

**NERT REGIONAL  
DOWNGRAIDENT INVESTIGATION  
NEVADA ENVIRONMENTAL RESPONSE TRUST SITE  
HENDERSON, NEVADA**

September 2, 2015

4:00pm & 7:00 pm

Henderson Convention Center

200 South Water Street

Henderson, Nevada



*[www.ndep.nv.gov](http://www.ndep.nv.gov)*

# Welcome and Introductions

- **State of Nevada Division of Environmental Protection (NDEP)**
  - Greg Lovato (Deputy Administrator)
  - James (JD) Dotchin (Chief, Bureau of Industrial Site Cleanup)
  - Weiquan Dong (PE Specialist, NERT Project)
  - Carlton Parker (Environmental Scientist)
  - Jo-Ann Kittrell (Division Public Information Officer)
  - Christa Smaling (Administrative Assistant)
- **Broadbent & Associates (NDEP Contractor)**
  - Kirk Stowers (Principal)

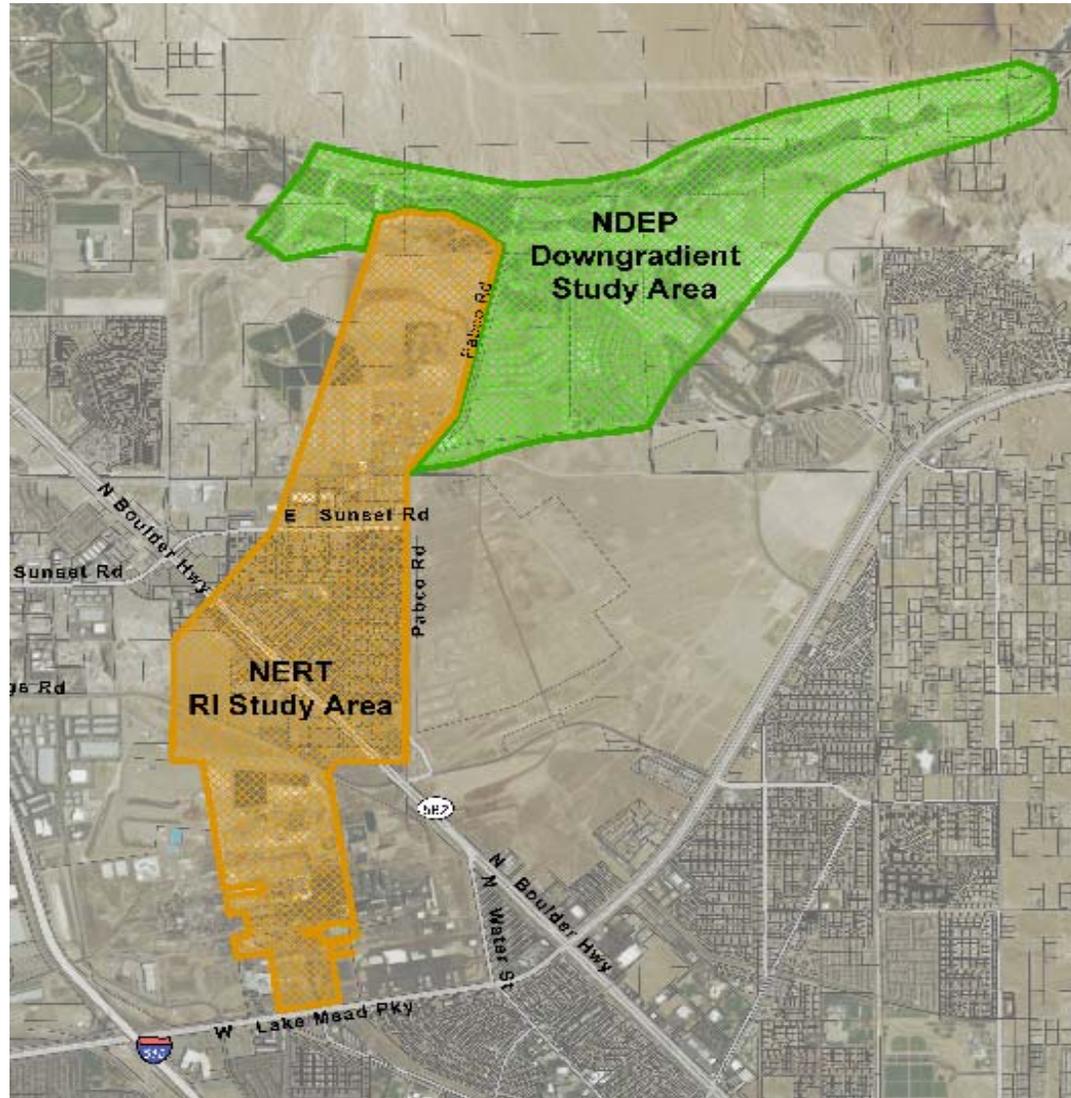


# Purpose of This Meeting

- This meeting is focused on the NDEP –lead NERT Regional Downgradient Investigation (**NDEP Downgradient Study Area**).
- Present background on the Nevada Environmental Response Trust (NERT) Site.
- Present scope and the schedule of the NDEP-lead Downgradient Investigation and the parallel investigation and ongoing cleanup by the NERT.
- Take your questions and answer them as best we can.
- Hear from you on how and when you would like to receive future information and updates.
- Explain how you can provide input to this investigation and cleanup process.



# NDEP Downgradient Study Area



# Topics

- Key Information about the Site and Study Area
- Presentation on NERT activities
- Describe NDEP Downgradient Study Area
- Review basics on perchlorate
- Brief review of area historical and future land use
- NDEP investigation and schedule
- Review of some questions received to date
- Explain how you can provide input to this investigation and cleanup process
- Q&A



# Key Site Information

- Drinking water in Henderson comes from Lake Mead, not directly from groundwater.
- Drinking water from Lake Mead meets all drinking water standards.
- Perchlorate contamination in the groundwater does not pose an imminent health risk in any of the homes or property in or around the investigation area.



# Key Site Information

- NDEP is notifying people in the area to give the community a chance to ask questions and to provide information to the NDEP.
- This meeting is part of the notification and community involvement process typically used at larger cleanup sites overseen by the NDEP or US Environmental Protection Agency.
- The NDEP provides oversight over the NERT and approves of all NERT Budgets and Work at the site.



# NERT Presentation



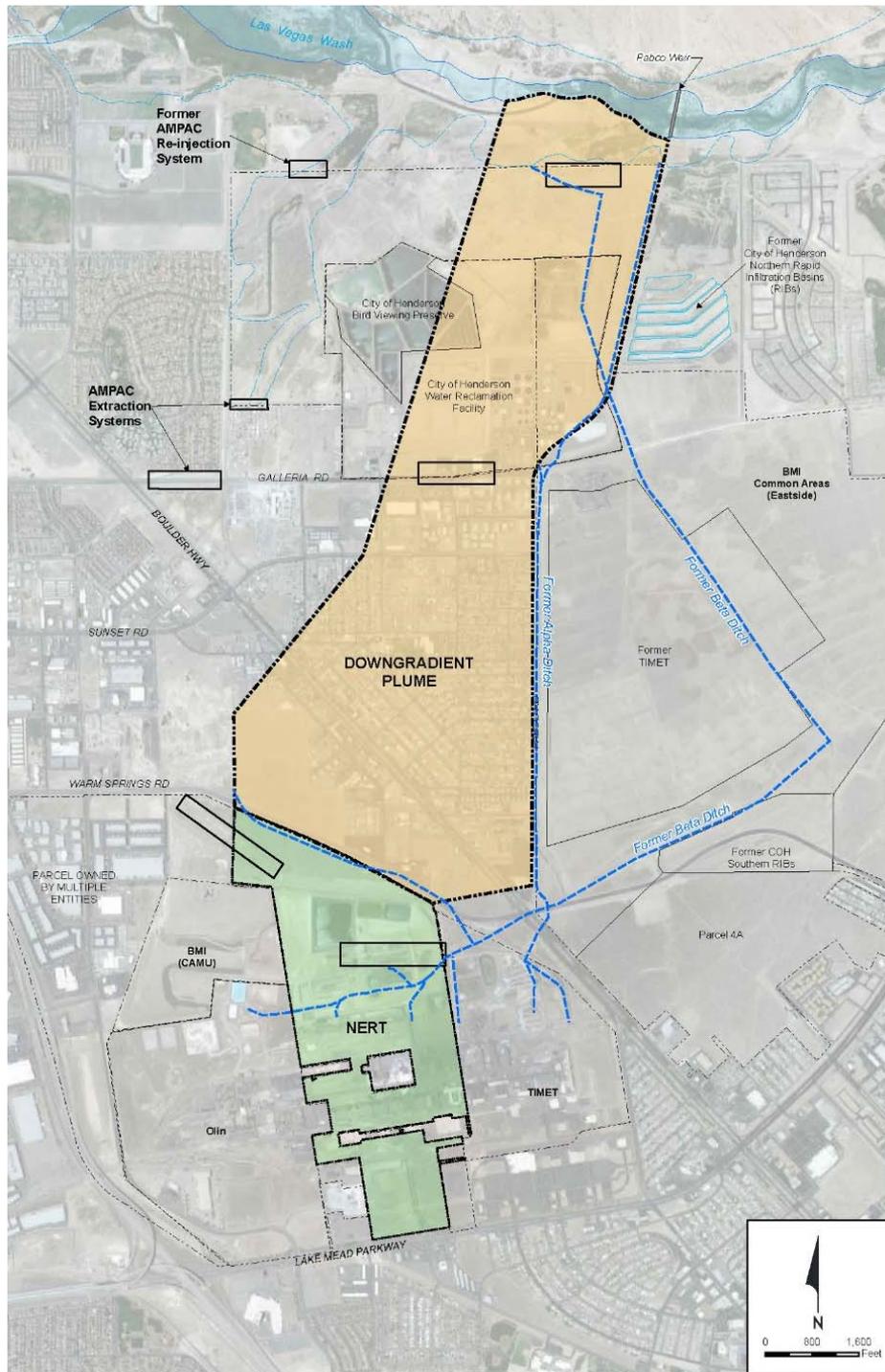
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# NEVADA ENVIRONMENTAL RESPONSE TRUST SITE HISTORY AND CURRENT STATUS

SEPTEMBER 2, 2015

## NEVADA ENVIRONMENTAL RESPONSE TRUST (NERT) SITE

- ~350 Acre Site (not including downgradient plume)
- Located in Henderson, NV
- ~114 Acre Active Industrial Facility (Tronox, LLC)
- Adjacent Active Industrial Facilities (TIMET, L'Hoist, Olin, and Others)



## SITE HISTORY

### OWNERSHIP AND OPERATION OVERVIEW

- 1940s Magnesium Production for WWII effort (US Gov't)
- 1950s-60s Manganese dioxide, sodium chlorate, perchlorates (WECCO, American Potash & Chemical Co., United States Navy)
- 1970s Elemental boron, boron trichloride and boron tribromide production began (Kerr-McGee)
- 1990s Production ceased: boron tribromide (1994), sodium chlorate (1997), and ammonium perchlorate (1998)
- 2005 Kerr-McGee became Tronox LLC
- 2009 Tronox LLC filed for bankruptcy
- 2011 Tronox LLC reorganization; NERT established

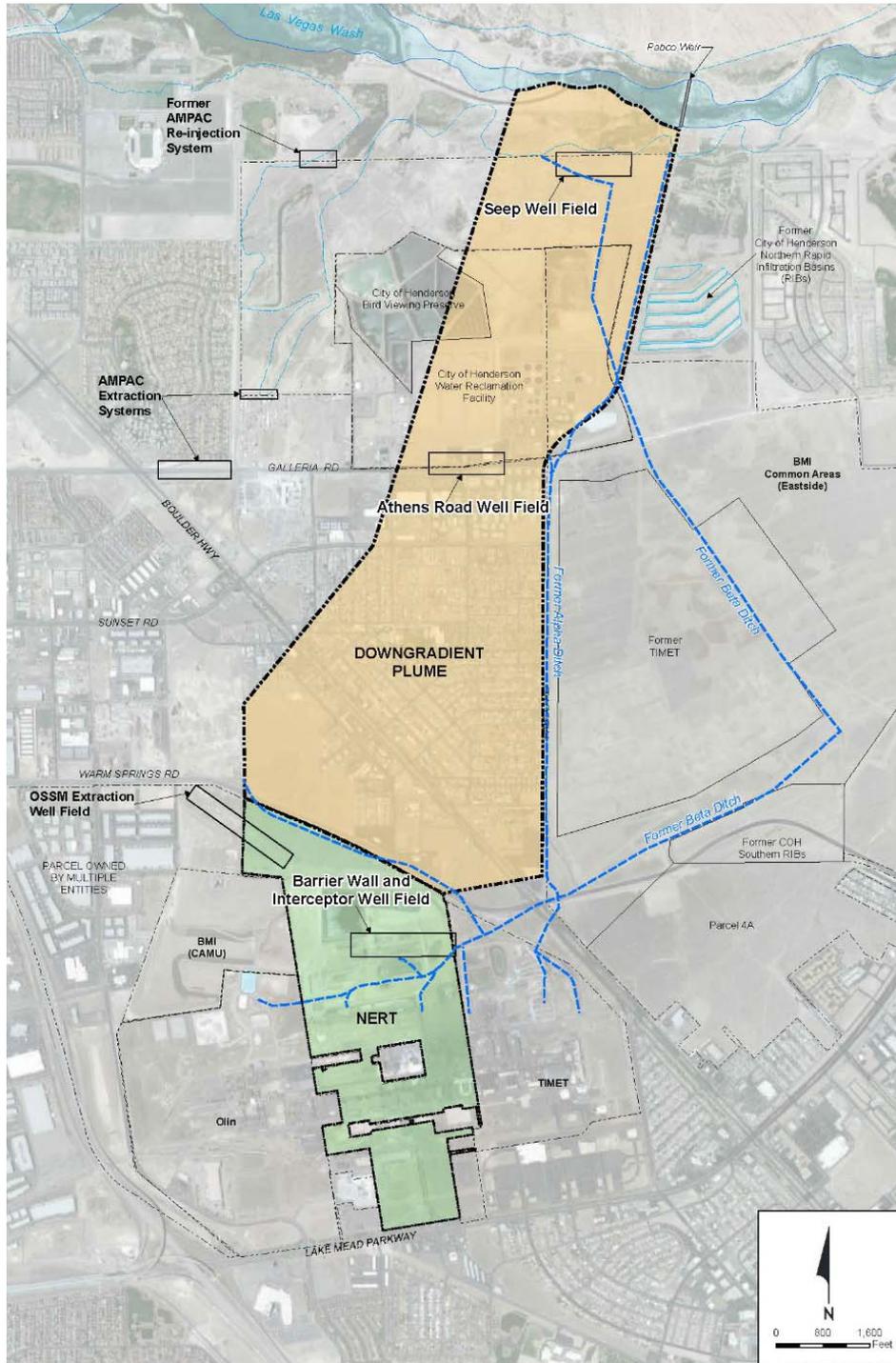
## SITE HISTORY

### ENVIRONMENTAL OVERVIEW

- 1986-87 Installation of on-site groundwater extraction (IWF) and chromium treatment system
- 1997 Perchlorate detected in Colorado River
- 1999 Perchlorate seep found at Las Vegas Wash - capture sump and treatment system installed
- 2001-03 Expanded groundwater extraction (SWF) and treatment system installed – additional extraction system (AWF) installed to the south
- 2009-11 Interim Soil Removal Action implemented
- 2014 Remedial Investigation/Feasibility Study (RI/FS) Work Plan approved
- Present On-going groundwater monitoring  
RI/FS Implementation  
Optimization of Groundwater Extraction/Treatment  
Health Risk Assessment

# GROUNDWATER EXTRACTION AND TREATMENT SYSTEM (GWETS)

- Three discrete extraction well fields
  - On-Site: Interceptor Well Field (IWF)
  - Galleria Drive: Athens Road Well Field (AWF)
  - Near Las Vegas Wash: Seep Well Field (SWF)
  
- On-site groundwater treatment facility - permitted discharge under the Clean Water Act (NPDES)
  - Carbon adsorption
  - Chemical precipitation
  - Fluidized-bed biological treatment
  - Discharge to Las Vegas Wash
  
- Stable operation and consistent compliance with NPDES permit limitations



# GROUNDWATER MONITORING

- ~300 Groundwater Wells monitored regularly
  - ~140 wells sampled monthly
  - ~170 wells sampled quarterly
  - ~300 wells sampled annually
  
- Treatment plant monitoring as required by permit
  
- Primary chemicals monitored are chromium and perchlorate
  
- Also monitoring for total dissolved solids (TDS), nitrate, chlorate, and pH

# SITE REMEDIATION STRATEGY

## ***Remediation Program – Primary Issues***

- Groundwater plume containing perchlorate and other chemicals extending off-site to the north
  - Primarily in the shallow (alluvial) aquifer
  
- Residual On-Site Sources
  - Deep (generally >10 feet) soils containing perchlorate and other chemicals
  - Inaccessible soils containing perchlorate and other chemicals

# REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)

- RI/FS Work Plan (approved July 2014)
  - Summary and Analysis of Existing Site Data
  - Identified Data Gaps
  - Developed Sampling and Analysis Plan
  - Preliminary Identification of Likely Response Scenarios and Remedial Action Objectives
  - Treatability and Pilot Studies
  
- Remedial Investigation (RI) (in progress)
  - Data Gap Investigation (approximately 450 soil samples and 250 groundwater samples collected)
  - Data compilation and analysis
  - Capture Zone Evaluation and Groundwater Model Development
  - Treatability Studies
  - Baseline Risk Assessment

# NDEP Downgradient Study Area

- **Where is it?**

- From Sam Boyd Stadium in the west to Lake Las Vegas in the east and from Galleria Road in the south to the Las Vegas Wash in the north.

- **Why are we doing this investigation?**

- Evaluate potential NERT site related perchlorate impact to the soil, groundwater, and the Las Vegas Wash.
- Determine where we should target cleanup of perchlorate
- Proximity to Las Vegas Wash

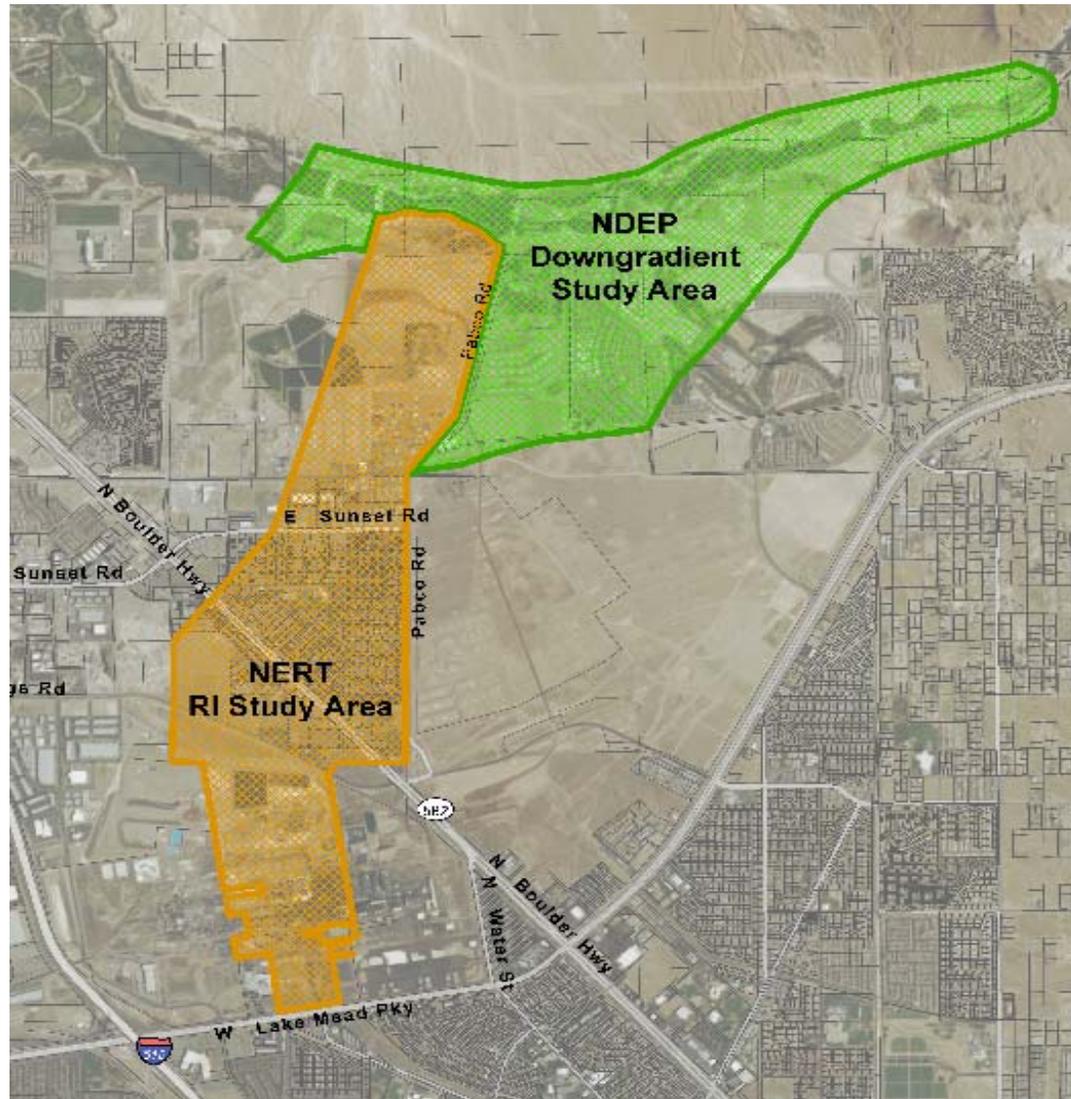
- **NDEP's investigations in the downgradient area will be concurrent with the Nevada Environmental Response Trust's investigation in the core plume area.**



# Regional Map



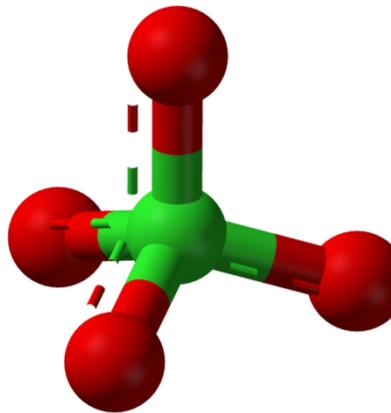
# NDEP Downgradient Study Area





# What is Perchlorate Anyway?

- Ammonium Perchlorate –  $\text{NH}_4\text{ClO}_4$
- White crystalline salt that is very soluble in water
- Powerful Oxidizer most commonly used in solid rocket propellant. (NASA, Military, Fireworks, and hobby rockets)

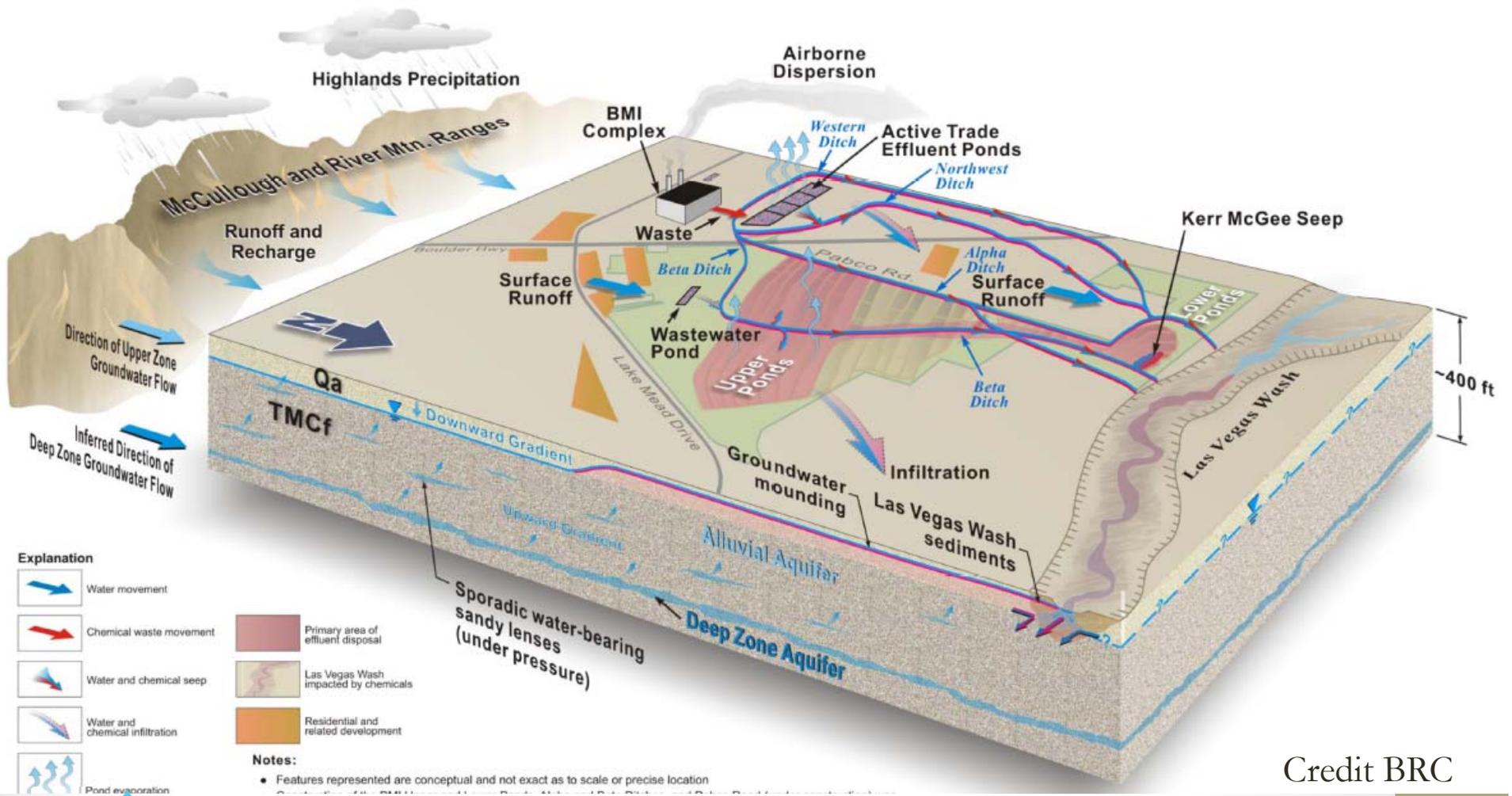


# Potential Origins of Perchlorate in Groundwater in the Study Area

- Available information indicates that perchlorate from former operations at the NERT Site:
  - Leached down through the soil column into groundwater, which then flowed into the NDEP Downgradient Study Area.
  - Was transported through former ditches to former unlined waste disposal ponds located near and within the NDEP Downgradient Study Area before seeping into the ground, leaching down through soil, and flowing through groundwater.
  - Discharged from groundwater into the Las Vegas Wash



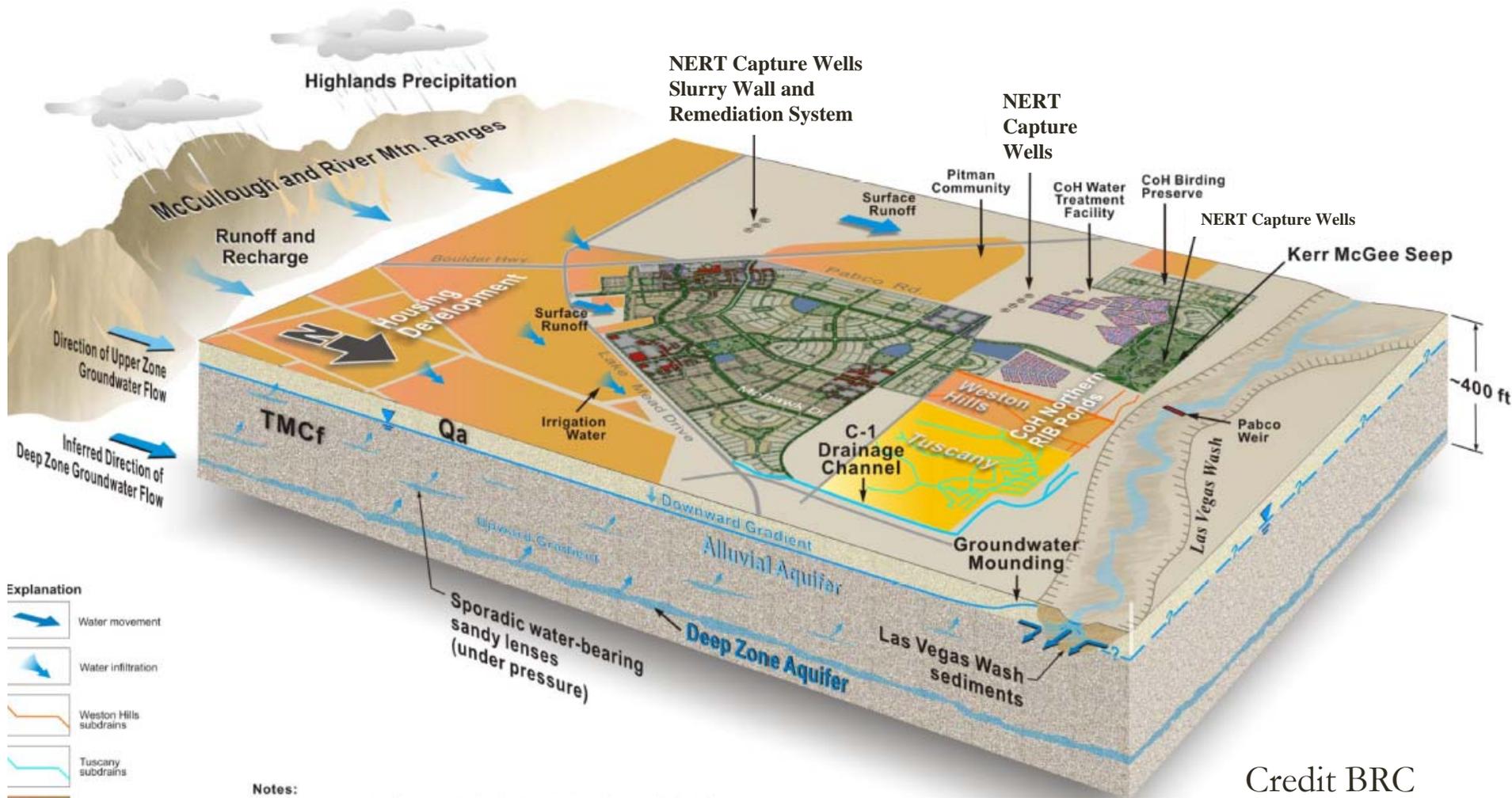
# BMI Area Land Use 1943



Credit BRC



# Future Land Use



Credit BRC



# Downgradient Study Area Investigation

- The purpose of the NDEP's Downgradient Study Area Investigation is to review existing data and collect additional data to evaluate the nature and extent of perchlorate in groundwater in the Study area.
- The NDEP is in the process of selecting a contractor to conduct the investigation and expects to have this completed by November of 2015.
- The NDEP Downgradient Study Area Investigation will begin in late 2015 and will take approximately two (2) years to complete.



# Downgradient Study Area Investigation Cont.

- You may see the NDEP and our selected Contractor(s) in the field collecting data.



# What does all of this mean?

- **The NDEP and the NERT will use the information gathered from the two investigations to develop a plan to remediate the environmental impacts both on and off Site.**

# What Comes Next

- 2016-2018 – NDEP Downgradient field work
  - Data Collection
- 2018-2019 – NERT Feasibility Study
  - Evaluate all options from no additional action to possible remedies
- 2019 – Final Remedy Selection
  - Formal selection of a remedy



# What Comes Next Cont.

- 2020 – Design/Bid
  - Remedy Design, contractor selection
- 2021 – Permitting/Access Agreements
- 2022 – Start Construction on Final Remedy
  - Construction and operation and maintenance will be on-going for a number of years
- **The NDEP and the NERT will keep the Community involved and informed at each stage of the process.**



# Questions Received

## ■ Is my drinking water impacted?

- No, our drinking water comes from Lake Mead which meets all drinking water standards.

## ■ Is this information public knowledge?

- Yes, the Administrative Record is available for review in our NDEP Las Vegas office located at 2030 E Flamingo Rd, Suite 230, Las Vegas, NV. 89119 or on the NDEP website at <http://ndep.nv.gov/bmi/tronox.htm> .

## ■ Where is the source (Site?) in relation to my home?

- The NERT Site (Formerly Kerr-McGee and Tronox Site) is located in the Black Mountain Industrial Complex on Lake Mead Parkway.



# Questions Received Cont.

- **Is there a soil or groundwater study in the area of my home?**

- The Administrative Record is available for review in our NDEP Las Vegas office located at 2030 East Flamingo Rd, Suite 230, Las Vegas, NV 89119 or on the NDEP website at <http://ndep.nv.gov/bmi/tronox.htm> .

- **Can I grow my own vegetables?**

- Yes, the information compiled to date shows that the soils in the study area and in the surrounding residential areas are not dissimilar to any other area in the Las Vegas Valley.

- **Do developers have information to inform potential buyers?**

- Yes, developers in the area have been given information about this issue.



# Questions Received Cont.

- **Where can I find any information related to potential cancer risks or health risks to humans and animals?**
  - Yes, this information is available through the NDEP website <http://ndep.nv.gov/bca/perchlorate05.htm>
- **Does this impact the air in my home or outside?**
  - Since perchlorates are salts they do not impact the air inside homes (no vapor intrusion) or in the ambient air outside.
- **Is Perchlorate or other chemicals getting into the Lake Mead and the Wash?**
  - Yes. Since perchlorate was discovered in Lake Mead in 1997, levels have been reduced by over 90%. The purpose of this Investigation is to find the most effective means to reduce this even further.



# Questions from the Audience

- Please use the microphone
- The NDEP will use any comments received to improve our investigation and help formulate an effective Community Involvement Plan for the NDEP-lead Downgradient Investigation.



# Thank you

If you have questions regarding the activities at the NERT Site, please contact the Community Involvement Coordinator at NDEP:

***James (JD) Dotchin***

***Chief***

*Bureau of Industrial Site Cleanup*

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