

U.S. Department of Energy and Triad National Security

FILED
Water Quality
Control Commission

WQCC No. 20-51(R)
July 13, 2021

Summary of Technical Testimony of
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Managed by Triad National Security, LLC for the U.S. Department of Energy's NNSA

LA-UR-21-26309

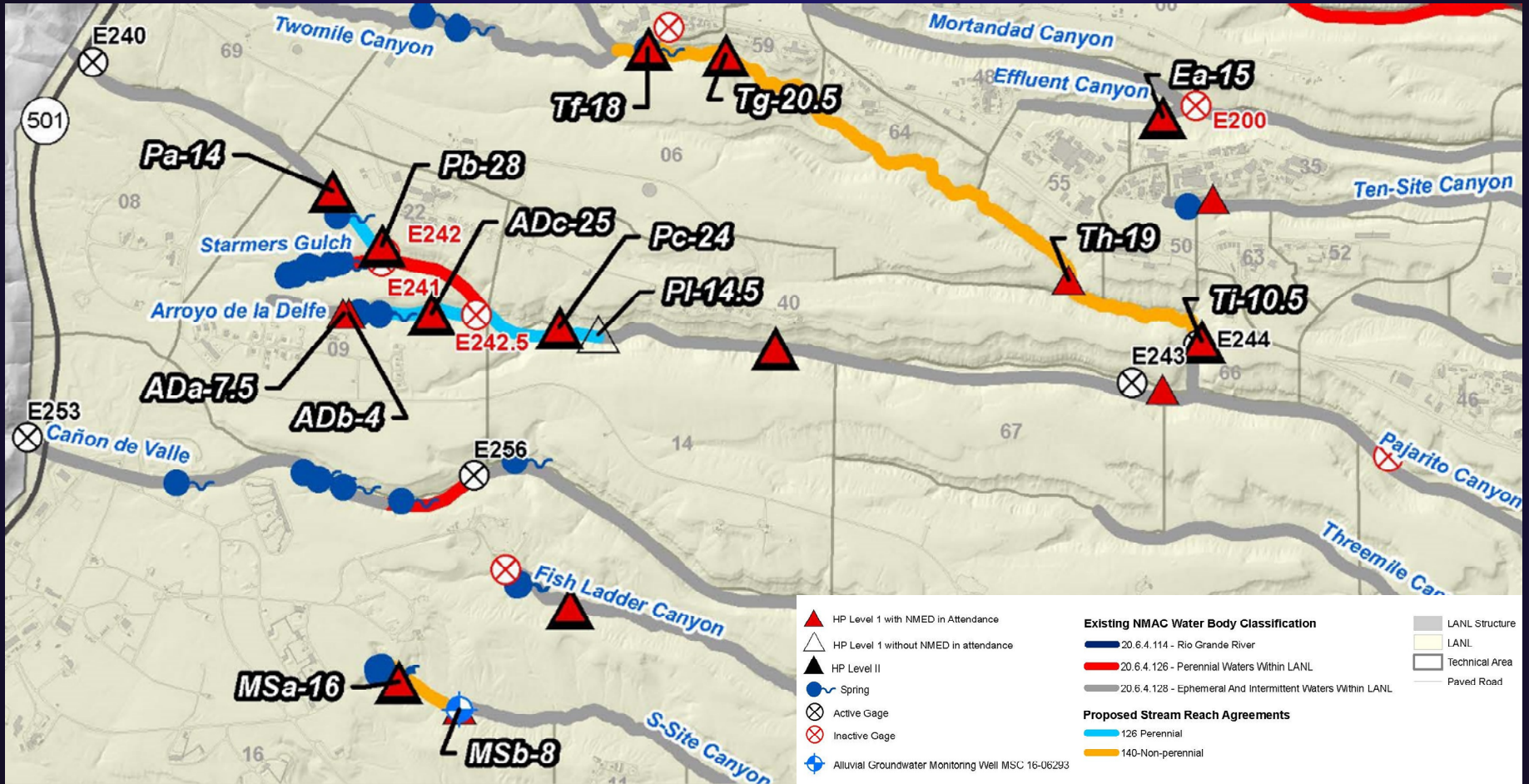
LANL supports refinements to Section 128 and 126 waters

- LANL supports making refinements to the surface water segments classified under 20.6.4.128 NMAC (“Section 128”) and 20.6.4.126 NMAC (“Section 126”).
- LANL regularly collects high quality data relevant to surface water and stream characteristics. These data include:
 - Hydrology Protocol (“HP”) Level 1 & 2 evaluations
 - Streamgage flow data
 - Precipitation data
 - Temperature, pH, and dissolved oxygen (DO)
 - Macroinvertebrate and benthic data
 - General field observations and photographs

Strong basis for extending Section 126 in Upper Pajarito Canyon & Arroyo la Delfe

- **Based on the data, there is a strong technical basis to support classification of the following segments under Section 126 (rather than Section 128):**
 - Pajarito Canyon from 0.5 miles below Arroyo de La Delfe upstream to Homestead Spring; and
 - Arroyo de La Delfe from Pajarito Canyon upstream to Kieling Spring.
- **Supporting data include:**
 - Streamgage flow data
 - Hydrology Protocol Level 1 & 2 evaluations
 - Temperature, pH, and DO data
 - Benthic and macroinvertebrate data
 - General field observations and photographs

LANL's Proposed Section 126 reaches (blue)





Reference: LANL Exhibit 38, p.1

Gage flow data show perennial characteristics

Summary of Gage Flow Statistics

Station #	Station Name	Analysis Period	Average Percent Days of Flow	Flow Classification ¹ Based on Percent Days with Flow	Current NMWQCC	Proposed NMWQCC
E240	Pajarito (below SR-501)	2000 - 2019	9.6%	Ephemeral / Intermittent	20.6.4.128	No change
E241	Pajarito (above Starmers)	2000 - 2009	76.8%	Intermittent / Perennial	20.6.4.128	20.6.4.126
E242	Pajarito (Starmer's Gulch)	2000 - 2009	97.5%	Perennial	20.6.4.126	No change
E242.5	Arroyo de la Delfe (above Pajarito)	2000 - 2009	81.8%	Perennial	20.6.4.128	20.6.4.126
E244	Twomile (above Pajarito)	2003 - 2011; 2015 - 2019	34.0%	Intermittent	20.6.4.128	20.6.4.140

	Perennial flow
	Borderline Intermittent / Perennial flow

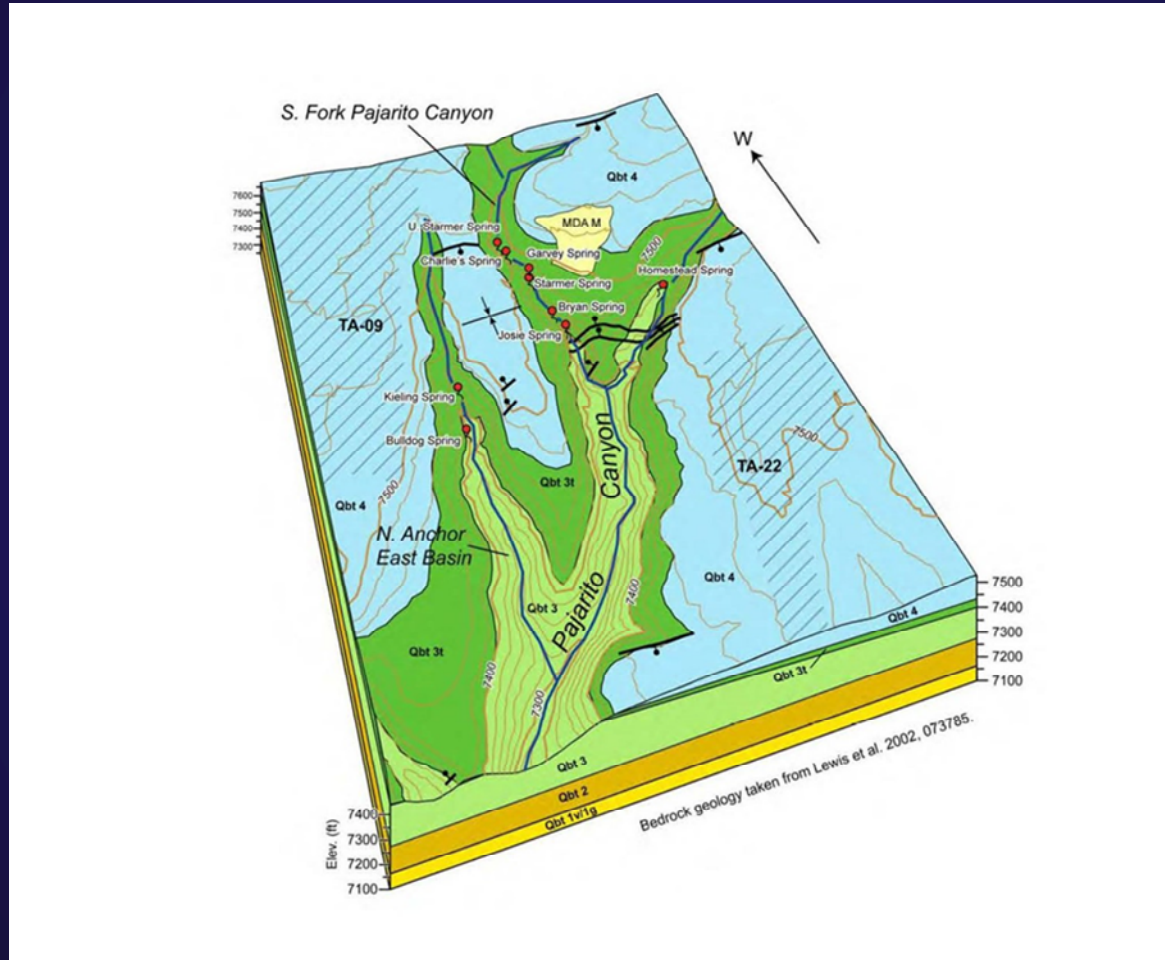
¹Flow Classification based on criteria from Hedman & Osterkamp, 1982 (USGS Water Supply Paper #2193).

Ephemeral: measurable discharge generally occurring less than 10% of the time

Intermittent: measurable surface discharge between 10 and 80% of the time

Perennial: measurable surface discharge > 80% of the time

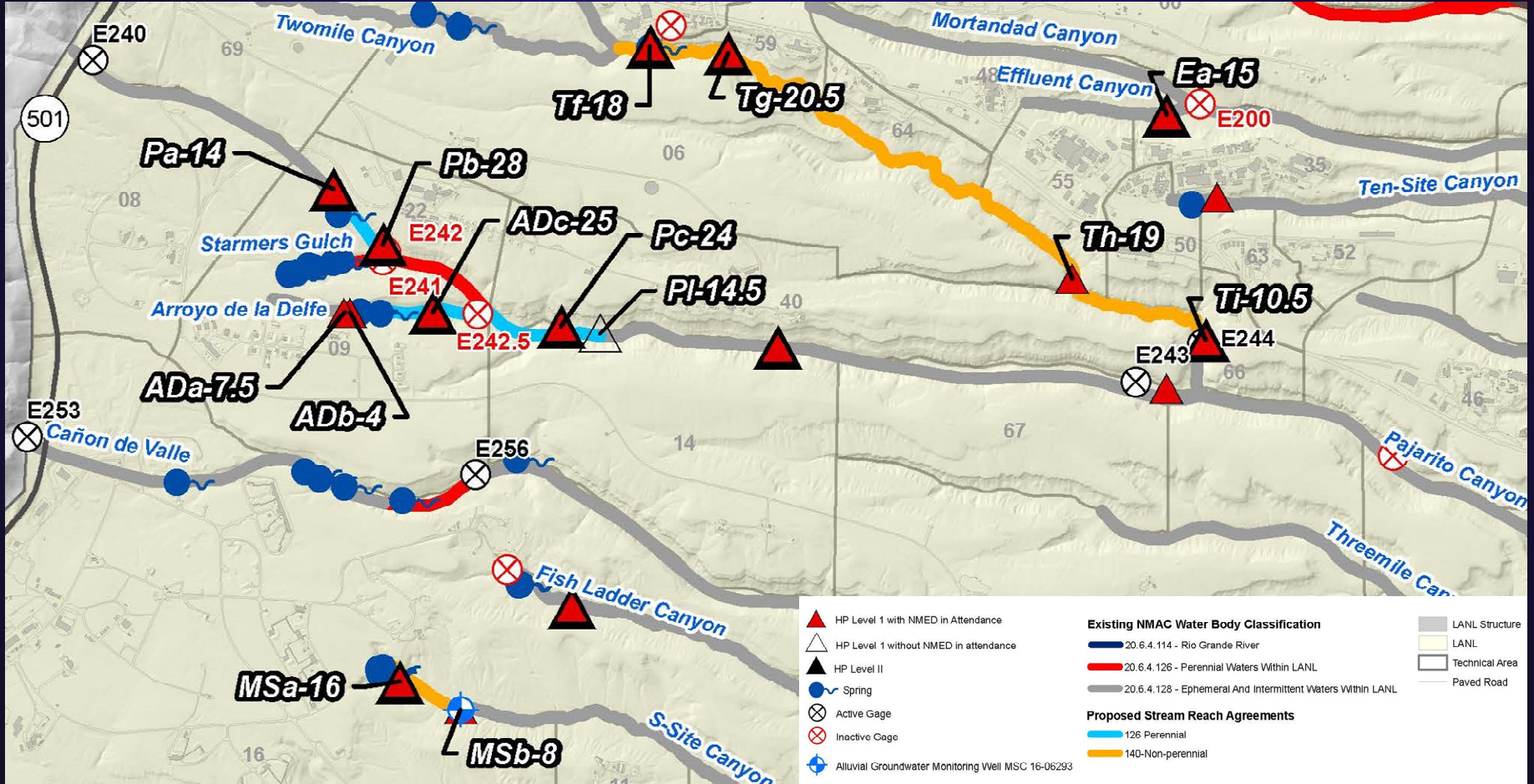
Hydrogeologic Diagram of Pajarito Spring-Fed Reaches



Data also support proposed Section 140 reaches

- **Based on the data, there is also a strong technical basis to support classification of the following segments under proposed 20.6.4.140 NMAC (“Section 140”) (rather than Section 128):**
 - Twomile Canyon from LANL stream gage E244 upstream to its confluence with upper Twomile Canyon; and
 - S-Site Canyon from alluvial groundwater well MSC 16-06293 upstream to Martin Spring.
- **Supporting data include:**
 - Streamgage flow data
 - Hydrology Protocol Level 1 & 2 evaluations
 - Temperature, pH, and DO data
 - Benthic and macroinvertebrate data
 - General field observations and photographs

LANL's Proposed Section 140 reaches (orange)



Reference: LANL Exhibit 38, p1

E244 is the appropriate terminus – streamgauge data show both intermittent and ephemeral characteristics



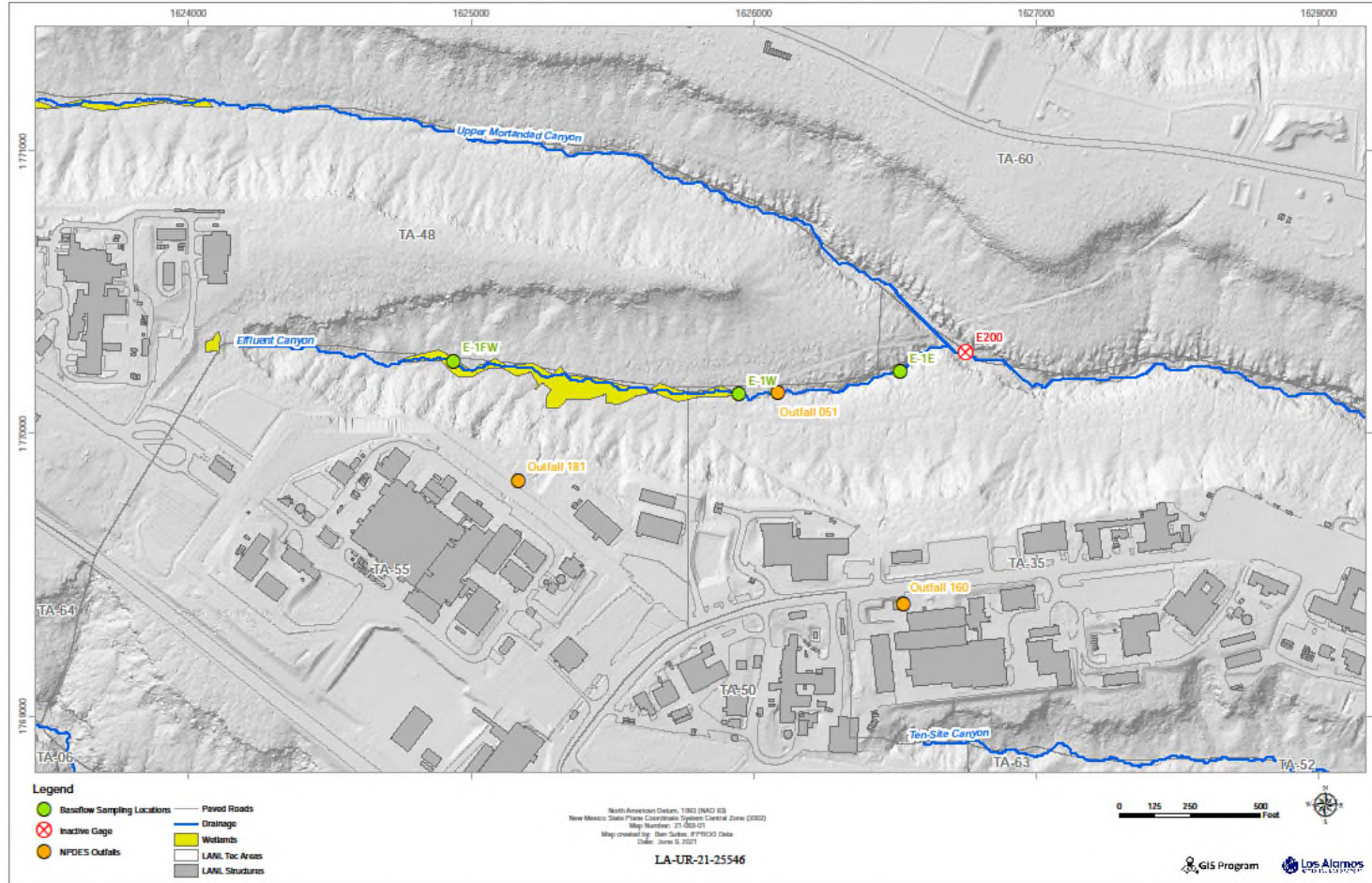
Reference: LANL Exhibit 42, p12

LANL recommends further study of Effluent Canyon

- **Effluent Canyon**

- I recommended in my pre-filed direct testimony that the Commission classify Effluent Canyon from its confluence with Mortandad canyon to its headwaters under proposed Section 140.
- Based on my evaluation of additional data in response to NMED's direct testimony regarding Section 140, the proposed classification of the stream reach in Effluent Canyon under Section 140 is premature and requires additional study.

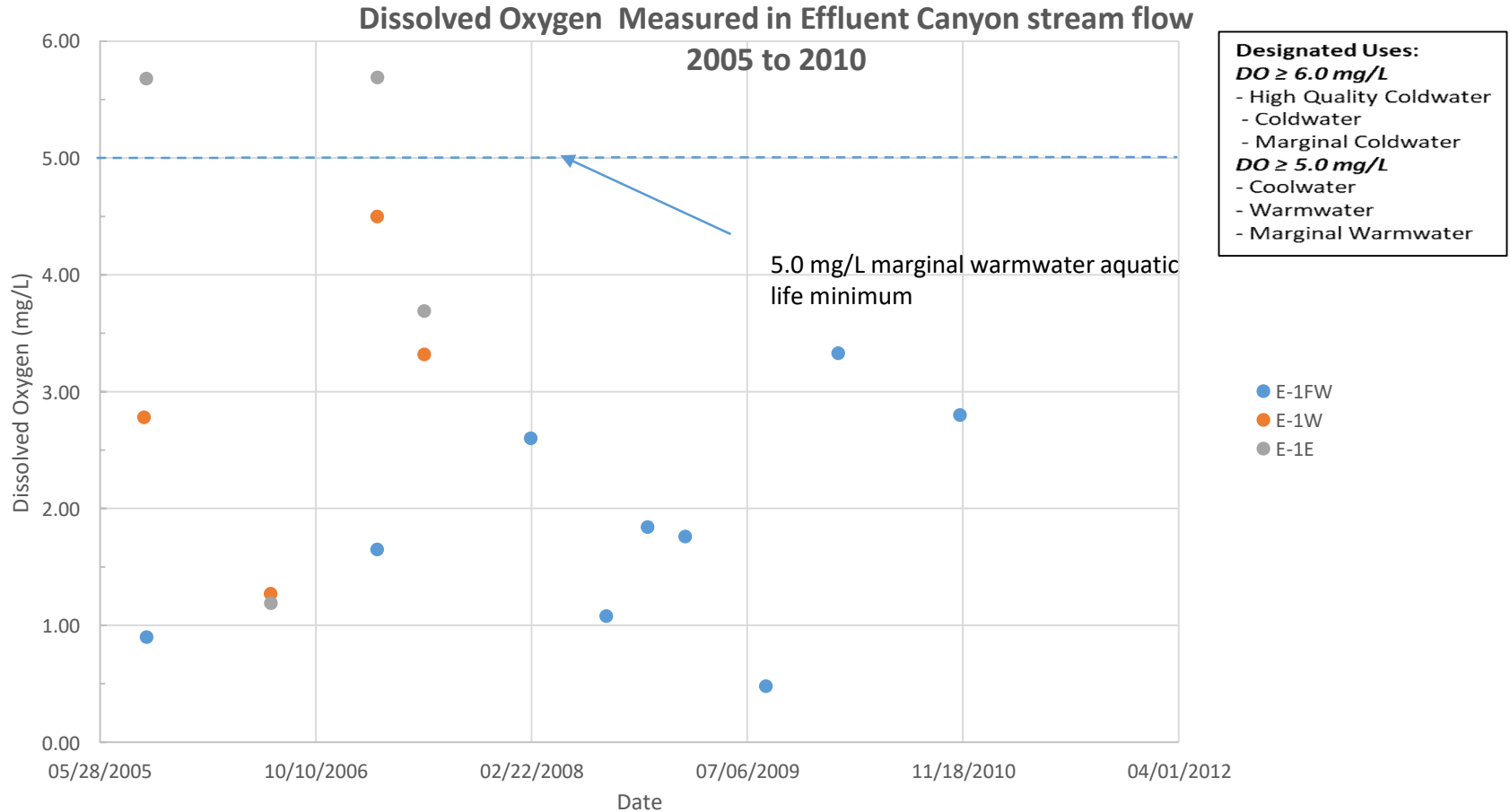
Locations of Effluent Canyon & Upper Mortandad Canyon



Reference: LANL Exhibit 79, p.2

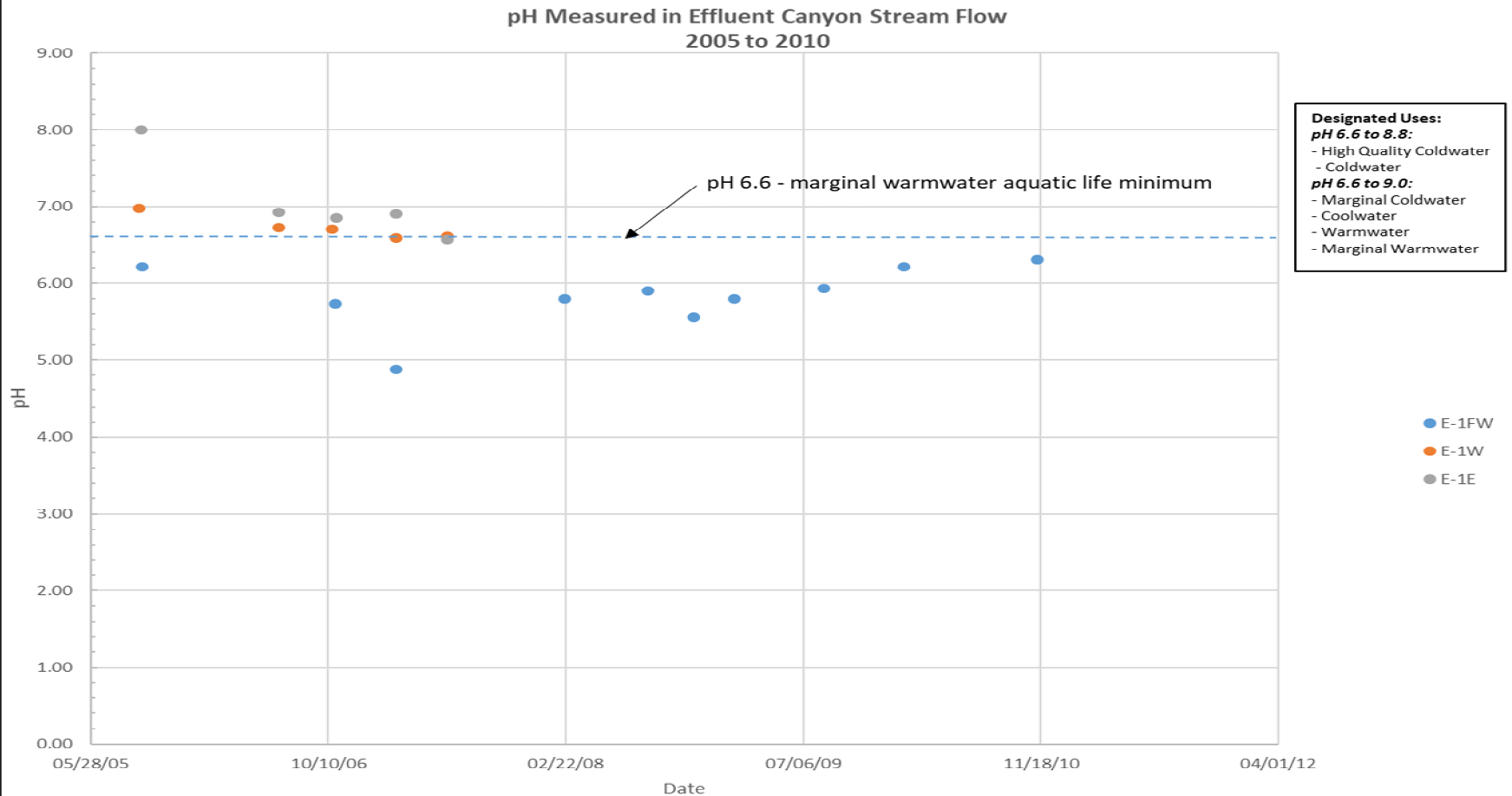
2020 TR LANL-01718

Effluent Canyon – Dissolved oxygen below 5 mg/L marginal warmwater minimum



Reference: LANL Exhibit 81, p.1

Effluent Canyon – pH below marginal warmwater minimum at one location



NMED based some of their EUA analysis on non-representative data

- NMED based some of its analysis for classification of certain segments under Section 140 on non-representative data. For example:

Effluent Canyon

- NMED relied on non-representative proxy data from E200 in Mortandad Canyon to evaluate aquatic life existing use within Effluent Canyon.
- NMED relied on grab samples to make assumptions regarding flow in Effluent Canyon.

S-Site Canyon

- Data from a carbon-filtration treatment system used to characterize temperature, pH, and DO at Martin Spring.

Summary of Technical Testimony

- **Despite NMED's use of non-representative data, there is reliable data that supports the proposed classification under Section 140 for the following two stream reaches:**
 - Twomile Canyon from LANL stream gage E244 upstream to its confluence with upper Twomile Canyon.
 - S-Site Canyon from alluvial groundwater well MSC 16-06293 upstream to Martin Spring.
- **There is insufficient data to support NMED's proposal to reclassify Effluent Canyon to Section 140 water. Further study is needed.**
- **If LANL had had the opportunity to review the Effluent Canyon data with NMED, both parties would likely have agreed that further study was needed.**

