SHEEP MOUNTAIN URANIUM PROJECT
CROOKS GAP, WYOMING

TITAN
URANIUM USA INC

US EPA Project Meeting
April 7, 2011

TSX.V - TUE FRANKFURT - T4X

WWW.TITANURANIUM.COM

Introductions

Greg Adams – VP Development

Doug Beahm – BRS Engineering

Toby Wright – Wright Env. Services

AGENDA

Introductions

- Greg Adams/Titan Uranium, VP Development
- Deborah Lebow-Aal/EPA Region 8 Air Program

Introduction to Titan Uranium USA

Project Overview:

- Doug Beahm/BRS Engineering
- Toby Wright/Wright Env. Services

Issues for Discussion

- Status of 40 CFR 192 GW standards update
- Status of Active Heaps & Inactive Heaps
- Status of Process Ponds & Waste Storage Tanks

PROJECT OVERVIEW

- Location
- Project Scope
  - Mining
  - Milling

Sheep Mountain Project Location

PROJECT OVERVIEW

- Site Location
  - Fremont , Wyoming
  - Existing Uranium Mine Permit 381C
- Historical Operation
  - Western Nuclear Crooks Gap Project
    - Mined 1956 – 1988, processed at Split Rock Mill
  - US Energy
    - 1988 Sheep Mountain Underground
    - Partial reclamation since 1988, no new operation

Wyoming
Gas Hill Uranium District
Jeffrey City, WY
Sheep Mountain Project
Green Mountain/Big Eagle
URE Lost Creek
Sweetwater Mill
Image USDA Farm Service Agency
Image © 2010 DigitalGlobe
© 2010 Google
13 T 271301.31 m E 4729138.97 m N elev 6273 ft
Eye alt 88.42 mi
Google

Titan Sheep Mountain Project:

- Mine
  - Underground and Open Pit Mining
  - Current Mine Permit (381C)
    - Updating POO, Reclamation Plan & Bond
- Uranium Recovery
  - Heap Leach with Central Processing Plant
  - Within existing WDEQ Mine Permit (381C)

Project Scope:

- Mine
  - 15 Year Mine Lifecycle, may be extended
  - Congo Pit Area
    - Mine waste trucked to South and West waste piles
    - All mine waste to be returned to pit or used in reclamation
  - Sheep Mountain Underground
    - To extent possible all wastes reclaimed in old mine workings
    - Ore transported to the heap from underground via conveyors

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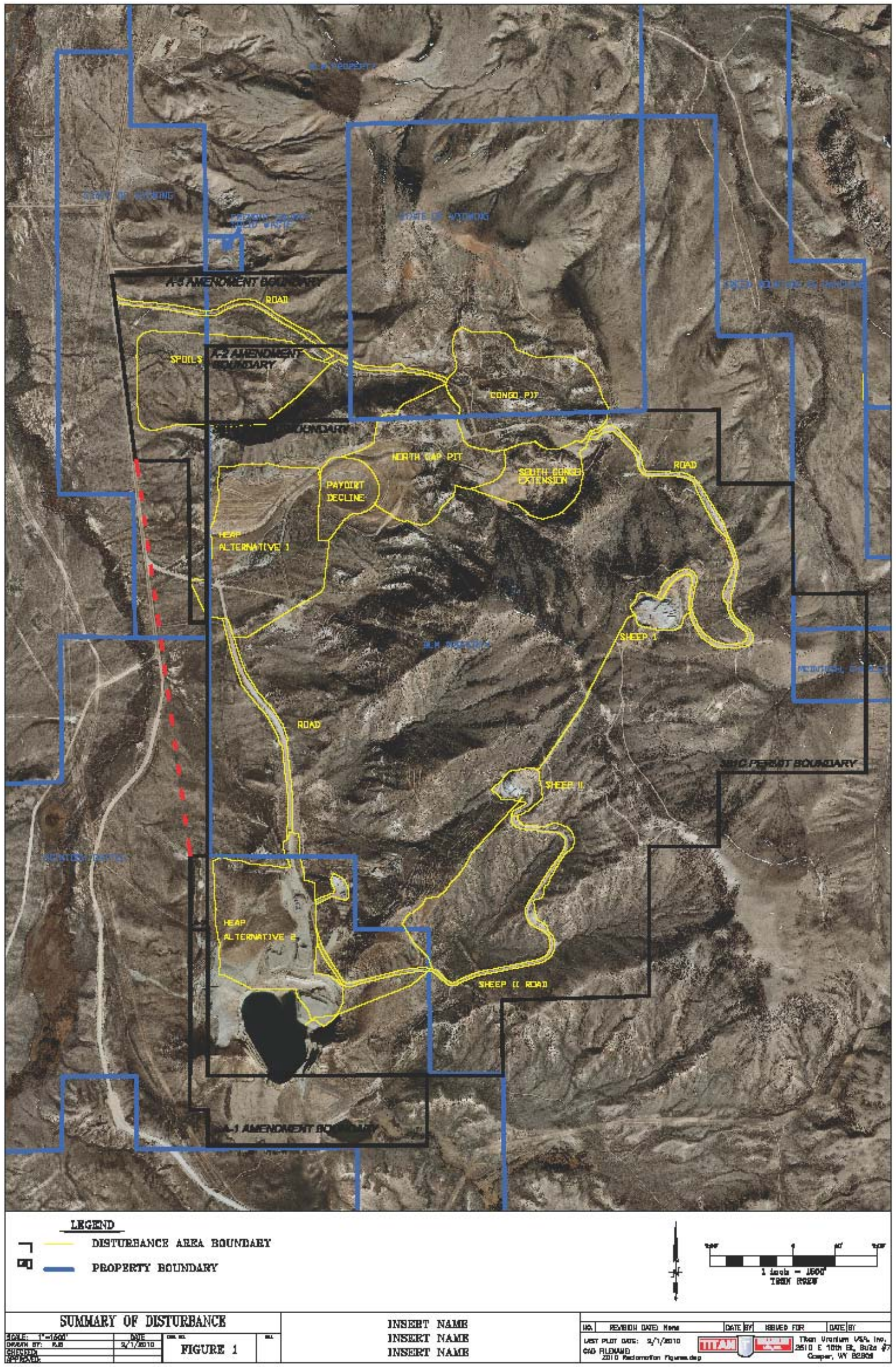
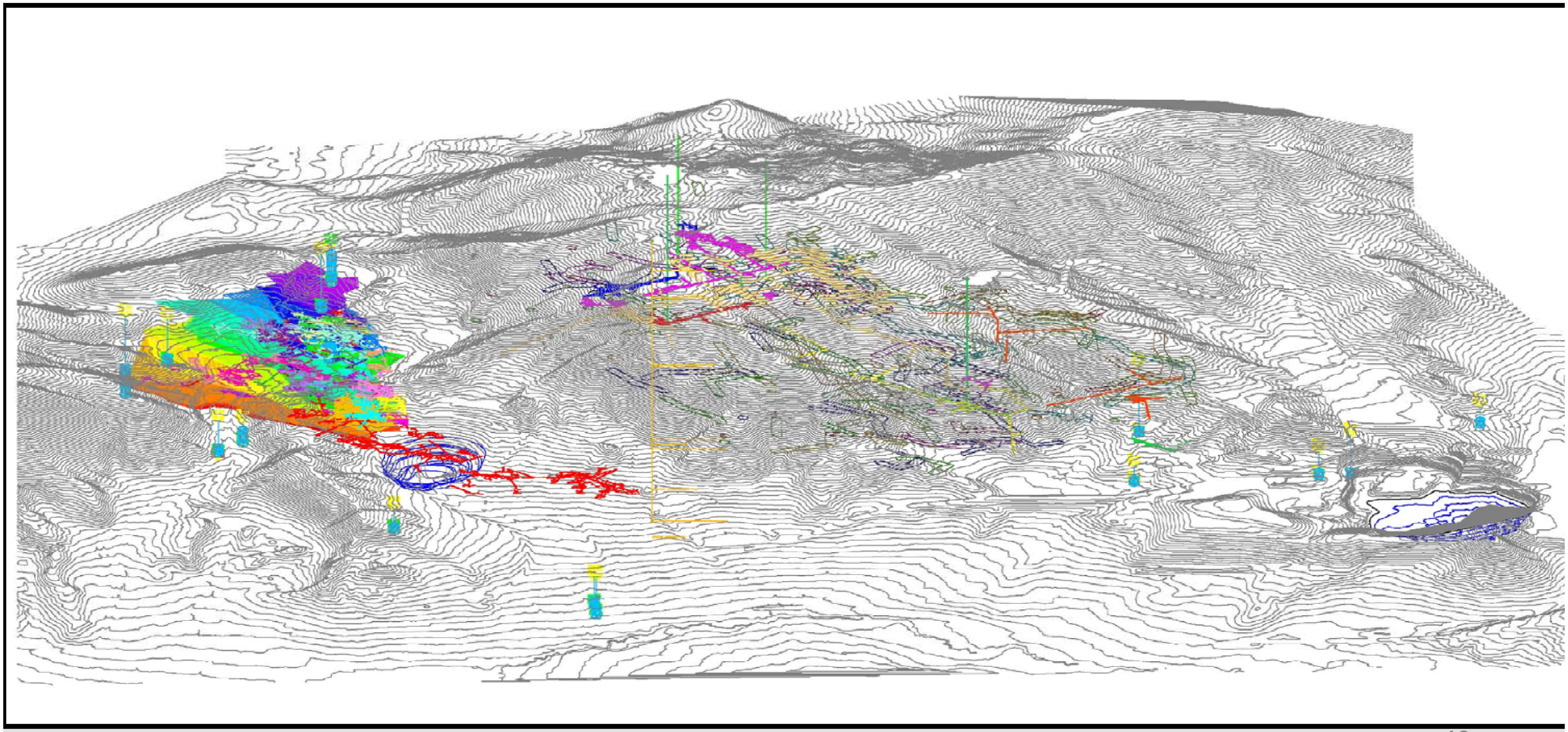
Project Scope:

- Mill
  - 15 year operational lifecycle, may be extended
  - Heap Leach Pads
    - Double lined pads with leak detection, clay underliner
    - Five 16 acre cells planned (approx. 80 acre footprint)
    - Up to 50 ft lifts being evaluated
    - Sulfuric acid lixiviant
  - Double lined process ponds with leak detection, clay underliner
    - Barren/Pregnant
    - Liquid waste in evaporation ponds
  - Central Processing Plant
    - Solvent Extraction with IX Polishing
    - Vacuum Driers
    - Final Product is drummed yellow cake



- **Existing Mine Permit 381C**
  - 3,625 acres total area
- **Proposed Disturbance (667 acres)**
  - <u>Mine:</u> 457 acres (258 Disturbed)
    - Congo/North Gap Pits
    - Sheep Mtn. Underground
    - Waste Rock/Topsoil Storage
    - Buildings & Infrastructure
    - All proposed mine disturbance on previously disturbed land
  - <u>Licensed Area:</u> 210 acres (161 Disturbed)
    - Heap Leach Pads
    - Process/Waste Ponds
    - Central Processing Plant

3D View Mining and Monitor Wells



Status of Baseline Studies

Pre-Operational Baseline Studies Status

- Cultural Resources
- Wildlife
- Vegetation & Soils
- Surface Water
- Groundwater
- Radiological Characterization

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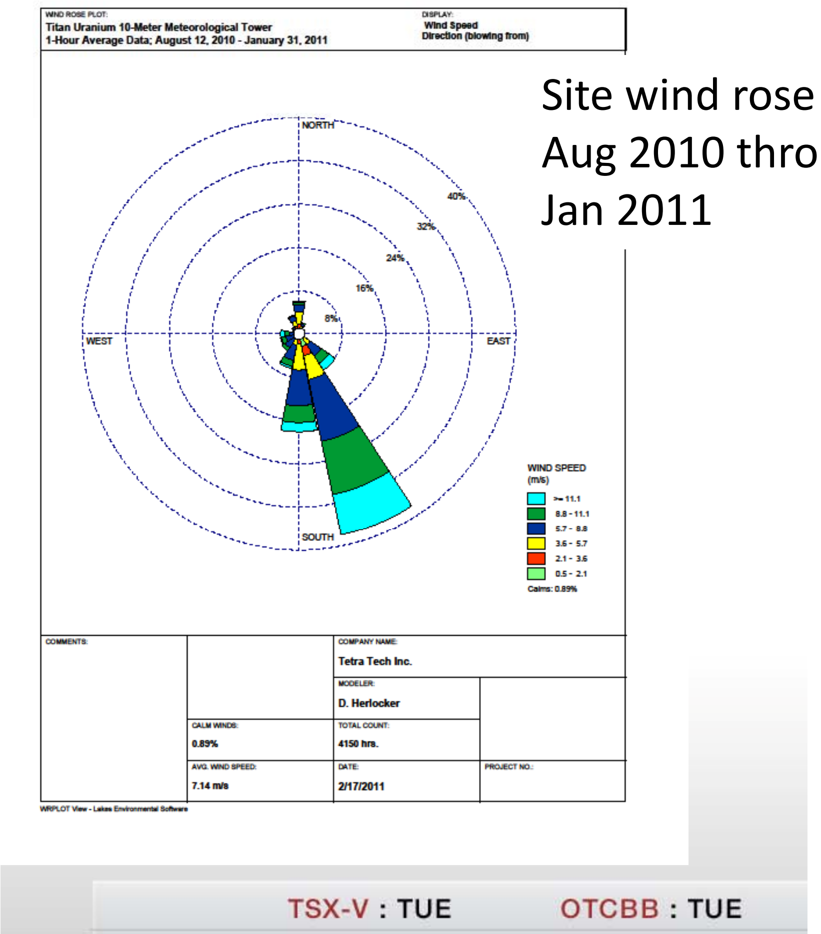
Topic Area	Status	Actions Pending
Cultural Resources	• Reviewed existing surveys • Consulted with BLM on scope of additional surveys • Completed additional surveys • Submitted findings to BLM	• BLM Review • SHPO Review • Incorporate results into ER
Wild Life	• Raptor surveys complete • Songbird surveys complete • Waterfowl surveys complete • Small mammal surveys complete	• Incorporate results into ER
Vegetation	• Vegetation surveys complete • No T&E Species present • One BLM sensitive species found o Limber Pine o No impacted by proposed disturbance • Completed 3 rounds of veg. sampling as per Reg Guide 4.14	• Incorporate results into ER
Soils & Sediment	• Collected soil samples as per Reg. Guide 4.14 (surface & subsurface) • Collected sediment samples as per Reg. Guide 4.14 @ SW sampling locations	• Incorporate results into ER
Surface Water	• Quarterly SW flow measurements • Monthly flowing SW quality sampling • Quarterly Pit Lake quality sampling	• Data analysis • Incorporate results into ER
Groundwater	• Quarterly Sampling • Reg. Guide 4.14 and WDEQ parameters	• Data analysis • Incorporate results into ER
Meteorological	• Continuous data since July 2010 • 2 m & 10 m instrumentation • Instrumentation meets most Reg. Guide 3.36 requirements	• MILDOSE Modeling • Update with 4 quarters of data
Air Quality	• Quarterly sampling from 5 locations since July 2010 • All parameters and reporting limits as per Reg. Guide 4.14	• Data analysis • Incorporate results into ER
Socio\Env. Justice	• Ongoing	• Complete analysis • Incorporate results into ER

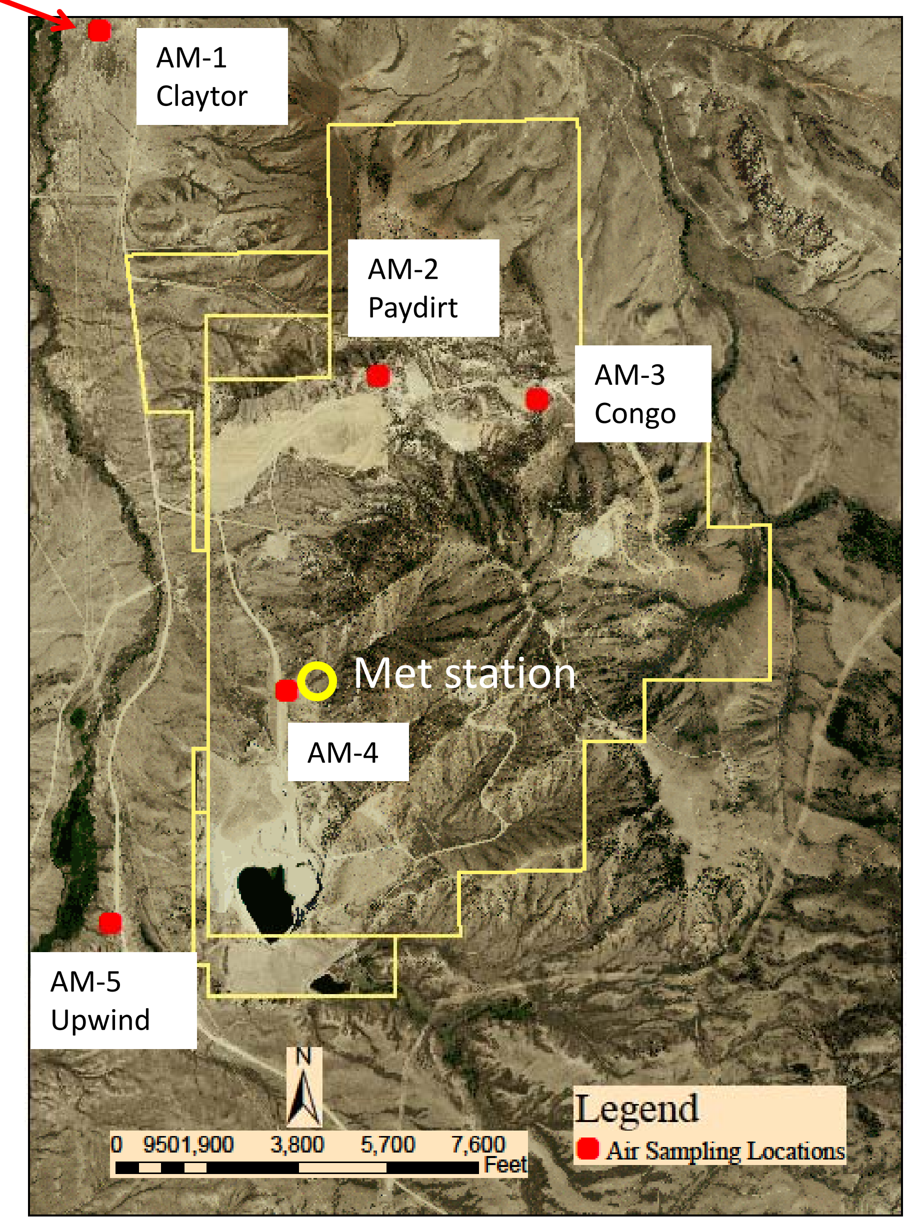
Nearest Resident

Air sampler locations:

Additional monitoring locations once radiation control boundary location is finalized



Site wind rose Aug 2010 through Jan 2011



Groundwater Hydrogeology

- Historical Conceptual model
  - Battle Spring Fm. host upper most aquifer
    - Fine to coarse grained sandstone with discontinuous siltstone and claystone lenses
    - Unconfined aquifer
  - Recharge from north
  - Regional discharge to south
- New Studies Ongoing
  - Sampling existing wells in place since 1988
  - Replacing historical wells abandoned in 2001
  - Evaluating aquifer properties

Status of NRC/BLM/State Permit Applications & NEPA

Coordinating Permitting & Licensing

- NRC & BLM will develop separate EIS Documents
- Titan is planning on parallel WDEQ, BLM & NRC submittals
    - Q3 2011
    - WDEQ-LQD/BLM
        - Plan of Ops, Rec. Plan & Bond Est., Env. Report
    - NRC
        - Application with Technical Report & Env. Report
- Coordinating communications w/ NRC, BLM and WDEQ

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NRC Licensing & NEPA

- Scope of NRC EIS Encompasses:
  - Milling: Heap Leach & Central Processing Plant
  - Mining is a ***Connected Action***
  - BLM would be a Cooperating Agency

Separate or combined NEPA processes require coordination and communication

- Planning Application to NRC Submittal in Q3, 2011

BLM Permitting & NEPA

- Scope of BLM EIS Encompasses:
  - Mine: open pit and underground, mine dewatering, operations, reclamation
  - Milling: Heap Leach & Central Processing Plant
    - Includes long-term disposal of 11e.(2) byproduct material, land transfer
    - BLM has indicated that they will reference rather than duplicate NEPA analyses for impacts addressed in the NRC NEPA process as much as possible
    - NRC would be Cooperating Agency
- Planning WDEQ\BLM Submittal in Q3, 2011

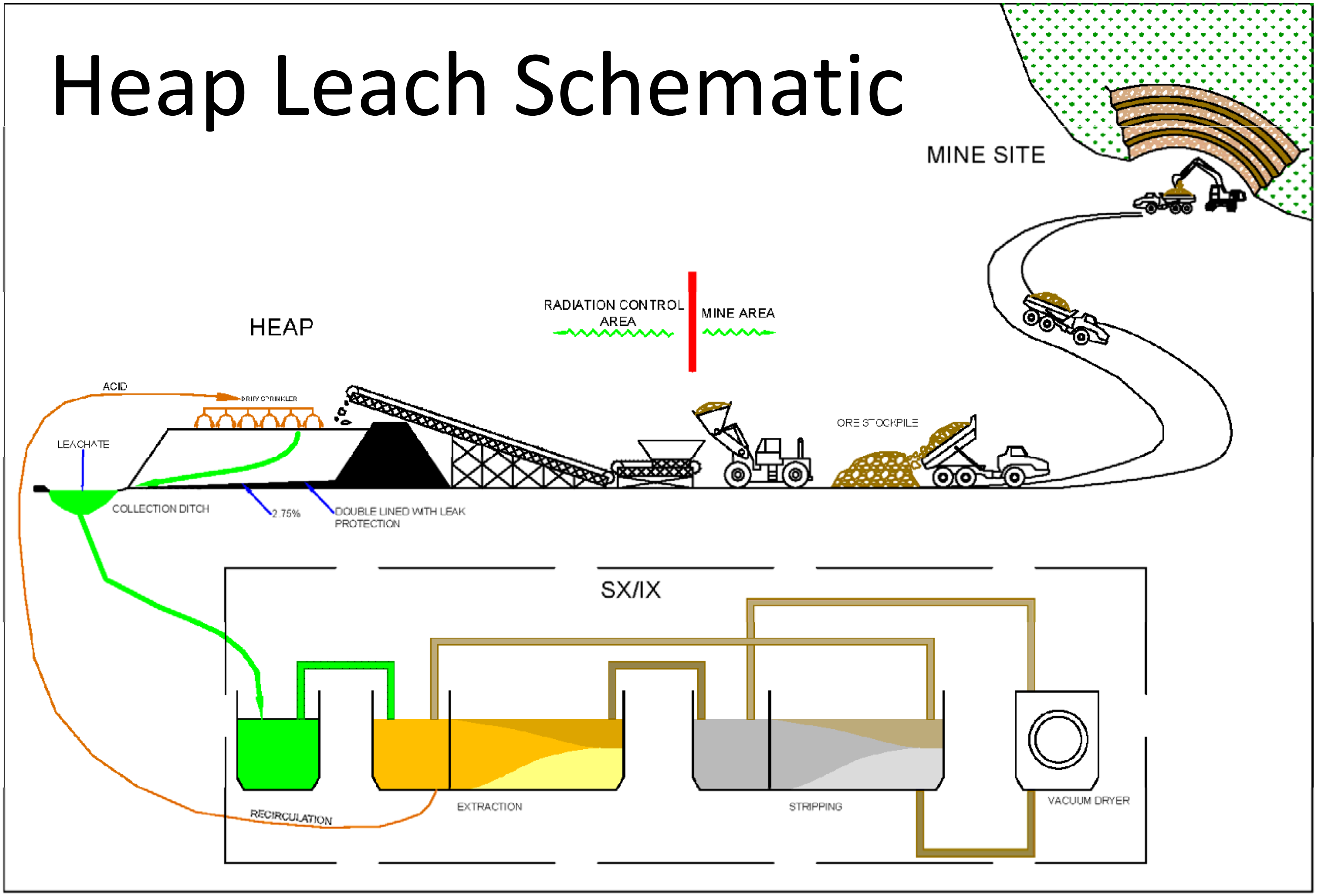
Separate or combined NEPA processes require coordination and communication

BLM Permitting & NEPA

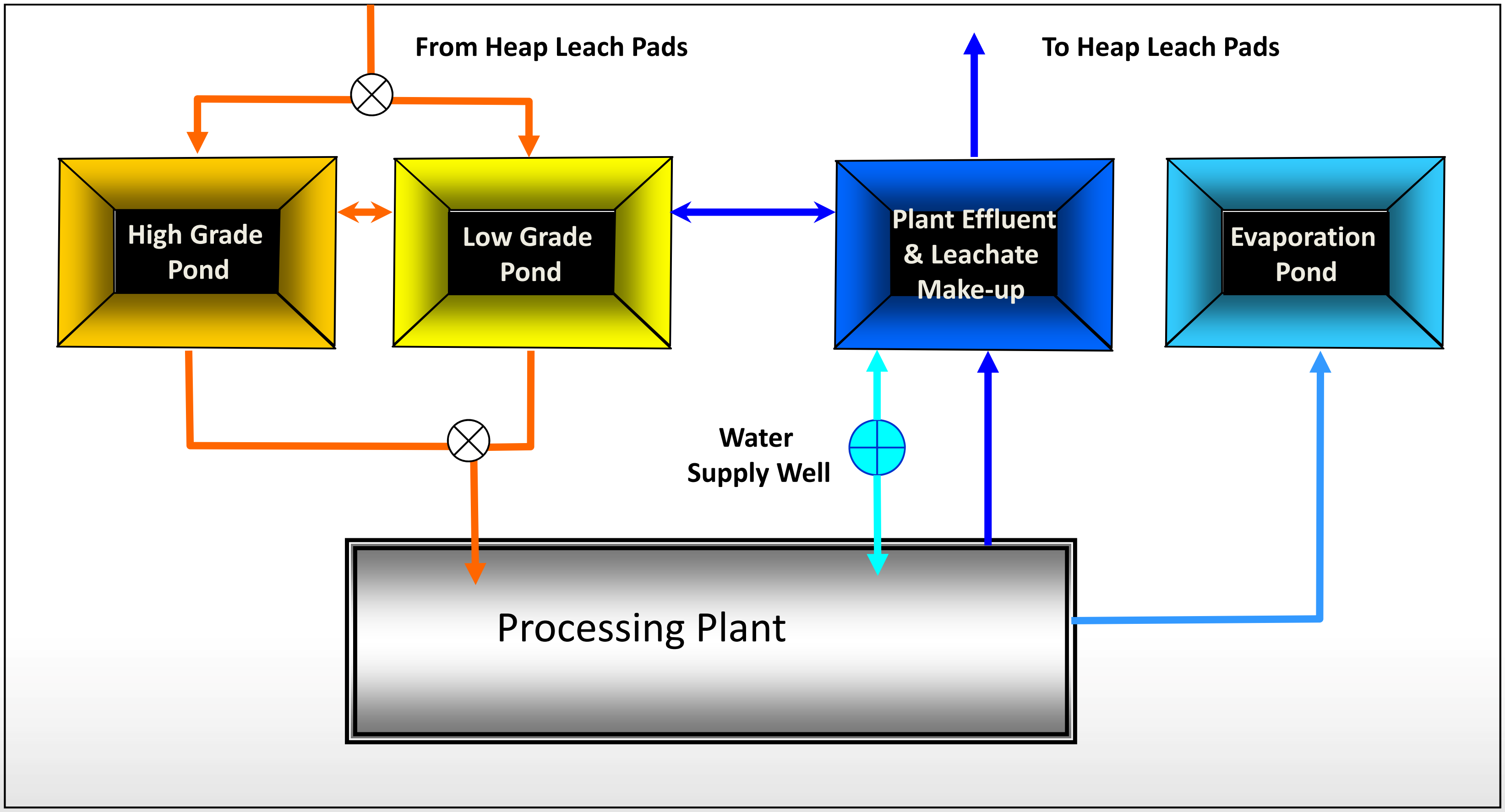
- BLM anticipates publication in Q2 or Q3 2011
- Titan has submitted to BLM a draft cost recovery MOU for 3rd Party NEPA Contractor
- RFP for procurement of 3rd Party NEPA Contractor in process
    - Anticipate NEPA Contractor for bLM selection in Q2 2011

Heap Leach Process

Heap Leach Schematic



Conceptual Recovery System Layout



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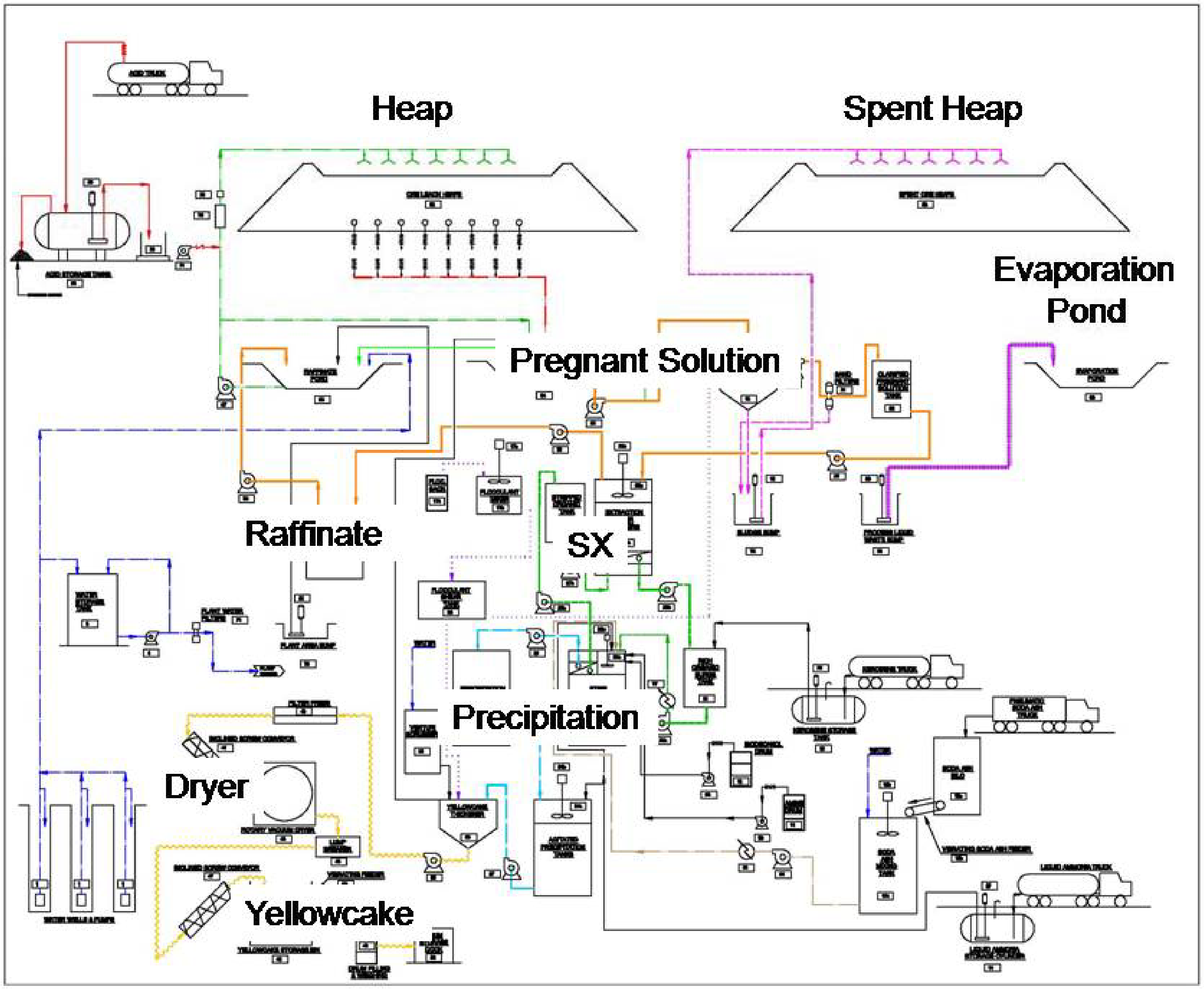
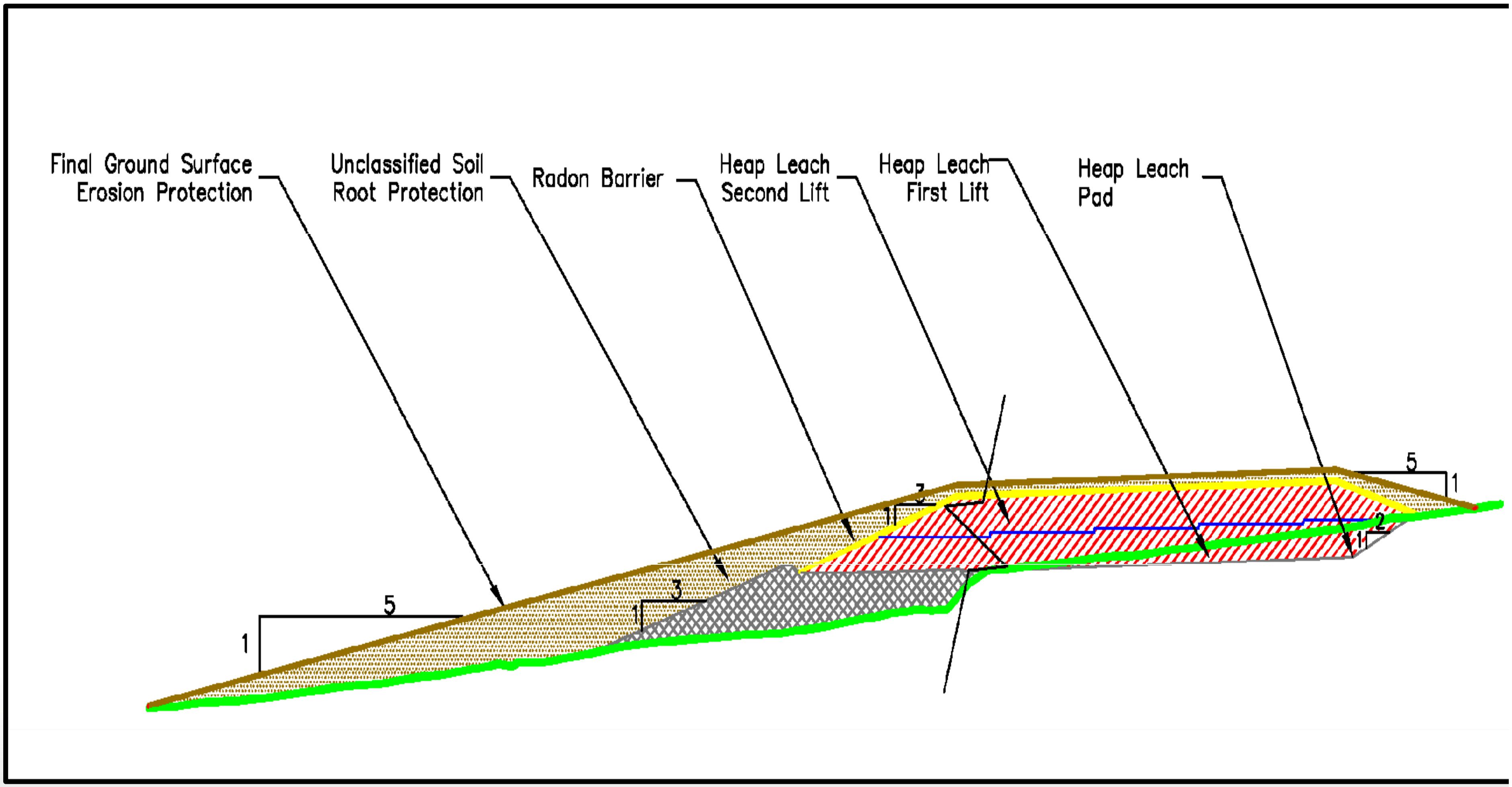


Key Points

- Active heap leach pad is part of the "mill" and the active leaching is milling
- Process Ponds are parts of the mill and will not contain any waste streams
- Milling begins with the stacking of the ore on the pad
- Milling ends when uranium recovery is complete


Final Ground Surface
Erosion Protection
Unclassified Soil
Root Protection
Radon Barrier
Heap Leach
Second Lift
Heap Leach
First Lift
Heap Leach
Pad
5
1
3
1
3
1
2
1
5
1

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Constituent	Initial Grade	Tails	Recovery	Leachate
	mg/Kg	mg/Kg		mg/L or pCi/L
Aluminum	2,920	2,810	4%	203
Arsenic	3.0	1.8	40%	1.1
Barium	10.0	10.4	-4%	0.1
Boron	4.0	3.6	10%	0.9
Cadmium	0.2	0.2	30%	0.3
Calcium	499.0	275.0	45%	445
Chromium	3.5	3.0	14%	1.1
Copper	6.0	3.4	43%	3.9
Iron	5,010	3,910	22%	498
Lead	15.0	10.9	27%	2.8
Magnesium	533	420	21%	250
Manganese	31.4	19.1	39%	10.5
Molybdenum	2.7	2.0	26%	0.0
Nickel	1.1	0.2	82%	0.8
Potassium	857	783	9%	58.0
Selenium	6.2	5.4	13%	0.0
Uranium	894	21	98%	1,047
Vanadium	4.8	3.6	25%	3
Zinc	11.3	8.6	24%	5
226Radium	237	233	2%	6,700
230Thorium	570	37	94%	587,290
210Lead	169	114	33%	29,400

Heap/ISR Comparison

- **ISR**
  - Processing brings Formation Ground Water with elevated Radon into CPP.
  - Flow rates 3,500 – 7,000 gpm
- **HEAP LEACH**
  - 98% of radium remains in the heap
  - Short lixiviant residence time in heap
  - Average Flow Rate @ Sheep 350 gpm
  - Low radon levels expected in leachate sent to plant

Heap/Conventional Comparison

- **CONVENTIONAL MILLING PHYSICALLY ALTERS ORE**
  - Processing brings **ore** and associated **radium** into Mill
  - Grinding reduces grain size
  - Milling process separates sands and slimes
  - Slimes concentrate **radium**, retain moisture, have low strength
  - Resulting in lengthy process (decades) to stabilize and reclaim
- **HEAP LEACH DOES NOT PHYSICALLY ALTER ORE**
  - 98% of radium remains in the Heap
  - Heap remains comingled
    - No grinding; no sand slime separation; no concentration of radium
  - Built on a liner with a positive drain
  - Reclamation can proceed efficiently

Mill Details

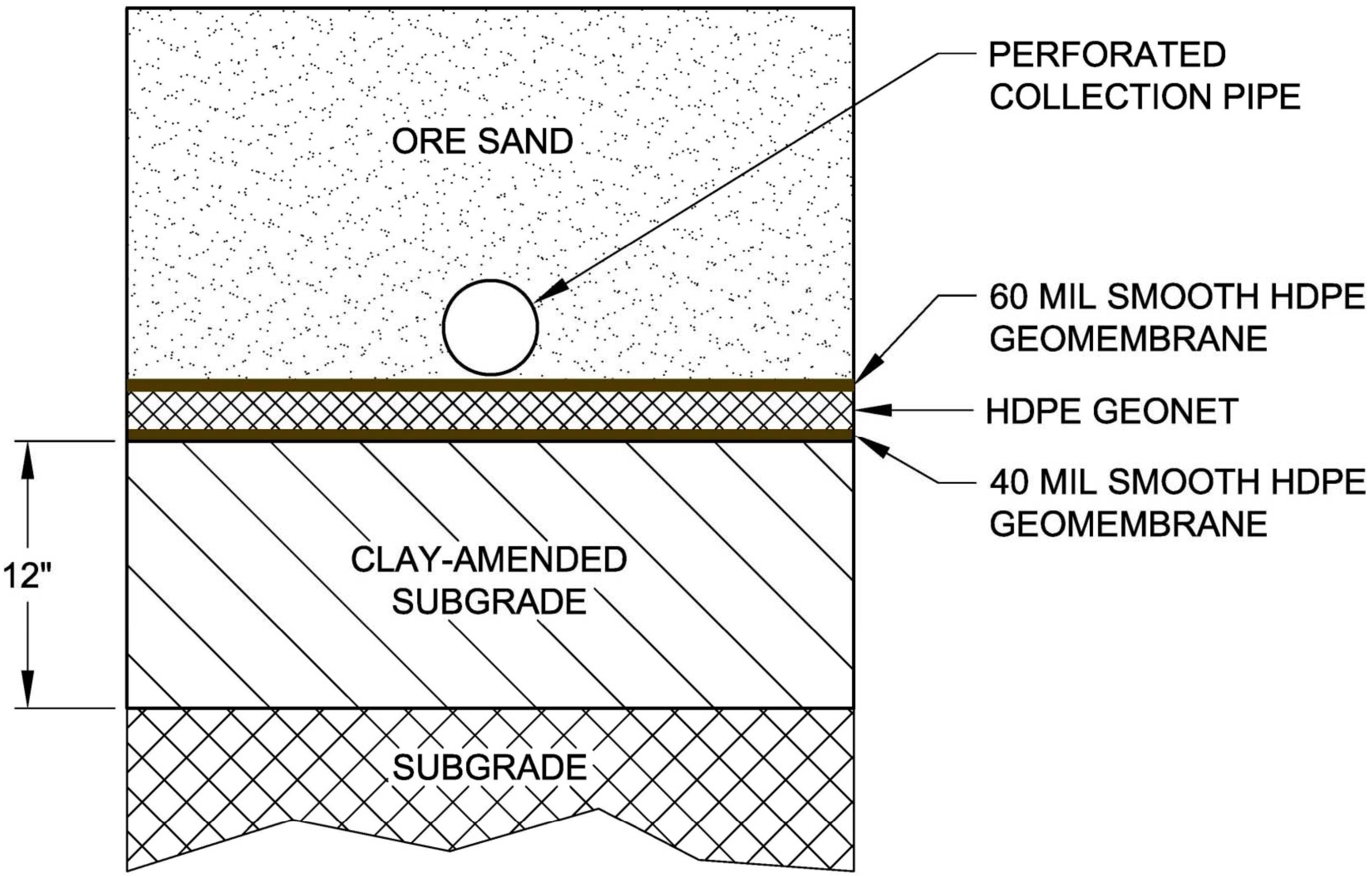
Heap & Pond Liner Details

Heap Cap and Cover

Heap Leach Facility

Heap Leach Pad

- Double lined, leak detection, clay amended sub grade
- Loading up to 2,600 tons/day, roughly 1,800 cy/day
- 25 ft lifts, maximum height 50 ft
- 200 ft wide by 1,600 ft long lifts installed via continuous stacker
- Stacking and leaching of lifts is phased to minimize amount of uncovered spent heap (tailings)
- Lixiviant is 1 normal H_2SO_4
  - applied at 0.005 gpm/sq ft
- Approx. 1.6 acres under primary leach at any one time
  - 360 gpm of leachate in process


ORE SAND
PERFORATED
COLLECTION PIPE
60 MIL SMOOTH HDPE
GEOMEMBRANE
HDPE GEONET
40 MIL SMOOTH HDPE
GEOMEMBRANE
12"
CLAY-AMENDED
SUBGRADE
SUBGRADE


Mobile Grasshopper / Radial
Stacking
Courtesy: Terra Nova Technologies, Inc.
Santee, CA
www.tnt.inc.com


Ore Stacker

<u>Heap Leach Facility (con’t)</u>

Active milling cycle includes:

- Stacking
- Primary leach
- “Resting” heap to enhance recovery
- Secondary leach
- Rinse
- Draindown

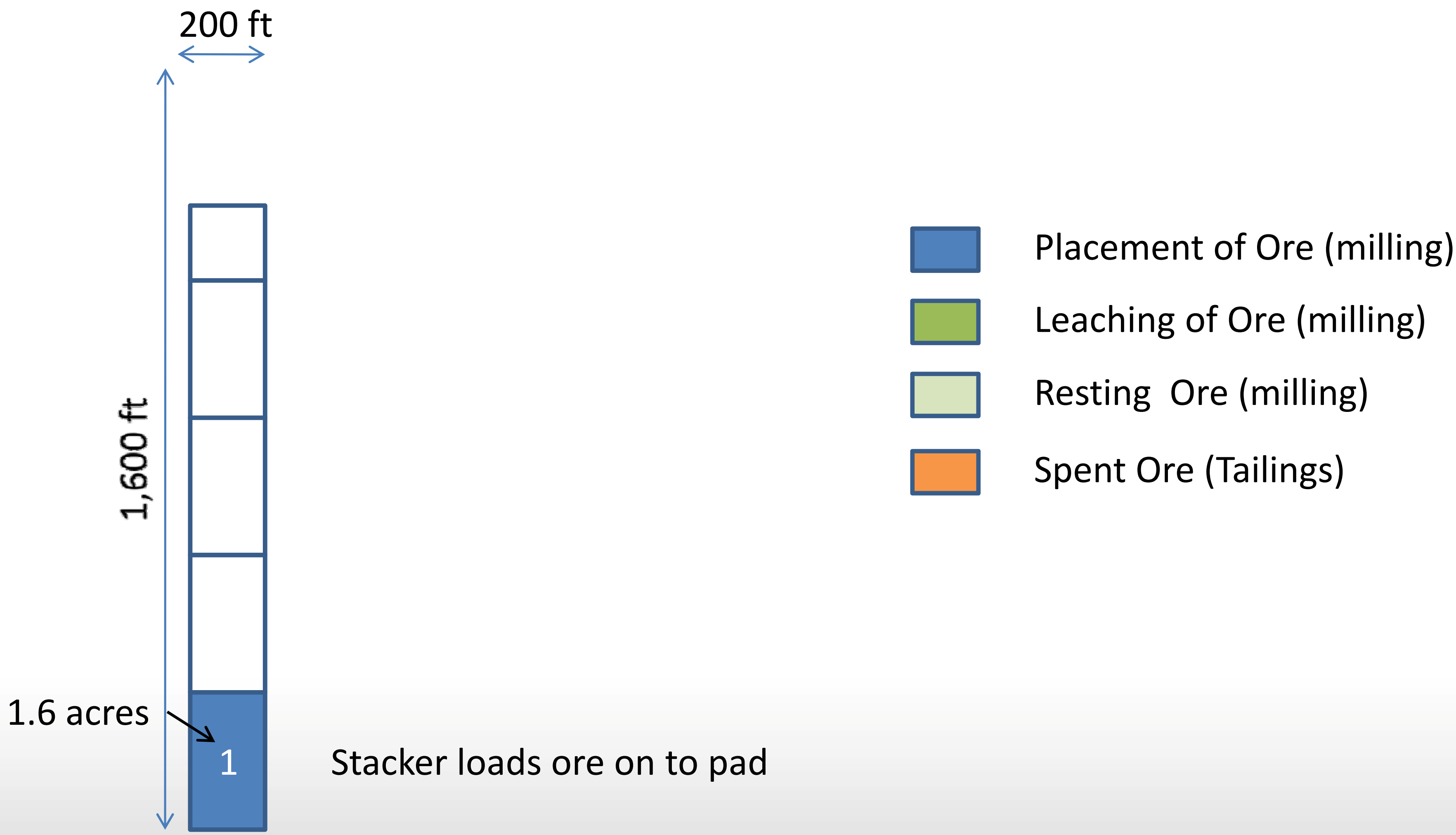
Once active leaching and uranium recovery is complete, heap becomes ***inactive*** tailings

Heap Leach Facility (con't)

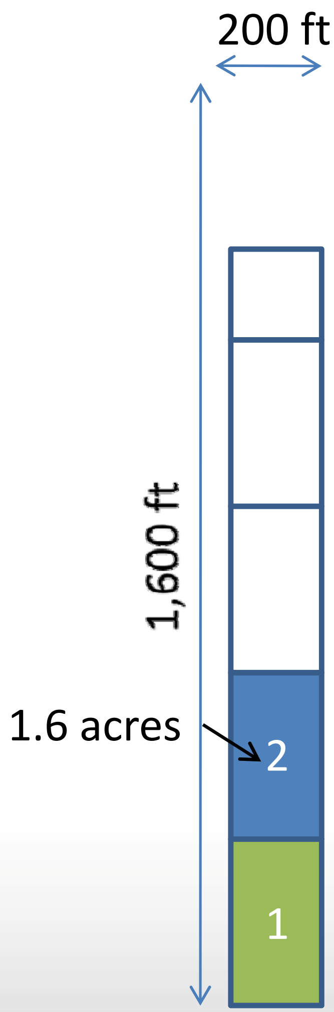
- Up to 45 acres of heap open at any one time
  - < 40 acres would be spent heap (tailings)
- A single heap leach pad (one continuous liner) may at any one time contain:
  - Open and unloaded pad
  - Un-leached ore
  - Ore under active leaching (milling)
  - Ore being "rested" between leach cycles (milling)
  - Ore being rinsed for final value recovery and heap detoxification (milling)
  - Spent ore (tailings) waiting to be covered
  - Spent ore (tailings) being covered
  - Covered spent ore (tailings)

Conceptual Heap Sequencing

Stacking and Leaching Sequence



Stacking and Leaching Sequence

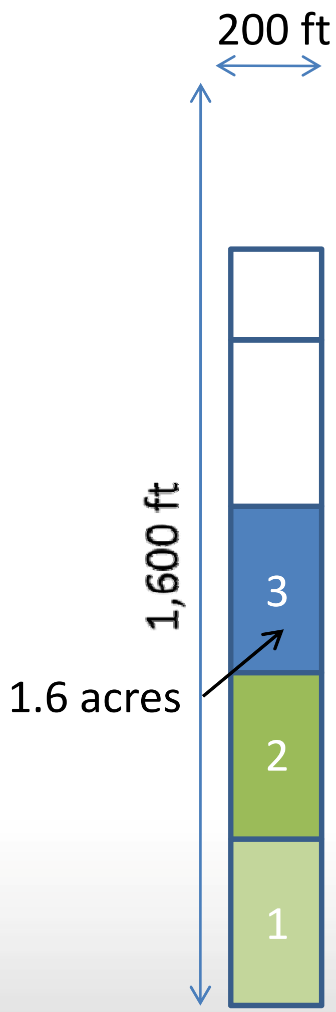


- Placement of Ore (milling)
- Leaching of Ore (milling)
- Resting Ore (milling)
- Spent Ore (Tailings)

Stacker retreats as it stacks ore

Ore Leaching follows stacking in 1.6 acre increments
0.005 gpm/sq ft x 1.6 acres = 360 gpm

Stacking and Leaching Sequence



Placement of Ore (milling)

Leaching of Ore (milling)

Resting Ore (milling)

Spent Ore (Tailings)

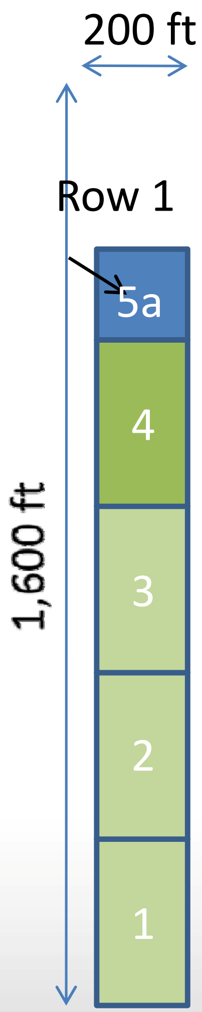
Stacker retreats as it stacks ore

Ore Leaching follows stacking in 1.6 acre increments
0.005 gpm/sq ft x 1.6 acres = 350 gpm

Ore is rested to allow additional oxidation

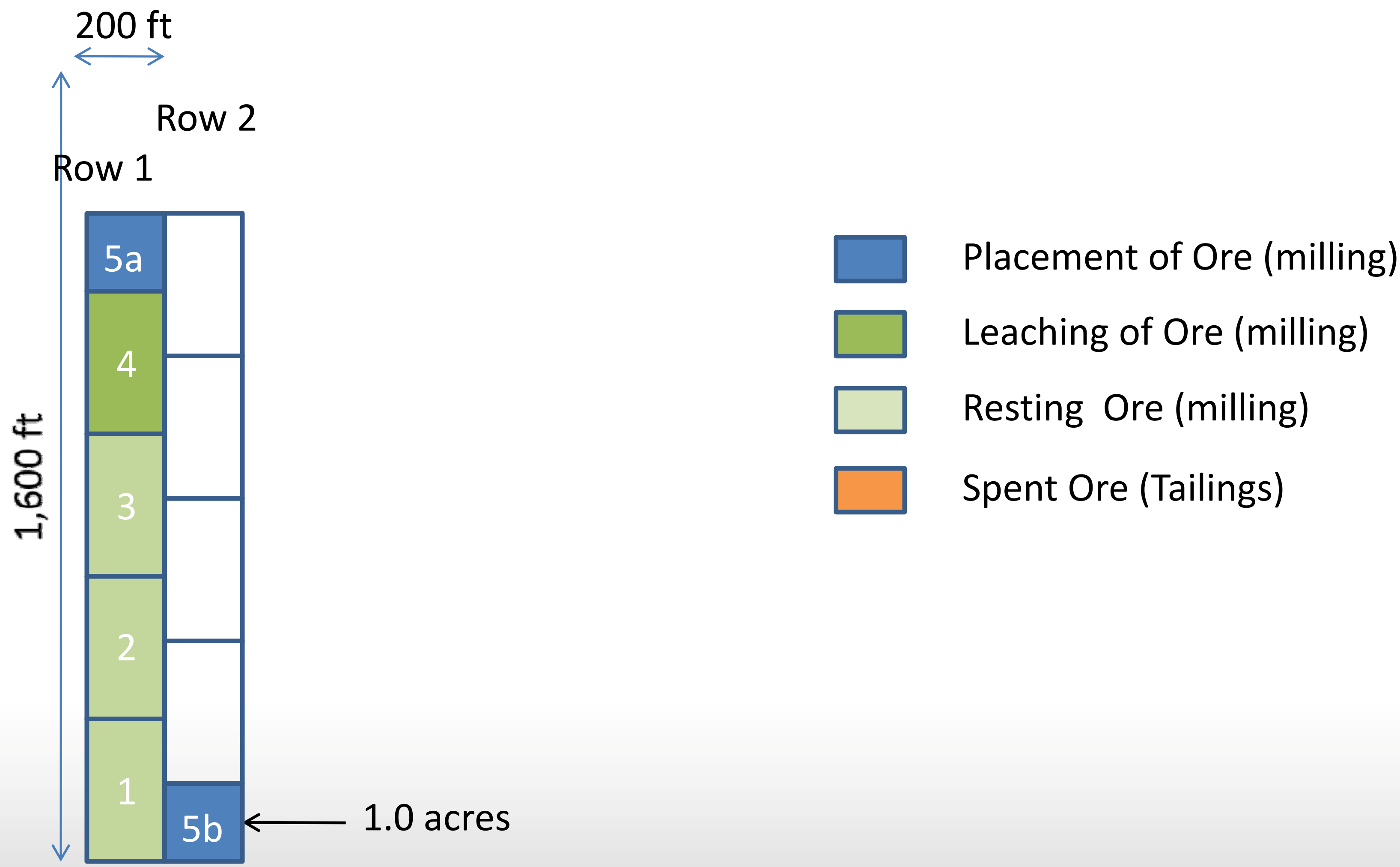

200 ft
1.6 acres
1,600 ft
4
3
2
1
Placement of Ore (milling)
Leaching of Ore (milling)
Resting Ore (milling)
Spent Ore (Tailings)

Stacking and Leaching Sequence

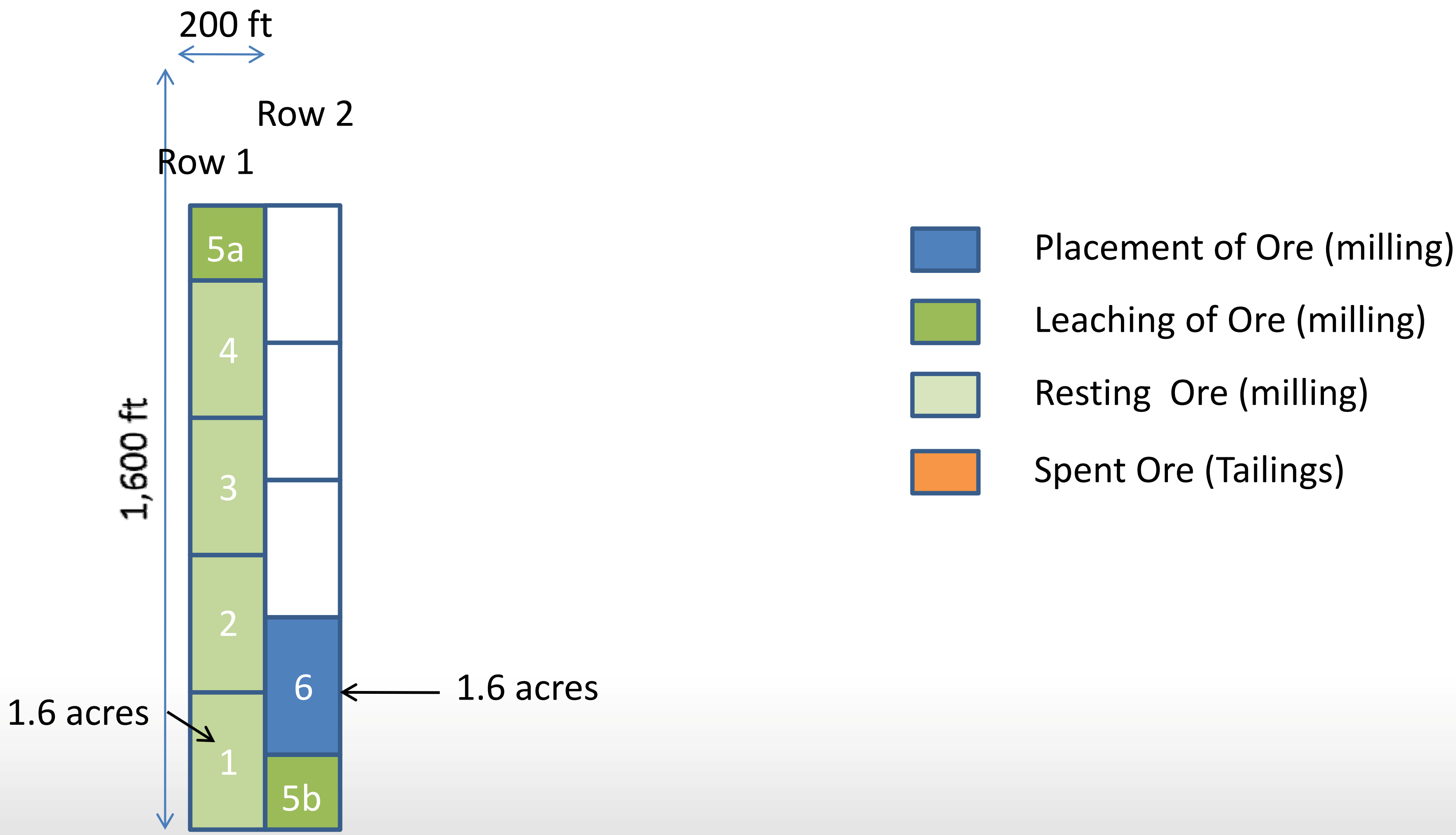


Blue	Placement of Ore (milling)
Green	Leaching of Ore (milling)
Light green	Resting Ore (milling)
Orange	Spent Ore (Tailings)

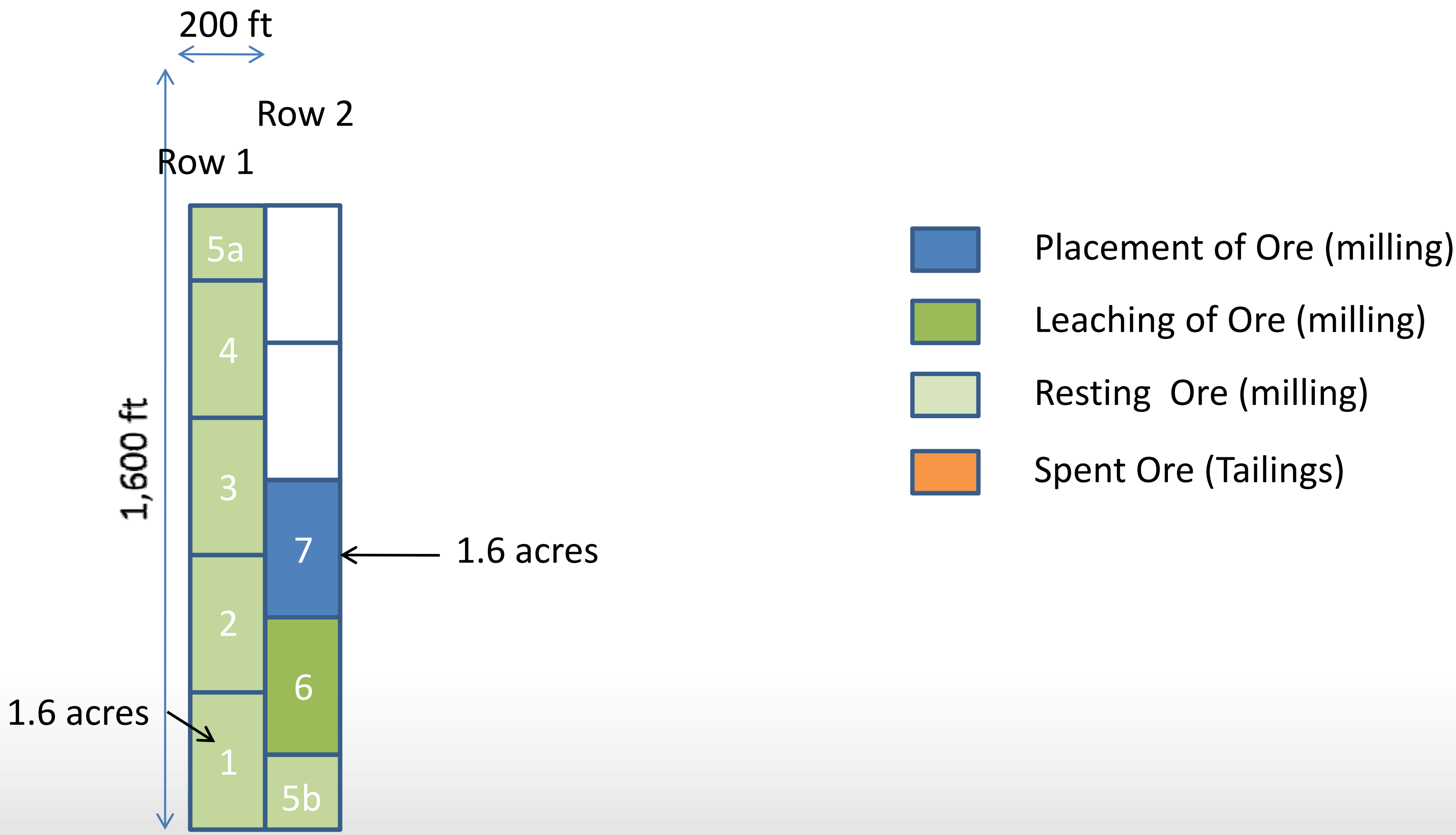
Stacking and Leaching Sequence



Stacking and Leaching Sequence



Stacking and Leaching Sequence



Stacking and Leaching Sequence

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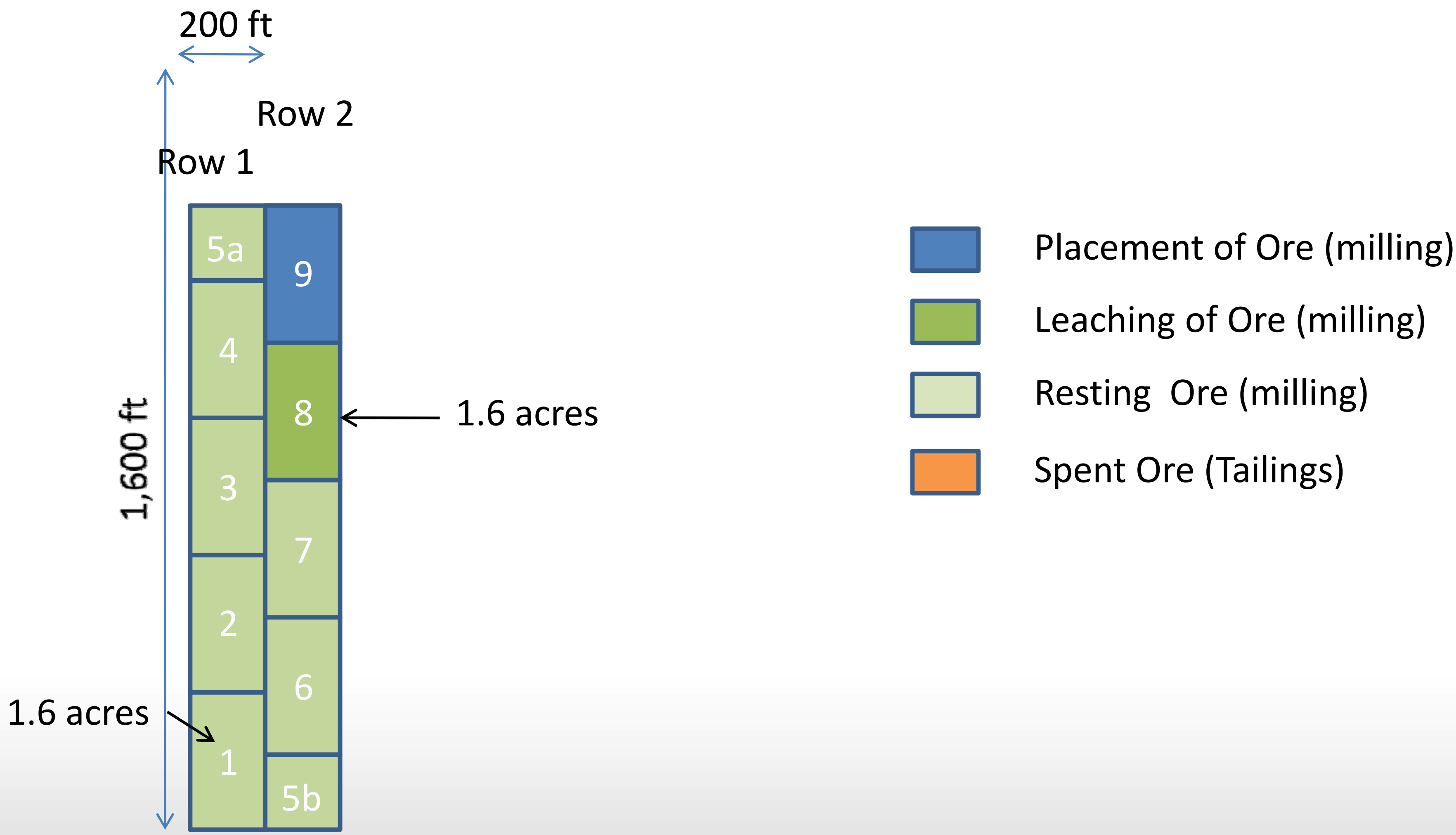
Stacking and Leaching Sequence



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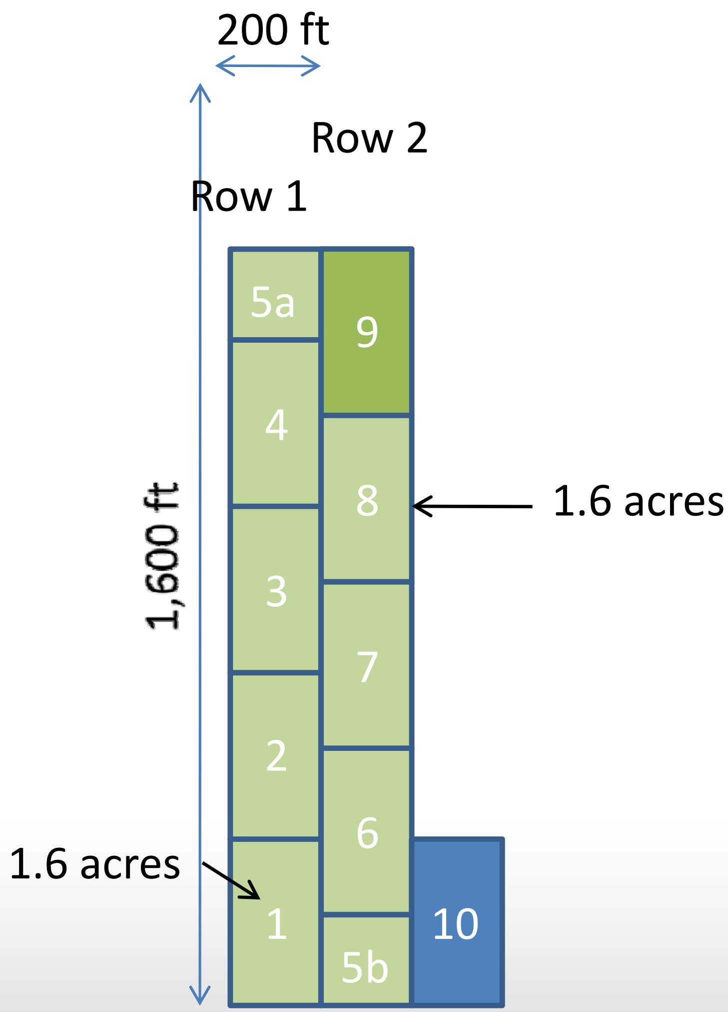
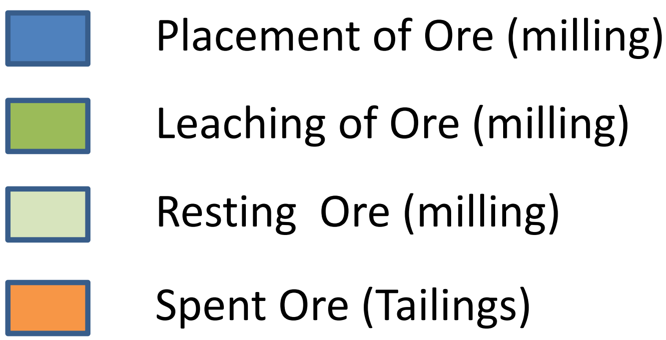
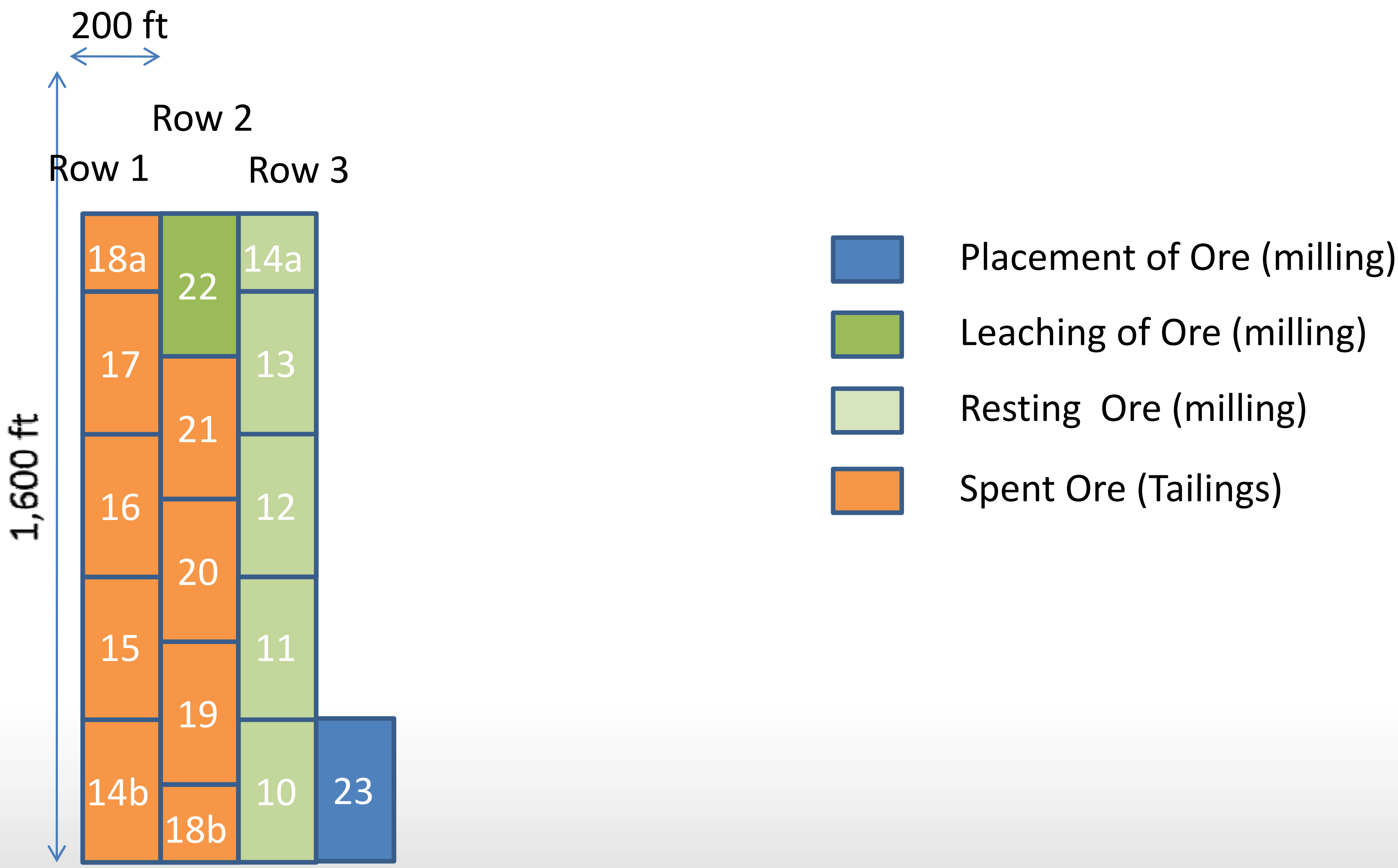
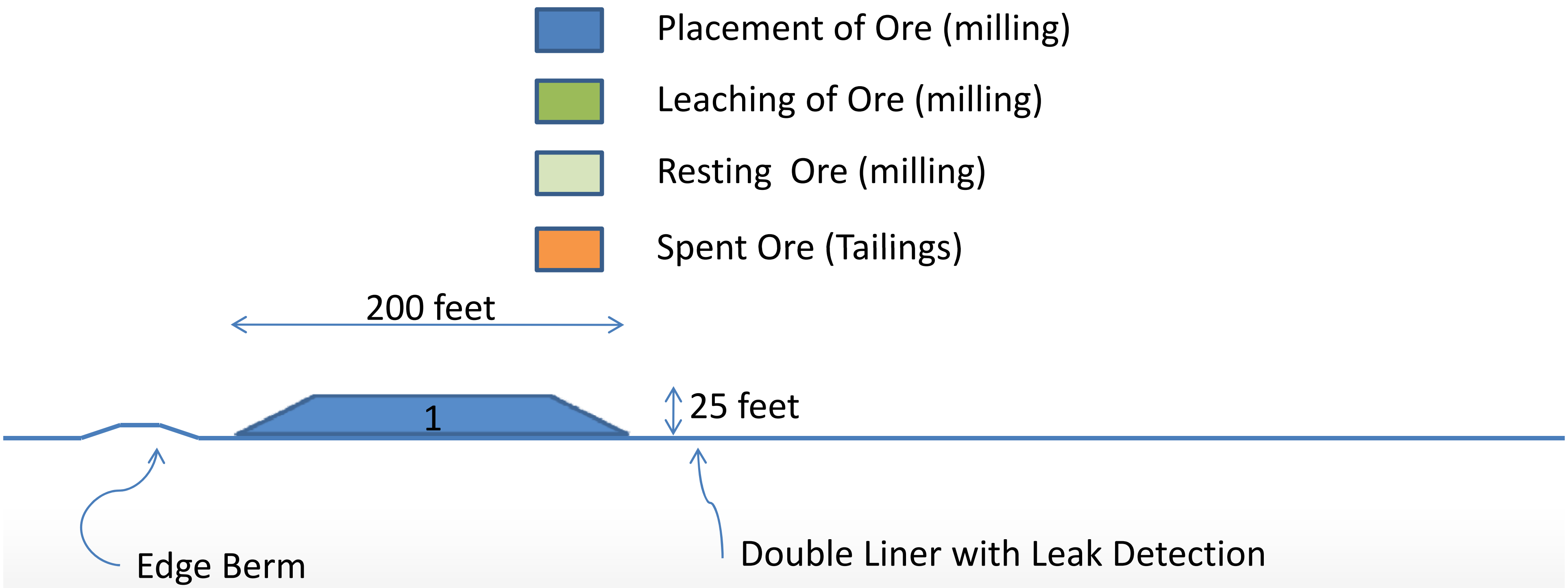




Stacking and Leaching Sequence



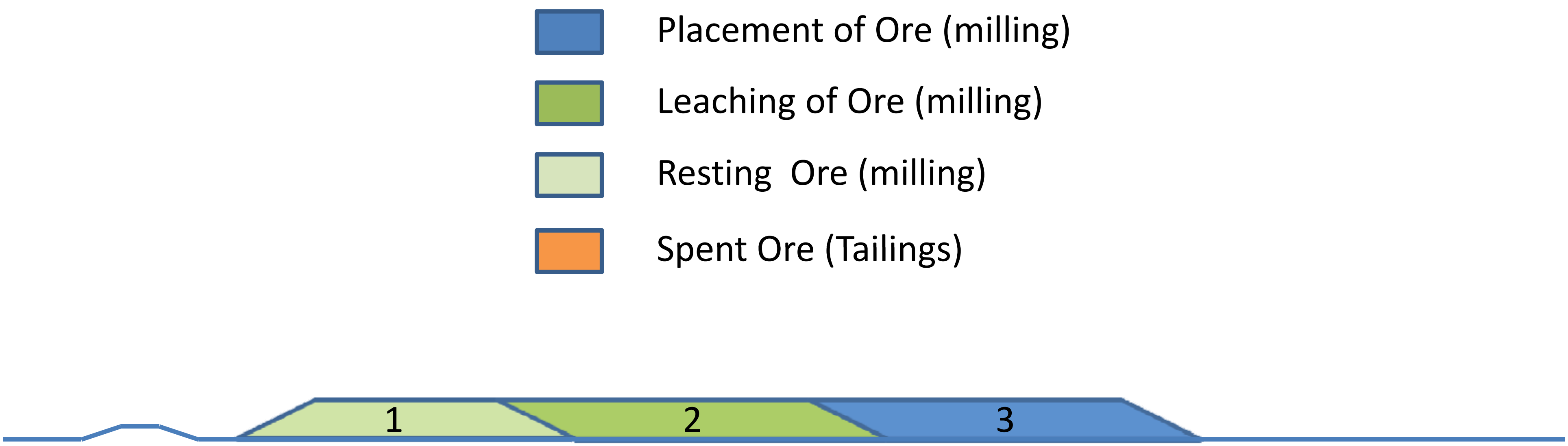

Placement of Ore (milling)
Leaching of Ore (milling)
Resting Ore (milling)
Spent Ore (Tailings)
200 feet
1
25 feet
Edge Berm
Double Liner with Leak Detection

Placement of Ore (milling)

Leaching of Ore (milling)

Resting Ore (milling)

Spent Ore (Tailings)

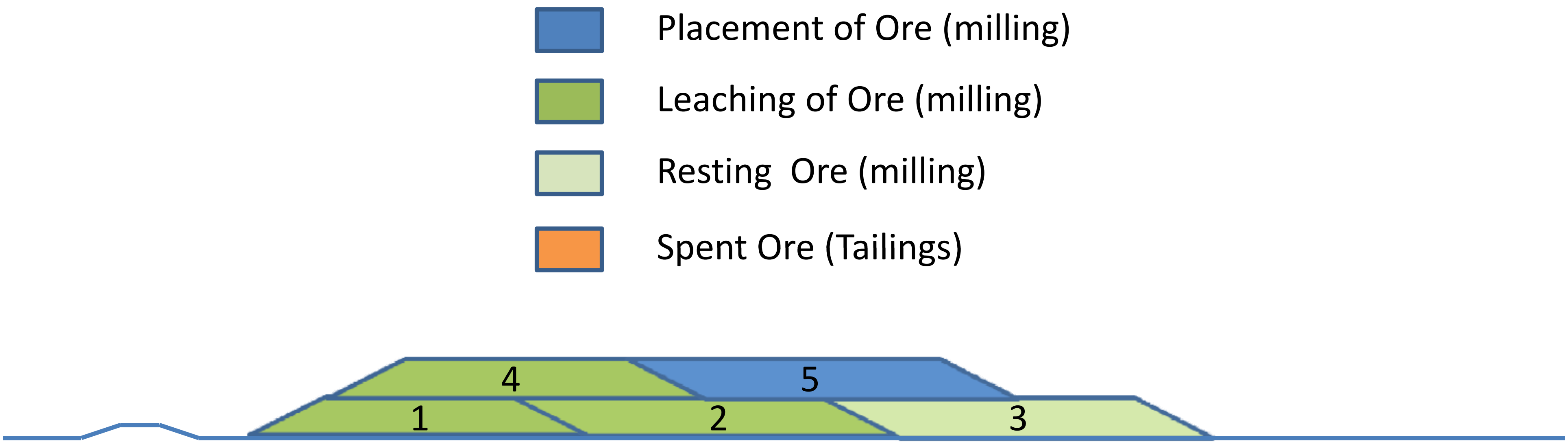

Placement of Ore (milling)
Leaching of Ore (milling)
Resting Ore (milling)
Spent Ore (Tailings)
1
2
3

Placement of Ore (milling)

Leaching of Ore (milling)

Resting Ore (milling)

Spent Ore (Tailings)



Placement of Ore (milling)
Leaching of Ore (milling)
Resting Ore (milling)
Spent Ore (Tailings)
4
5
1
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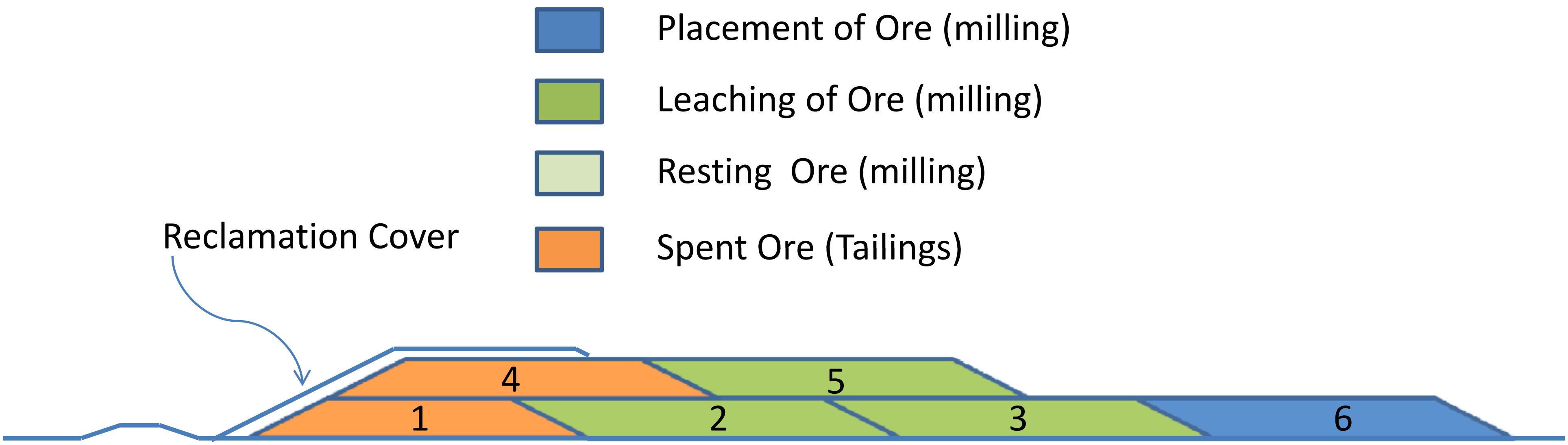
Placement of Ore (milling)
Leaching of Ore (milling)
Resting Ore (milling)
Spent Ore (Tailings)
Reclamation Cover
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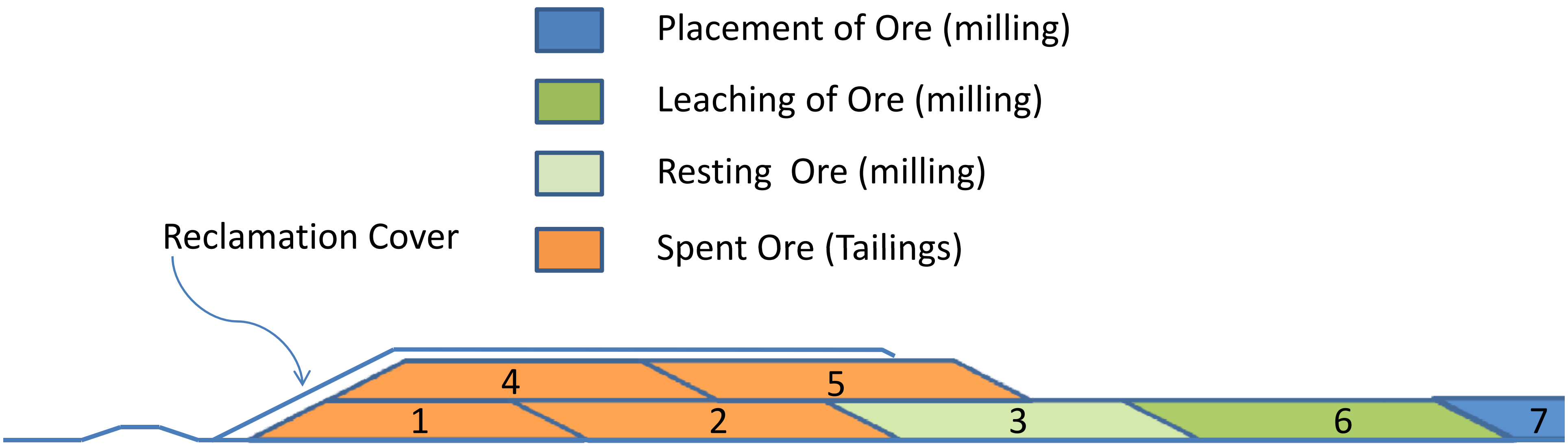
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Leaching of Ore (milling)
Resting Ore (milling)
Spent Ore (Tailings)
Reclamation Cover
4
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6
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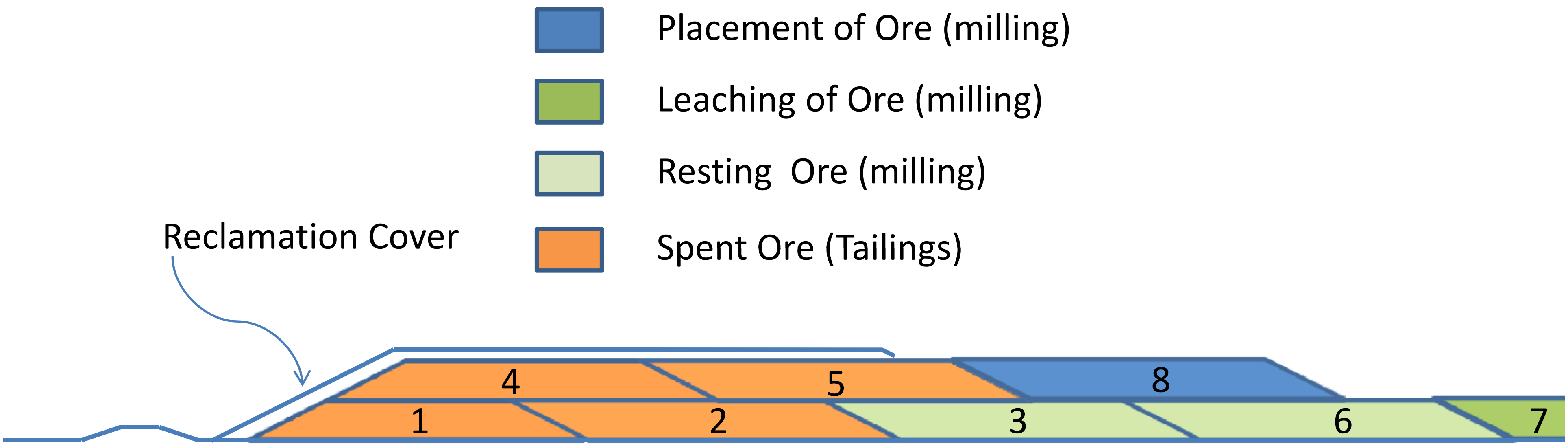
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Reclamation Cover
4
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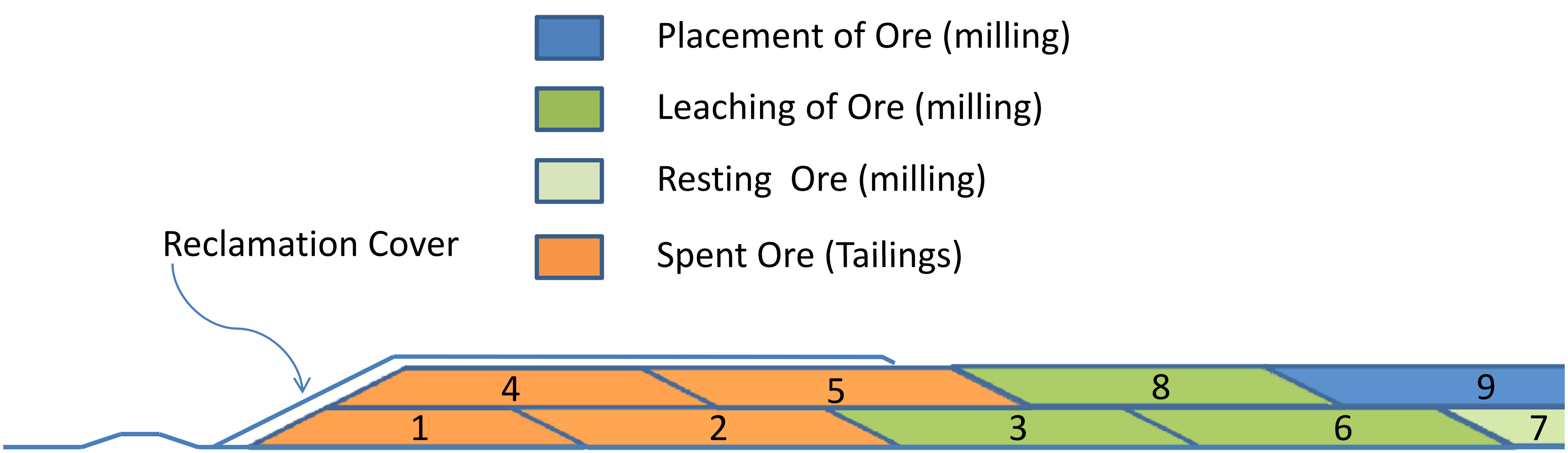
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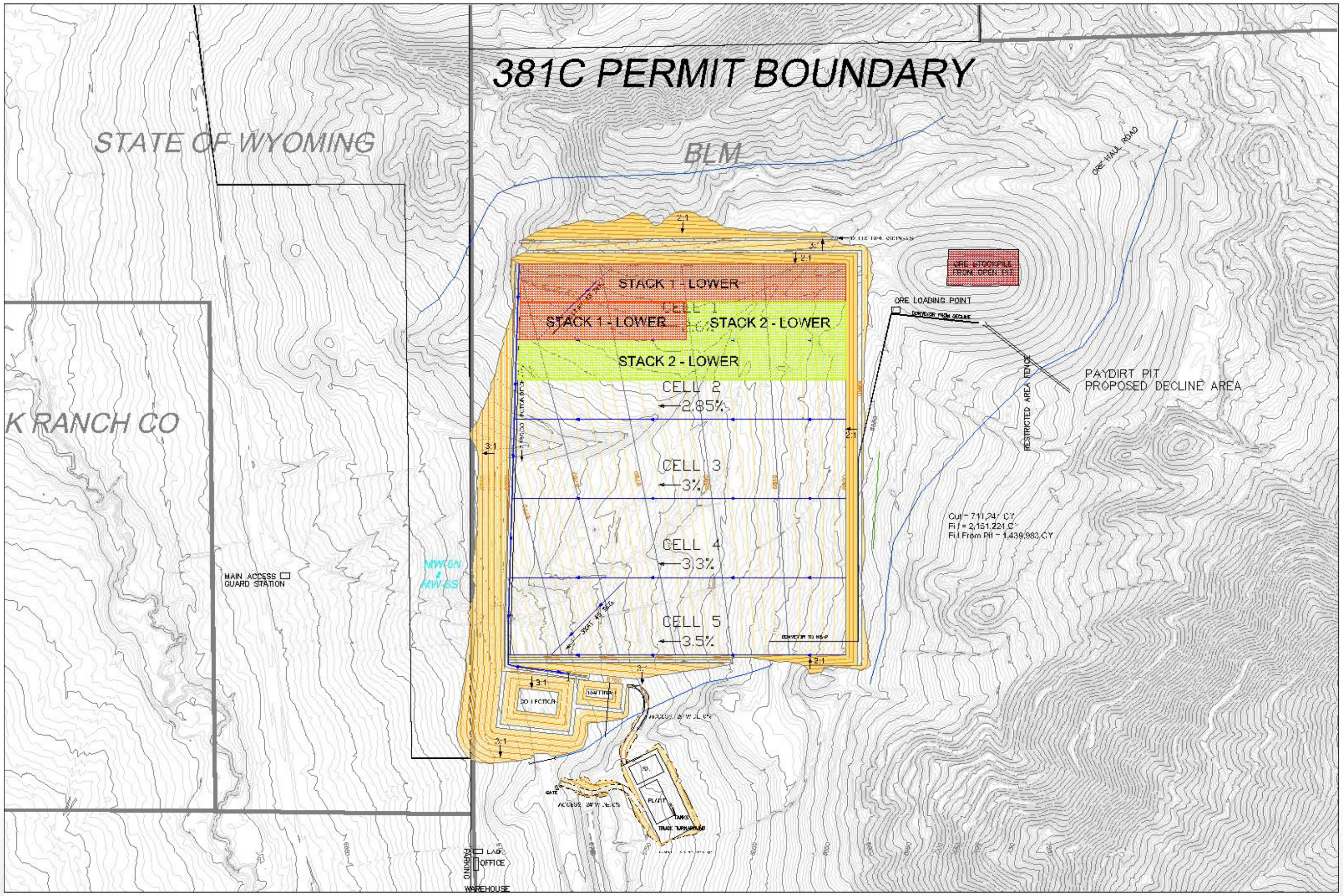
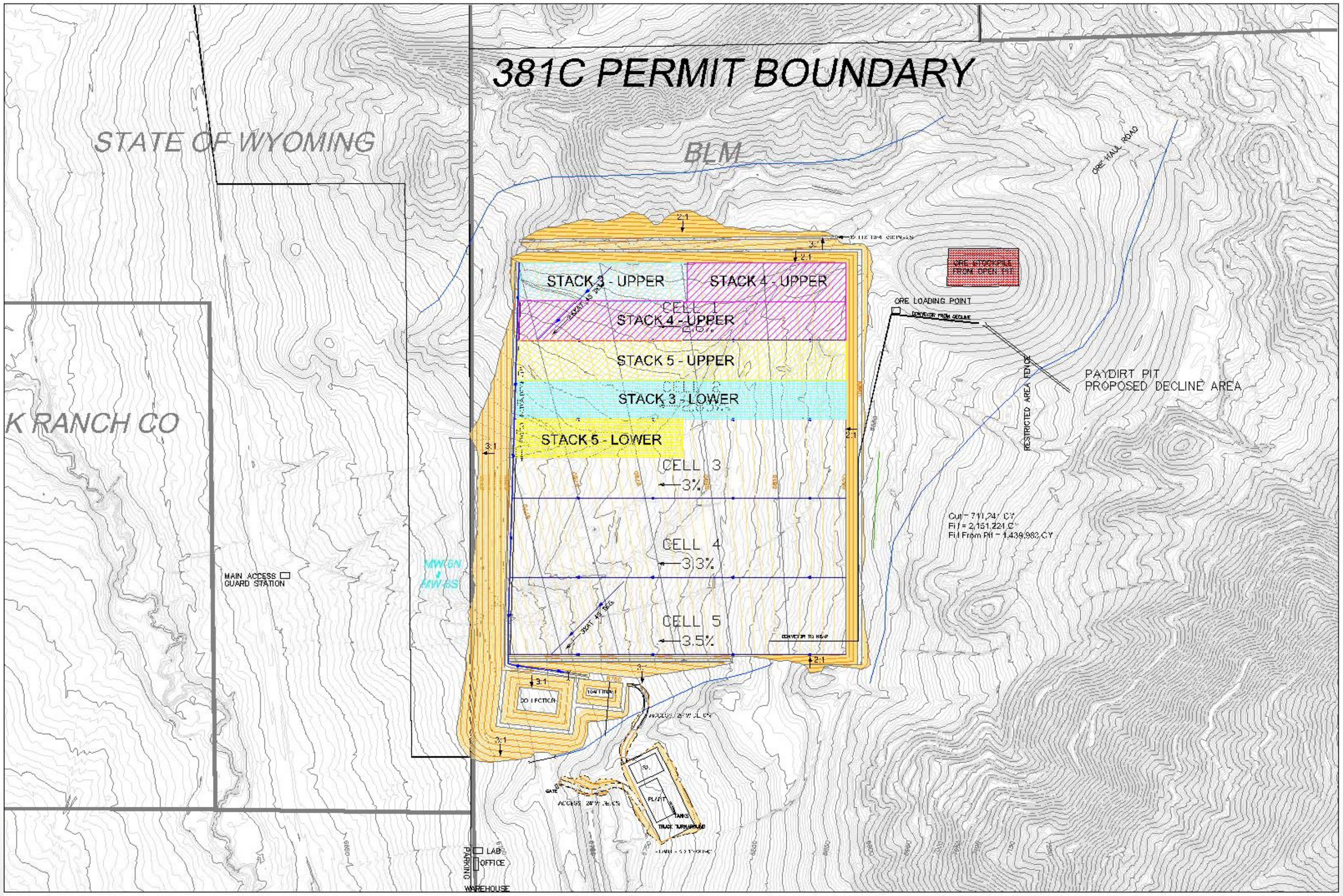
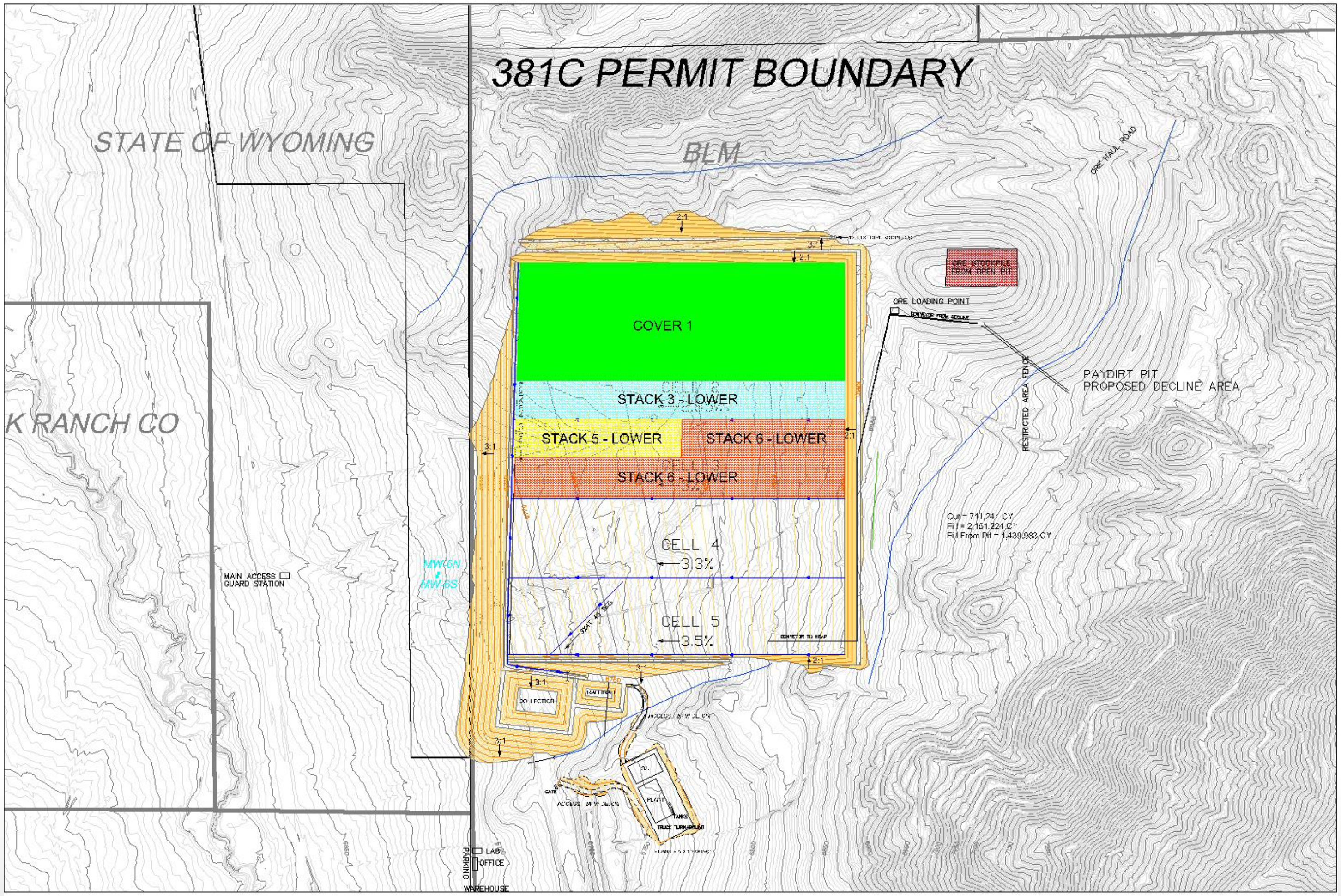
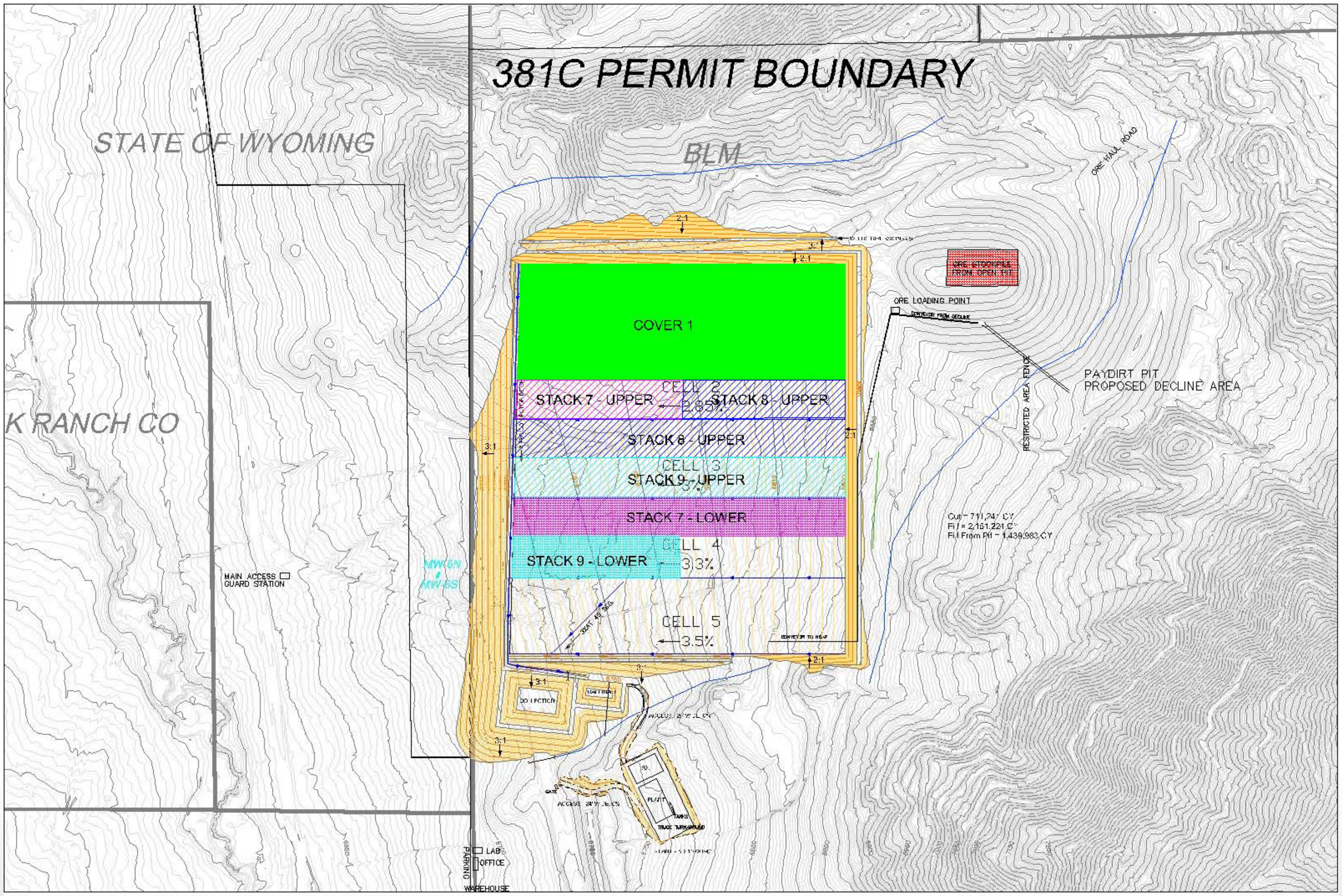
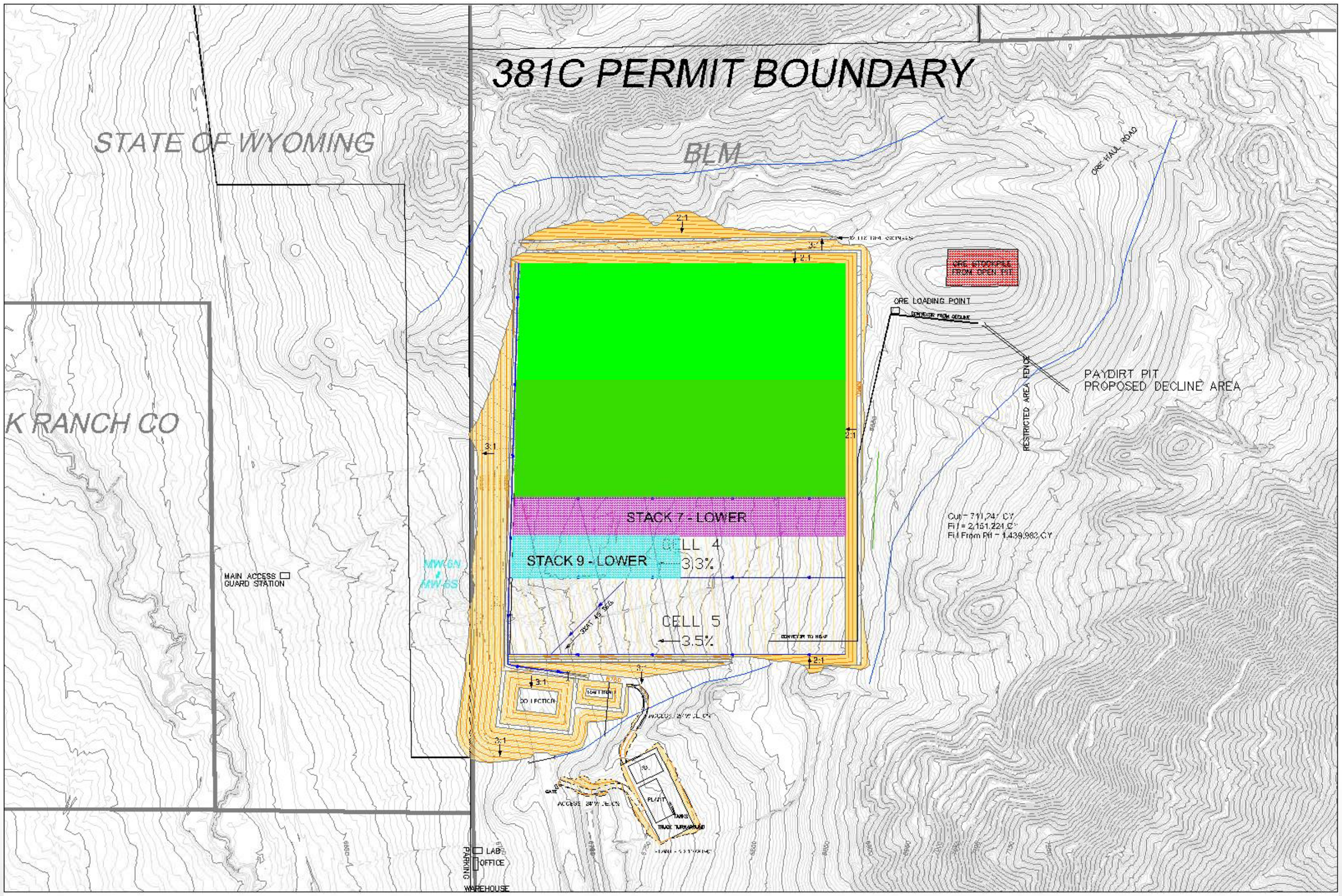
Leaching of Ore (milling)
Resting Ore (milling)
Spent Ore (Tailings)
Reclamation Cover
4
5
8
9
1
2
3
6
7

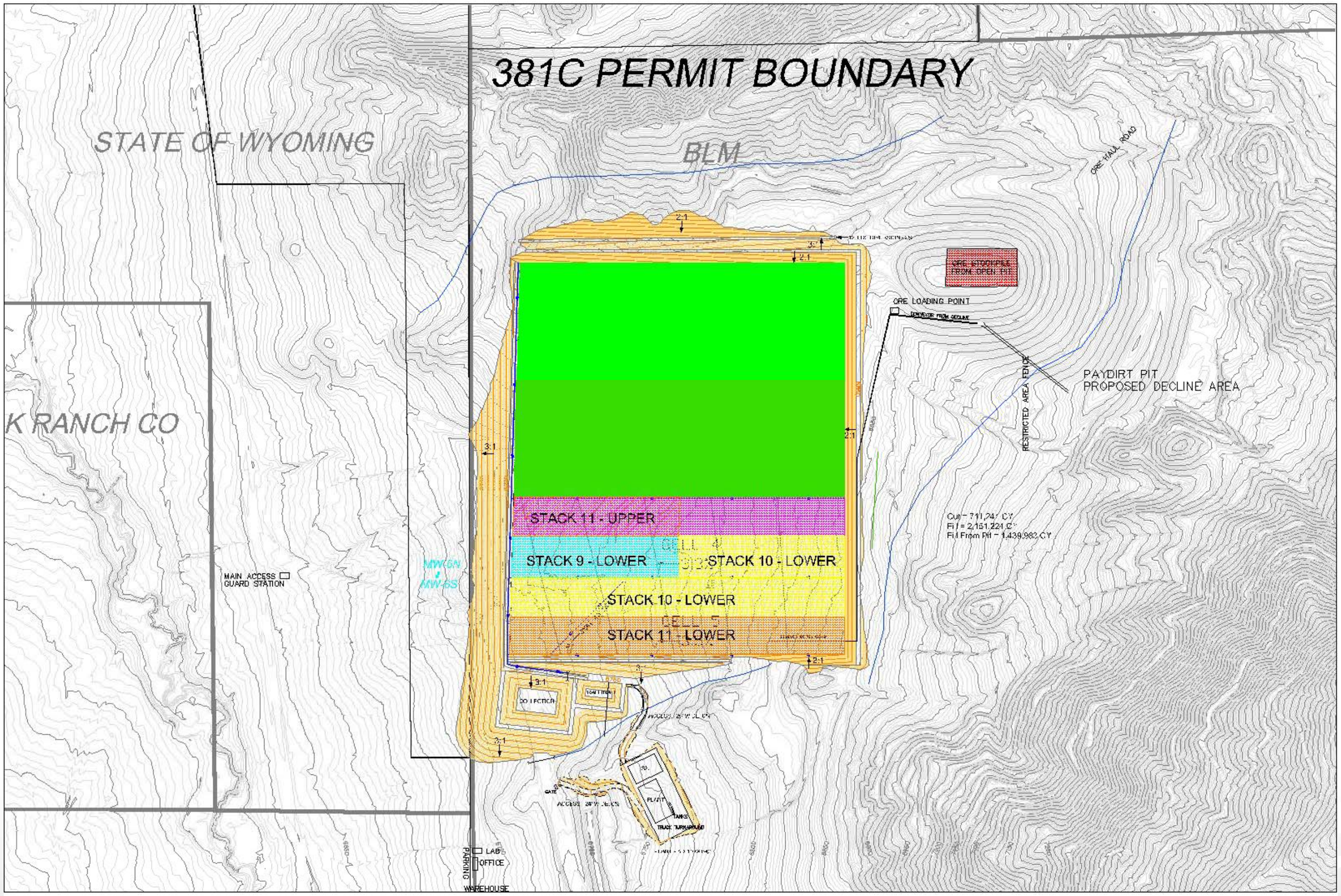

381C PERMIT BOUNDARY
STATE OF WYOMING
BLM
K RANCH CO
ORE HAUL ROAD
ORE STOCKPILE
FROM OPEN PIT
ORE LOADING POINT
CONVEYOR FROM DECLINE
STACK 1 - LOWER
CELL 1
STACK 1 - LOWER
STACK 2 - LOWER
STACK 2 - LOWER
CELL 2
2.85%
CELL 3
3%
CELL 4
3.3%
CELL 5
3.5%
RESTRICTED AREA FENCE
PAYDIRT PIT
PROPOSED DECLINE AREA
MAIN ACCESS
GUARD STATION

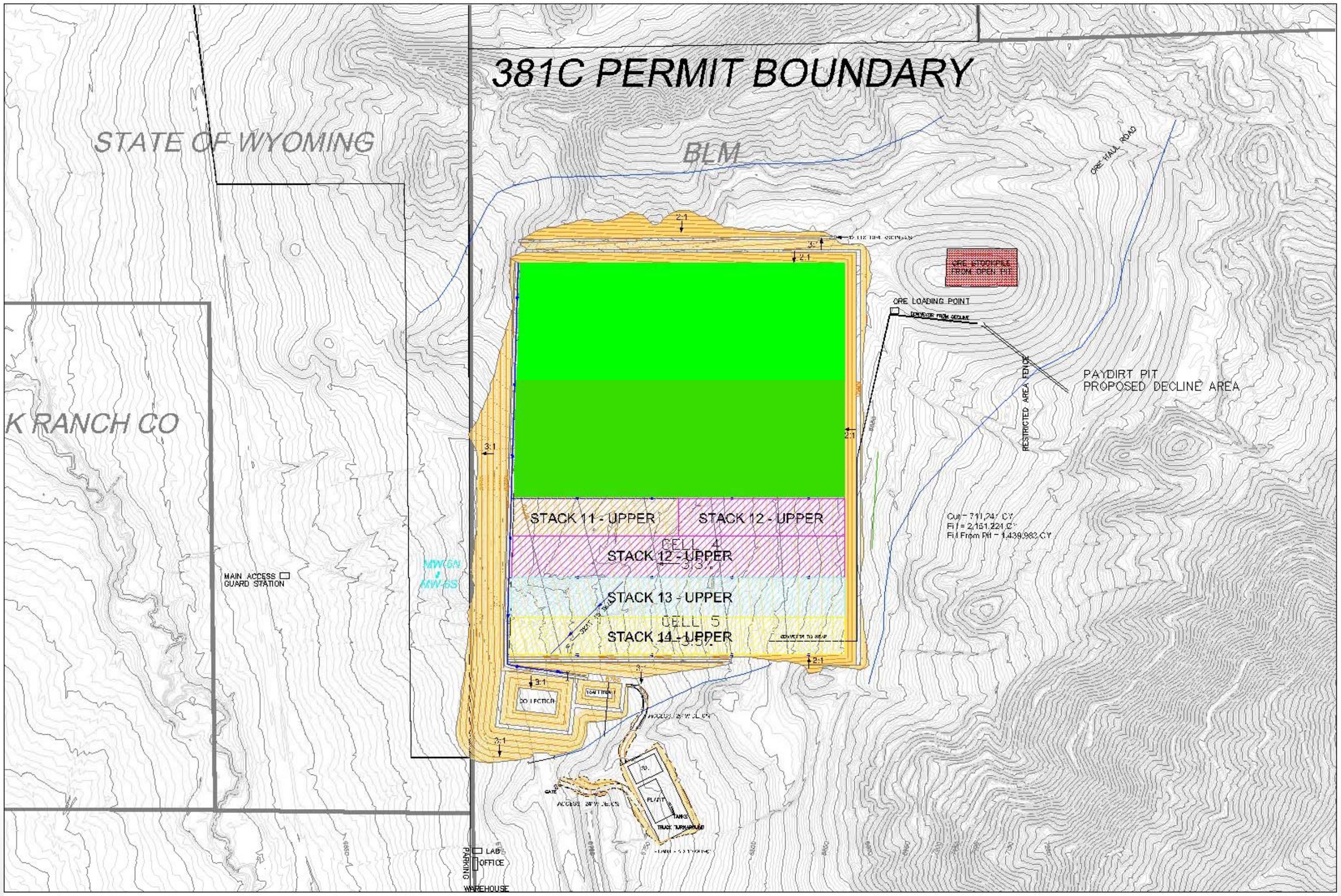

381C PERMIT BOUNDARY
STATE OF WYOMING
BLM
K RANCH CO
STACK 3 - UPPER
STACK 4 - UPPER
STACK 4 - UPPER
STACK 5 - UPPER
STACK 3 - LOWER
STACK 5 - LOWER
CELL 3
3%
CELL 4
3.3%
CELL 5
3.5%
ORE LOADING POINT
PAYDIRT PIT
PROPOSED DECLINE AREA
RESTRICTED AREA FENCE
MAIN ACCESS GUARD STATION
LAB
OFFICE
WAREHOUSE
PARKING


381C PERMIT BOUNDARY
STATE OF WYOMING
BLM
K RANCH CO
COVER 1
STACK 3 - LOWER
STACK 5 - LOWER
STACK 6 - LOWER
STACK 6 - LOWER
CELL 4
3.3%
CELL 5
3.5%
ORE LOADING POINT
PAYDIRT PIT
PROPOSED DECLINE AREA
RESTRICTED AREA FENCE
MAIN ACCESS
GUARD STATION
COLLECTION
LAB
OFFICE
WAREHOUSE
PARKING


381C PERMIT BOUNDARY
STATE OF WYOMING
BLM
K RANCH CO
COVER 1
CELL 2
STACK 7 - UPPER
STACK 8 - UPPER
STACK 8 - UPPER
CELL 3
STACK 9 - UPPER
STACK 7 - LOWER
CELL 4
3.3%
STACK 9 - LOWER
CELL 5
3.5%
ORE LOADING POINT
PAYDIRT PIT
PROPOSED DECLINE AREA
RESTRICTED AREA FENCE
ORE HAUL ROAD
MAIN ACCESS
GUARD STATION
LAB
OFFICE
PARKING
WAREHOUSE
COLLECTION
PLANT
TANKS
GATE


381C PERMIT BOUNDARY
STATE OF WYOMING
BLM
K RANCH CO
ORE LOADING POINT
PAYDIRT PIT
PROPOSED DECLINE AREA
STACK 7 - LOWER
STACK 9 - LOWER
CELL 4
3.3%
CELL 5
3.5%
MAIN ACCESS
GUARD STATION
LAB
OFFICE
WAREHOUSE
PARKING

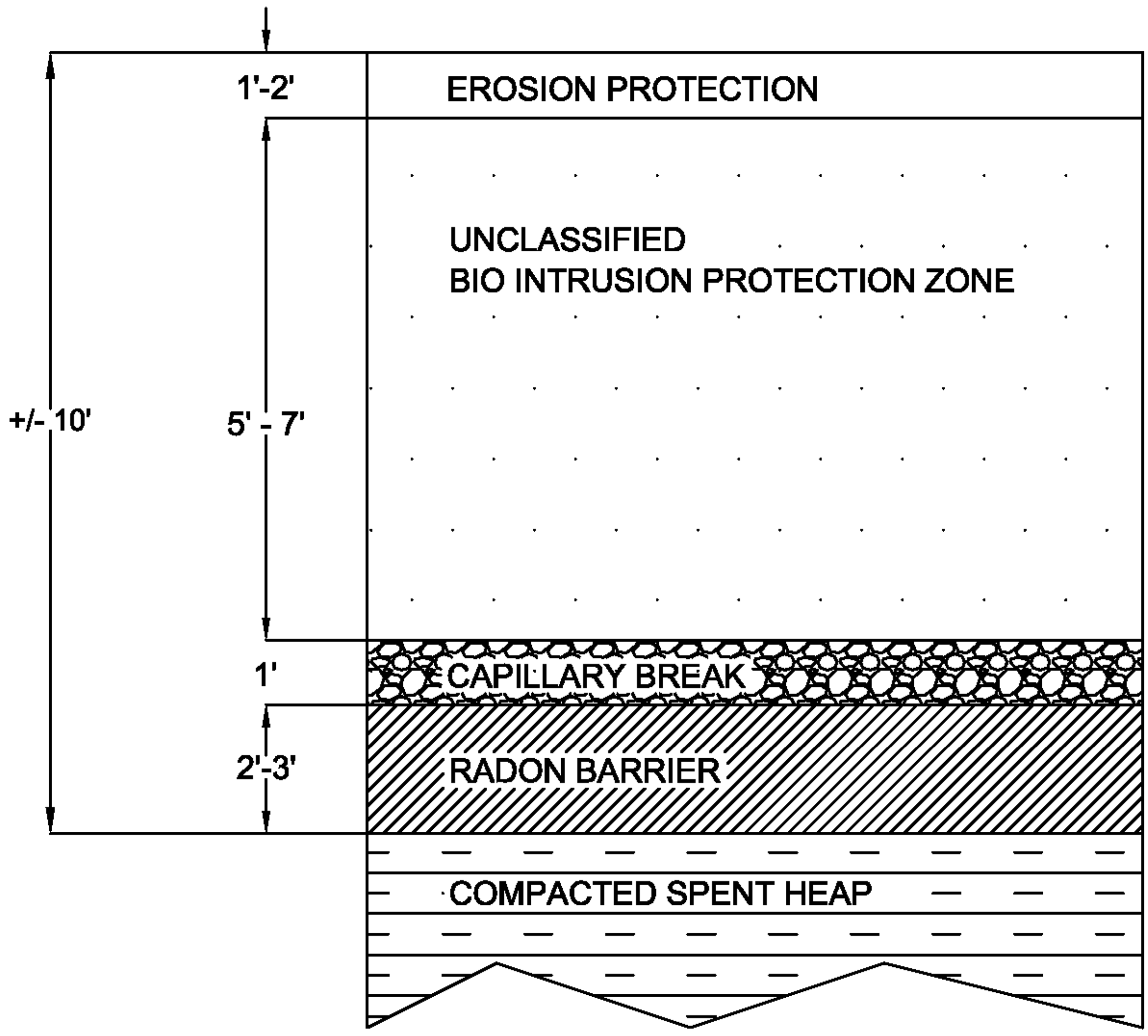

381C PERMIT BOUNDARY
STATE OF WYOMING
BLM
K RANCH CO
STACK 11 - UPPER
STACK 9 - LOWER
STACK 10 - LOWER
STACK 10 - LOWER
STACK 11 - LOWER
PAYDIRT PIT
PROPOSED DECLINE AREA
ORE LOADING POINT
RESTRICTED AREA FENCE
MAIN ACCESS
GUARD STATION
LAB
OFFICE
WAREHOUSE


381C PERMIT BOUNDARY
STATE OF WYOMING
BLM
K RANCH CO
ORE STOCKPILE FROM OPEN PIT
ORE LOADING POINT
PAYDIRT PIT
PROPOSED DECLINE AREA
RESTRICTED AREA FENCE
STACK 11 - UPPER
STACK 12 - UPPER
CELL 4
STACK 12 - UPPER
STACK 13 - UPPER
CELL 5
STACK 14 - UPPER
MAIN ACCESS
GUARD STATION
COLLECTION
LAB
OFFICE
PARKING
WAREHOUSE

Heap Leach Facility (con't)

- Start reclamation of spent heap surface after uranium recovery (milling) of heap section is complete on individual stacking rows:
  - Compaction and minor grading of heap surface
  - Placement of final radon barrier
  - Biointrusion layer
  - Freeze/thaw protection
  - Radon flux verification measurements
  - Erosion protection (rip rap)

Heap Cap and Cover Detail

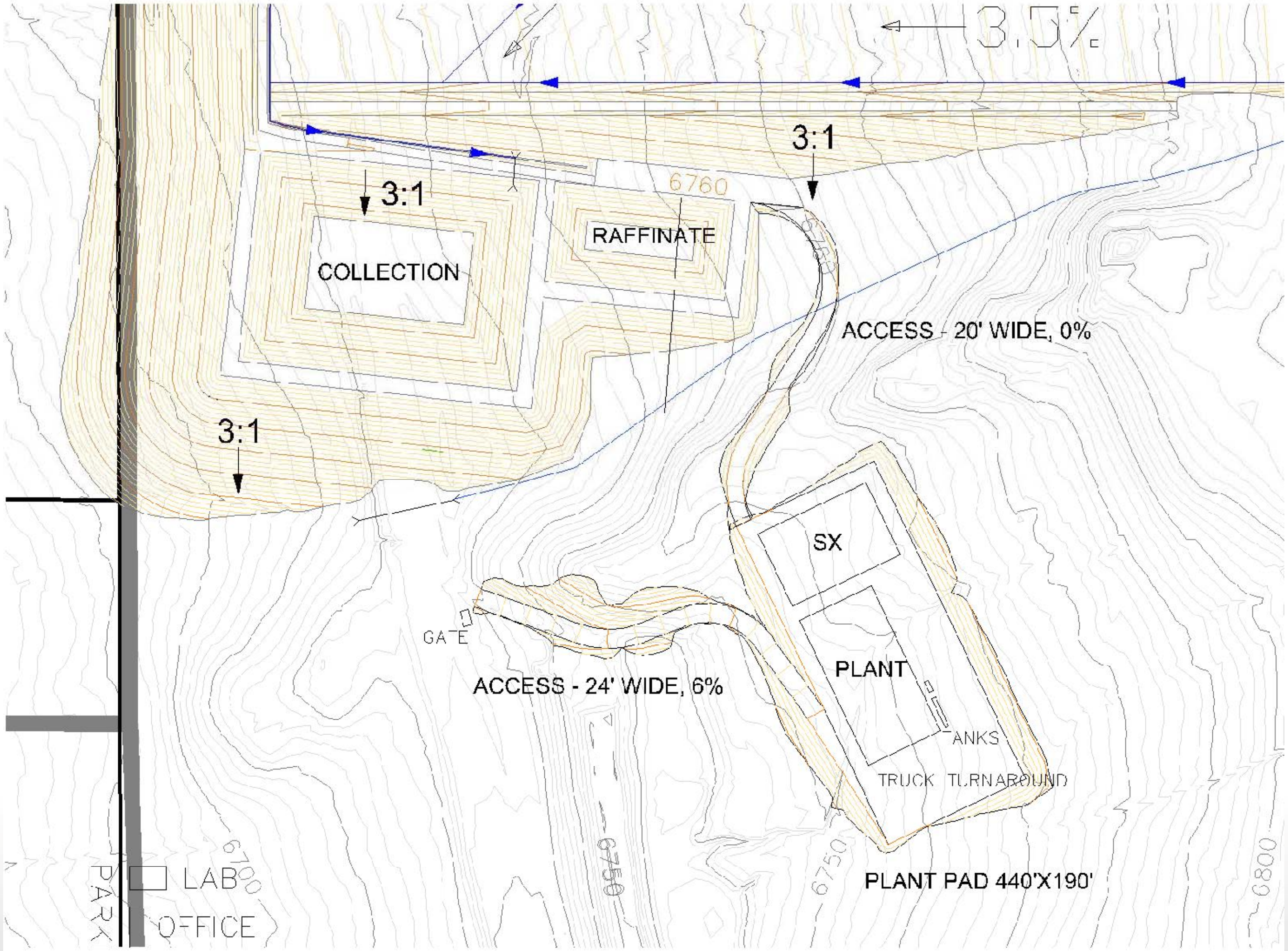


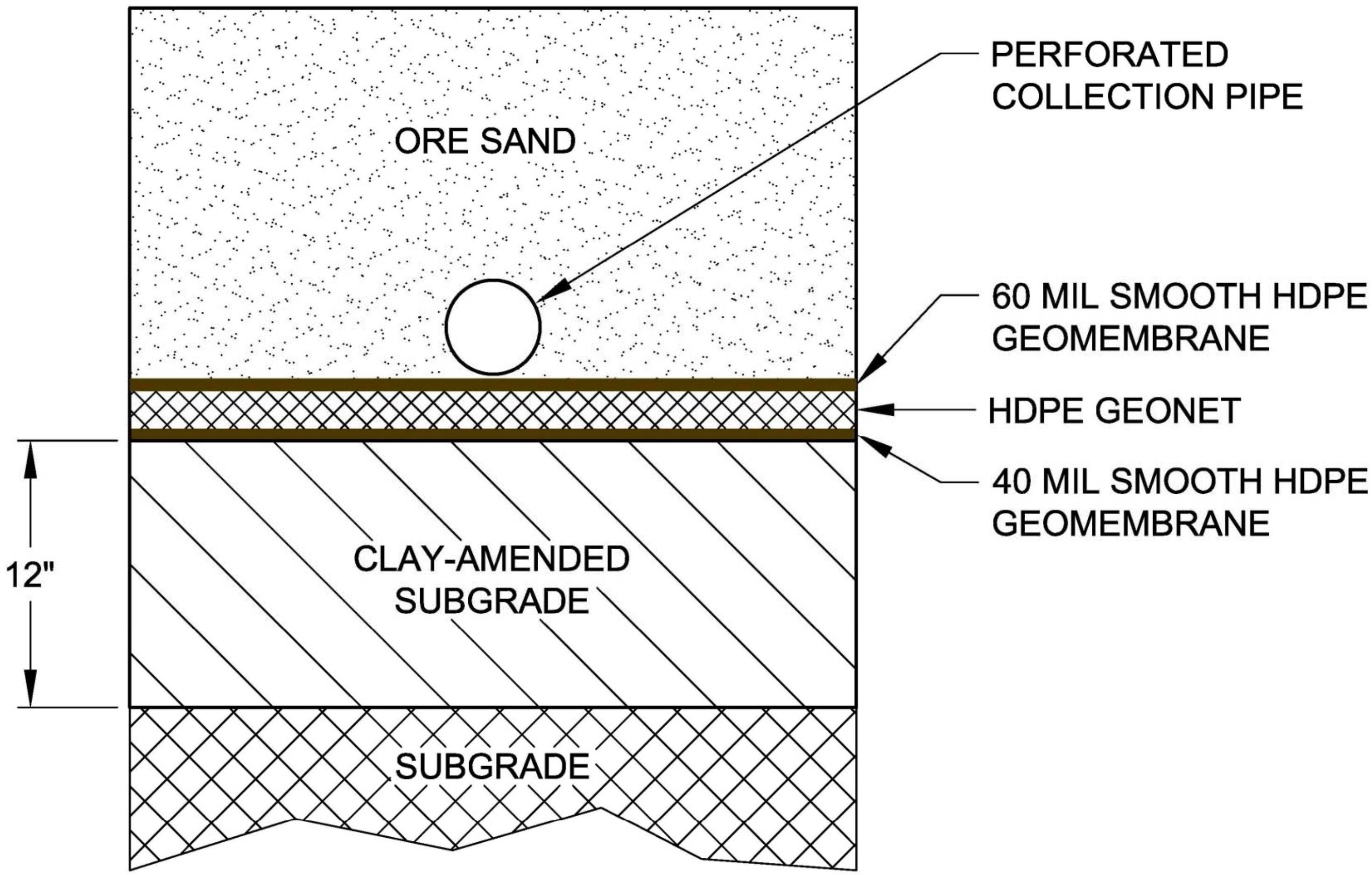
Heap Leach Facility (con't)

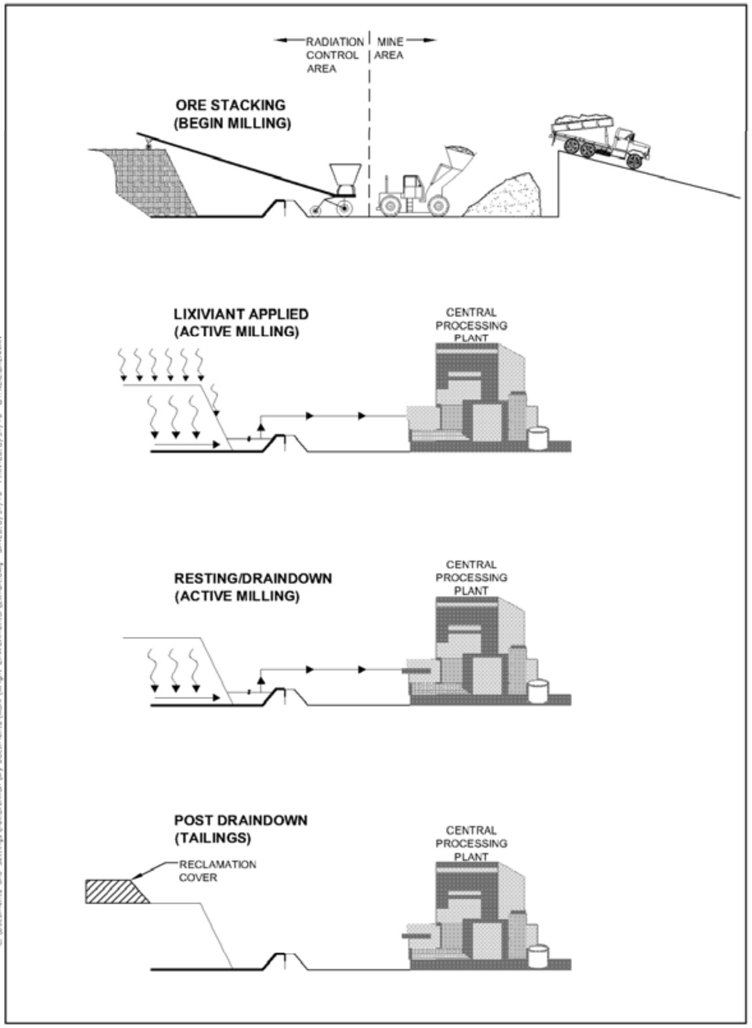
Process Ponds

- Double lined, leak detection, clay amended sub-grade
- Barren Pond (raffinate, lixiviant make up)
  - acid addition
  - make up water
- Pregnant Pond (collection)
  - Loaded raffinate
  - Blending of leachates for grade control
- Analogous to mill leach process tanks
- Will not contain any wastes or "tailings"
- ***Active*** leach pads as well as ***process*** ponds are part of the mill, no wastes ever present
- Only after uranium recovery is complete are tailings present

TITAN
URANIUM USA INC




ORE SAND
PERFORATED COLLECTION PIPE
60 MIL SMOOTH HDPE GEOMEMBRANE
HDPE GEONET
40 MIL SMOOTH HDPE GEOMEMBRANE
12"
CLAY-AMENDED SUBGRADE
SUBGRADE



Status of Active Heaps and 10 CFR Part 61, subpart W

•Active heap is active "milling"

•Heap material during active milling is not 11e.(2) byproduct material

•Have rad. monitoring and rad. protection programs to ensure public and occupational exposures remain ALARA

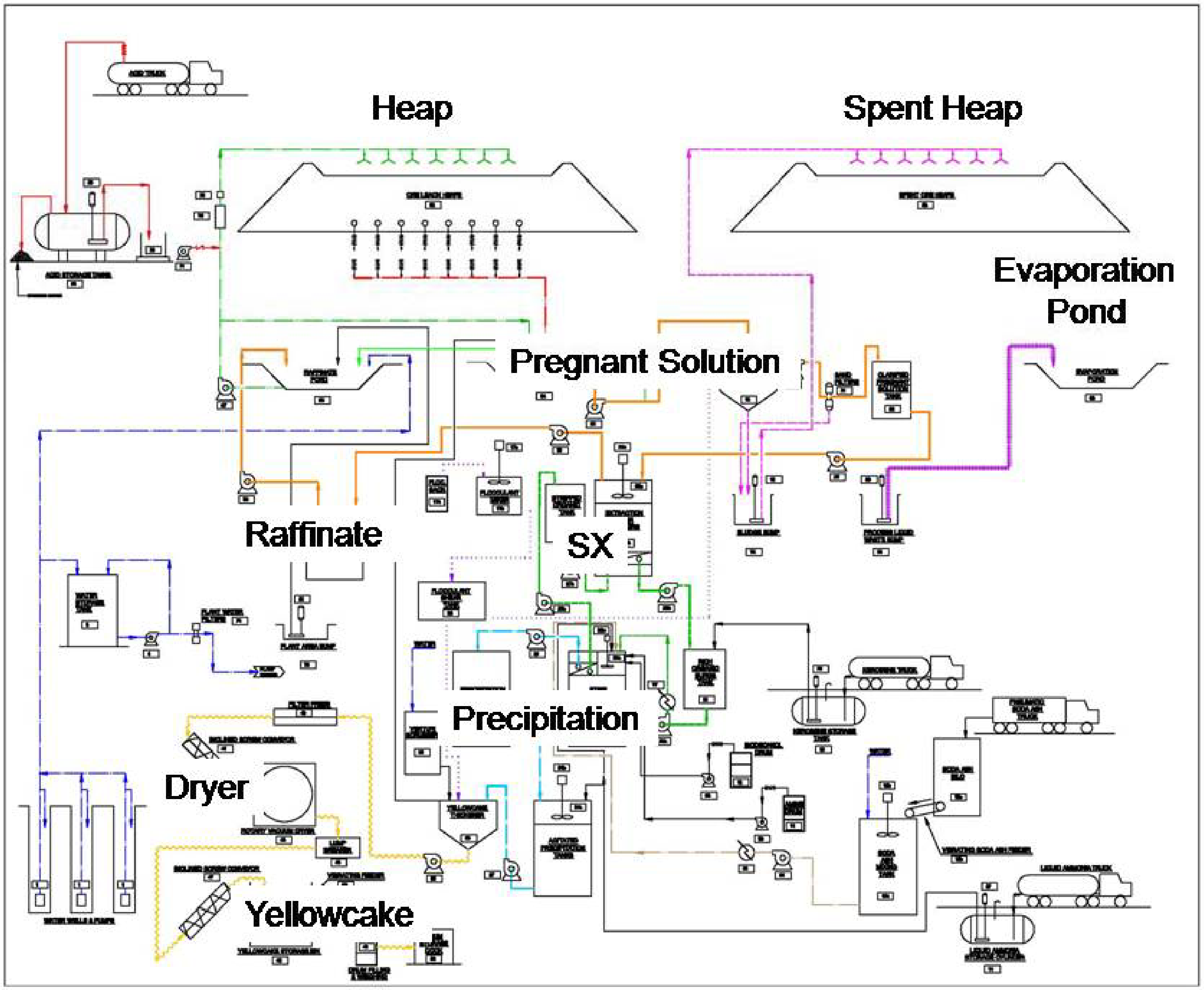
•"Resting" a heap is part of active milling

•Heap becomes 11e.(2) when drain down and recovery of values is completed and the heap is inactive

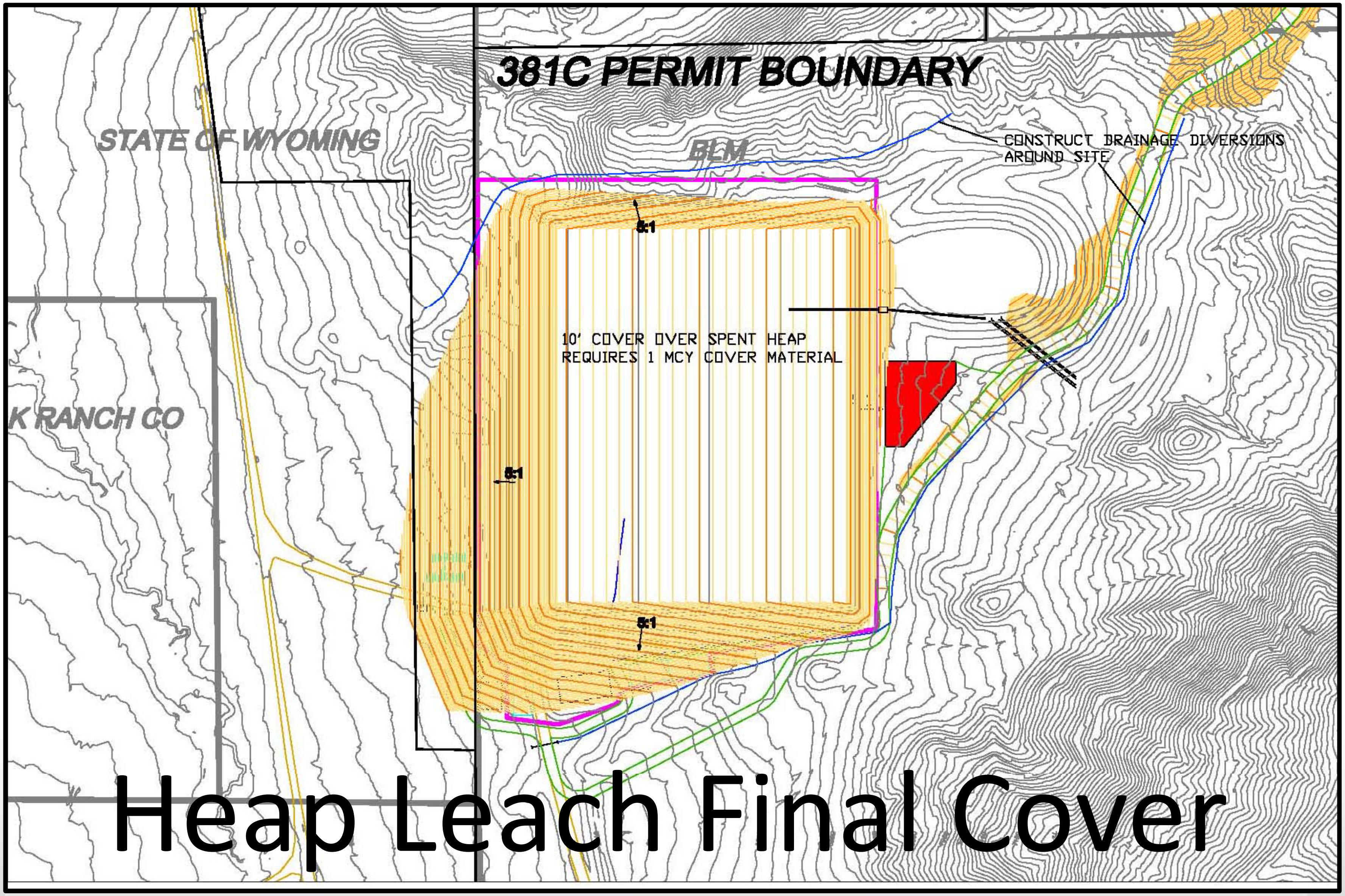
Central Processing Plant

- SX
- IX Polishing
- Precipitation
- Vacuum Drying & Drumming
- Process Bleed to Tanks

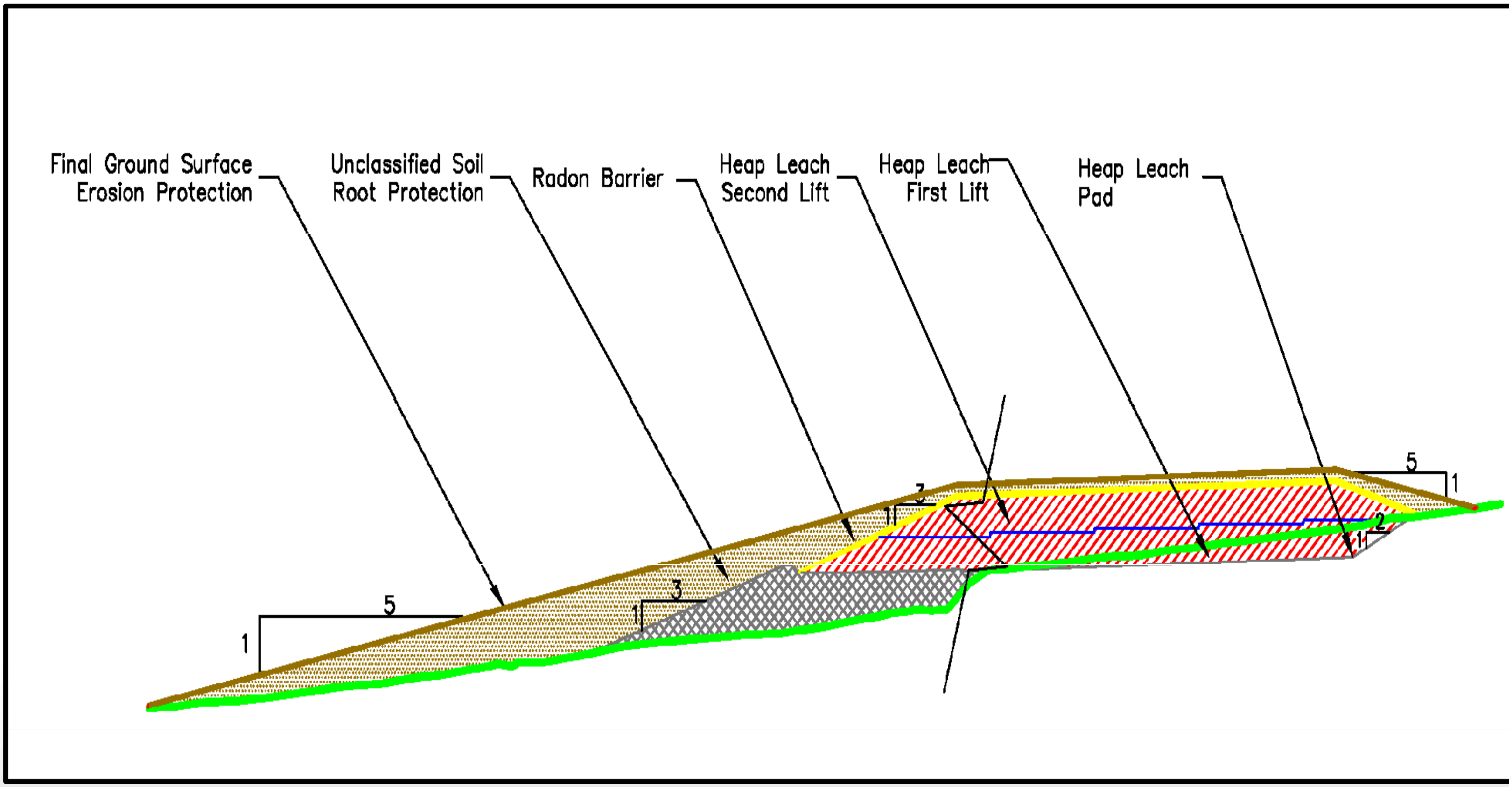
- Operations
  - Process flow rates approx. 360gpm,
    - low anticipated Rn-222 levels
  - Process bleed rates of 5% to 10%
    - 18 to 35 gpm
  - 10 gpm waste stream from precipitation circuit
  - Liquid wastes will be managed in double lined evaporation ponds with leak detection and clay subliner


Heap
Spent Heap
Evaporation Pond
Pregnant Solution
Raffinate
SX
Precipitation
Dryer
Yellowcake

Mine and Reclamation Planning



Heap Leach Final Cover


Final Ground Surface
Erosion Protection
Unclassified Soil
Root Protection
Radon Barrier
Heap Leach
Second Lift
Heap Leach
First Lift
Heap Leach
Pad
5
1
3
1
3
1
5
1
2
1

Items for Discussion

Issues for Discussion

- Status of 40 CFR 192 GW standards update
- Status of Active Heaps & Inactive Heaps
- Status of Process Ponds
- Other?

Our Understanding

- There are no size limits on the size of ***active*** heaps
- Heap pad designs are approved solely by NRC
- Process ponds that will never contain wastes are part of the mill
- Process Pond designs are approved solely by NRC
- Heap material only become tailings (11e.(2) byproduct material) once active uranium recovery is complete

Our Understanding (con't)

- Part 61, subpart W applies only to spent heap material (tailings)
- We are practicing *phased disposal* of tailings
- We are allowed no more than two 40 acre cells in area of exposed tailings
- We will have appropriate environmental monitoring and radiation programs in place to ensure compliance with 10 CFR Part 20 subpart B and subpart C requirements

40 CFR Part 61.250 (subpart W)

- (b) *Continuous disposal* means a method of tailings management and disposal in which tailings are dewatered by mechanical methods immediately after generation. The dried tailings are then placed in trenches or other disposal areas and immediately covered to limit emissions consistent with applicable Federal standards.
- (c) *Dewatered* means to remove the water from recently produced tailings by mechanical or evaporative methods such that the water content of the tailings does not exceed 30 percent by weight.
- (e) Operational means that an impoundment is being used for the ***continued placement* of new tailings** *[emphasis added]* or is in standby status for such placement. ***An impoundment is in operation from the day that tailings are first placed in the impoundment until the day that final closure begins*** *[emphasis added]*.
- (f) *Phased disposal* means a method of tailings management and disposal which uses lined impoundments which are filled and then immediately dried and covered to meet all applicable Federal standards.

- Section 101(8) of the Uranium Mill Tailings Radiation Control Act of 1978, 42 U.S.C. 7911(8).
  "Tailings" means the remaining portion of a metal-bearing ore after some or all of such metal, such as uranium, has been extracted.