPAIRED 8/07
Tt-1
TtP-2
Tt-2
TtP-1
Tt-3
WET AREA DUE TO SEEP #4
TtP-4
Tt-5
TtP-5
Tt-6
Tt-4
WEST CHANNEL
TtP-3
SEEP 7 DRAIN
WET AREA DUE TO SEEP #7
WEST CHANNEL SLUMP/SLIDE
TtP-6
Tt-7
TtP-7
APPROX. WET AREA NEAR SEEP #2 AND #3
TtP-8
EAST CHANNEL BERM SLUMP/SLIDE
TtP-9
APPROX. LOCATION OF SEEP #8
WOMAN CREEK
N
SCALE IN FEET
200 100 0 200
Tt = Inclinometer Borehole
TtP = Test Pit
AERIAL PHOTO: APRIL 14, 2008

Original Landfill Path Forward

- **Repair localized slumping/differential settlement by filling/grading.**
- **Fill/regrade west perimeter channel (east side slope) to reduce slope and improve stability.**
- **Two-foot berm height difficult – adjust height along length based on sub-basin model.**
  - **Approximately 23% of berm lengths need several inches of soil.**
- **Conduct routine maintenance for observed ponding in berm channels – regrade high and low spots.**
- **Install extension to Seep #7 drain to direct water to buttress drain.**