# MINUTES OF THE

# THE CITY OF SANTA FE & SANTA FE COUNTY

# BUCKMAN DIRECT DIVERSION BOARD

# SPECIAL MEETING

# January 9, 2024

## 1. CALL TO ORDER

This special meeting of the Santa Fe County & City Buckman Direct Diversion Board meeting was called to order by County Commissioner Anna Hamilton, BDD Board Chair, at approximately 11 a.m. in the Council Chambers, City Hall, 200 Lincoln Avenue, Santa Fe, New Mexico.

**2. ROLL CALL:** Roll was called and a quorum was present as shown:

| **BDD Board Members Present:** | **Member(s) Excused**: |
|---|---|
| Commissioner Anna Hamilton | J.C. Helms, Citizen Member |
| Councilor Carol Romero-Wirth | [One City vacancy] |
| Commissioner Anna Hansen [remotely] | |
| Peter Ives, Alternate Citizen Member [remotely] | |
| Tom Egelhoff, The Club at Las Campanas [non-voting] | |

**Others Present:**
Rick Carpenter, BDD Facilities Manager
Nancy Long, BDDB Legal Counsel
Kyle Harwood, BDDB Legal Counsel
Bernardine Padilla, BDD Public Relations Coordinator
Delfin Peterson, BDD Administrative Assistant
Randy Sugrue, BDD Operations Superintendent
Monique Maes, BDD Contracts Administrator
Joni Arends, Concerned Citizens for Nuclear Safety [remotely]
Jay Lazarus, Glorieta Geoscience, Inc.
Jamie Cassutt, City Councilor – incoming BDD Board member
Michaelene Kyrala, Las Campanas Water Cooperative
John Evans, U.S. Department of Energy Attorney Advisor [remotely]

## 3. APPROVAL OF AGENDA

No changes were noted and Councilor Romero-Wirth moved to approve as published. Commissioner Hansen seconded and the motion carried by unanimous voice vote.

## 4. APPROVAL OF MINUTE: November 2, 2023

Commissioner Hansen noted a correction on page 2:

> "COMMISSIONER HANSEN: Thank you, Dr. Roach. Does this mean that we used our allocation or that we received it? That ~~was~~ wasn't really clear to me."

Commissioner Hansen moved to approve the minutes as corrected. Councilor Romero-Wirth seconded and the motion passed without opposition.

## 5. ACTION ITEMS: Discussion and Action

### a. Consideration and Possible Action on Resolution 2024-1, Relating to the Open Meetings Act and Adopting Annual Open Meetings Act Notice Requirements

NANCY LONG (BDDB Legal Counsel): Madam Chair and members of the Board, this is our annual requirement to consider by resolution what constitutes notice for our public meetings as required by the State Open Meetings Act. I know you have all seen these in your respective bodies too. We take the opportunity to look at it at a staff level and I ask are we doing this? Is this working? Certainly we have requirements but you can also set forth how you wish to notice your meetings within the parameters of the law.

There had been some physical posting requirements in our past Open Meetings Act and I was told by staff that we weren't doing that any longer. It is all on website and in addition we say in our resolution that we meet on the first Thursday of every month, which is what we do. We changed that. And then we also are allowing for virtual attendance or remote attendance if it is difficult or impossible for a board member to attend in like of more modern requirements, we didn't used to allow that a couple of years ago but now we have set it into our resolution. The changes were minor from our prior one. We have kept the ability that in the event of a public health emergency, because we just never know, that we can hold the entire meeting remotely or you can cancel a meeting or do whatever you need to do as the chair and the chair would decide.

And with that, I would recommend that we pass our Open Meetings Act resolution to provide what constitutes notice for our meetings this next year.

CHAIR HAMILTON: Excellent. Any questions from the Board?

COUNCILOR ROMERO-WIRTH: Move to approve.

COMMISSIONER HANSEN: Second.

CHAIR HAMILTON: I have a motion and a second. All those in favor please say aye.

**The motion carried without opposition.**

**b. Request for approval of contract with Pumptech Holdings, LLC; DBA Alpha Southwest, an Impel Company in the amount of $499,623.71 including NMGRT**

**i) Request for Budget Adjustment Approval to reauthorize unexpended funds approved by the BDDB from the Major Repair and Replacement Fund for FY2023 to FY2024 in the amount of $499,623.71**

RICK CARPENTER (BDD Facilities Manager) Thank you, Madam Chair and good morning. Members of the Board, Madam Chair, this contract with Alpha Southwest was originally approved many months ago. Over a series of delays through the finance department and procurement, it took awhile to get this through the system. By the time that that happened the contract had expired and around that time as well Southwest was purchased by Pumptech Holdings, LLC, so we had to reissue a new contract with Pumptech's name on it instead of Alpha Southwest. So staff is requesting approval of the new contract with Pumptech Holdings and approval to reauthorize the unrestricted funds from the Major Repair and Replacement Fund. With that, I'll stand for questions.

CHAIR HAMILTON: Excellent. Any questions? Seeing none, what is the pleasure of the Board?

COMMISSIONER HANSEN: I move to approve.

COUNCILOR ROMERO-WIRTH: Second.

MS. LONG: And, Madam Chair, there is a BAR that is attached to this request. I would take it that the motion includes approval of the BAR.

CHAIR HAMILTON: Commissioner Hansen, does your motion include approval of the BAR?

COMMISSIONER HANSEN: Yes.

CHAIR HAMILTON: Excellent, and your second?

COUNCILOR ROMERO-WIRTH: Second.

CHAIR HAMILTON: Thank you. So now we have a revised motion and second. All in favor please say aye.

**The motion passed by unanimous voice vote.**

**c. Consideration and Possible Action on draft Buckman Direct Diversion Board Comments to New Mexico Environment Department (NMED) 2024-2026 State O New Mexico Clean Water Act (CWA) Section 202(d)/305(b) Integrated List of Assessed Surface Waters**

KYLE HARWOOD (BDDB Legal Counsel): Good morning, Madam Chair and members of the Board. As you all know this has been a busy time of the year to say the least. The notice for this comment period came out in early December. The comment period runs before our next Board meeting in February and so we attempted to prepare a comment letter for your consideration. In addition to the holidays we had some logistically challenges with getting you a draft of this. I did handout a paper version at

the beginning of the meeting that contains essentially two basic suggestions for this comment letter. One is that the integrated list does contemplate the preparation of what are called TMDLs, total maximum daily loads, and that schedule has been pushed out repeatedly in the revisions of the integrated list. So we are asking the Environment Department to prioritize that work for our Segment 114 which is the segment of the Rio Grande that the Buckman intake is located at.

And additionally, consultant Jay Lazarus, who is here today, has also added an additional issue that was not in the earlier draft that you saw of this letter that relates to the acknowledgement that EPA has made recently of the hydrology connection between LA Pueblo Canyon and the Rio Grande and asking that the LA Pueblo Canyon system be assessed in its entirety under the public water supply use.

As many of you know we have been circling between the holidays and the weather and other unanticipated issues to get you a consensus comment letter. It is due by the 24th and I have it dated as the 22nd because I just figured I didn't want to date it before you guys were able to consider and sign it. I have also removed Councilor Villarreal's name from the signature block at the end as was noted. With that, I stand for any questions and Jay is here as well.

COUNCILOR ROMERO-WIRTH: Can Jay, Madam Chair, come up to the podium?

CHAIR HAMILTON: Sure.

COUNCILOR ROMERO-WIRTH: I just want to have him involved in the conversation.

CHAIR HAMILTON: Appreciate it.

COUNCILOR ROMERO-WIRTH: And I do have a couple of questions whenever you're ready.

CHAIR HAMILTON: By all means; I'm ready.

COUNCILOR ROMERO-WIRTH: Just as a starting point, the two of you have worked on this letter and you're in agreement with its substance.

JAY LAZARUS (Glorieta Geoscience): Yes, Madam Chair.

COUNCILOR ROMERO-WIRTH: I'll just – I understand and Kyle mentioned a couple of times how difficult it's been given the holidays and other events to get something in front of us. And I'm just going to say publically, I don't like getting something of this length and substance. I was handed this five minutes before the meeting and so it makes it very challenging for us then to have to vote on it. So that's one issue. But that's where we are so I'm going to ask a couple of questions and see if I can get to a comfort level with what's in here in a quick passing but, again, I'm going to say this is complicated stuff. We have two consultants. We have Jay Lazarus and his company who is our contract environmental consultant and then Kyle, of course, you bring to the table other expertise on it as well. So that speaks to the nature of the complexity in this and then we're handed it and given five minutes to read it and vote it and represent the board as being in agreement and again, these are highly technical things. So I'm just going to express that.

I guess my more substantive question is around total maximum daily loads, the TMDLs. When I look at the packet material, Kyle, that you sent to us trying to kind of give us some background to get up to speed on this, it doesn't look like the New Mexico Environment Department what they're asking for comment on doesn't seem to be

specific to this TMDL issue and I think you said they haven't done what they said they were going to do and we'd like to ask them to do that. But is this the appropriate place to be commenting on that given that that's not the comment that they're asking the public for at this moment?

MR. HARWOOD: I think it is appropriate to go ahead and remind them that their integrated list has pushed the schedule out. They have asked for comments on the integrated list. They have asked folks to focus on a number of substantive issues but I do think that this schedule that continues to push out into the future is relevant. It is a key component to the integrated list process and it does – it's part of the critical path, sort of speak, to getting to a full regulatory implementation of the integrated list and so while they may not be asking for comments on their delayed schedule I do feel like it's an appropriate time and place to remind them that this is not what they've told the public in the past that they intend to do and that we are waiting for this work to be completed. So it is part of the integrated list process.

COUNCILOR ROMERO-WIRTH: Right. I don't know, are you both in agreement on that or is this a point where maybe you have different ways of looking at it?

MR. LAZARUS: Madam Chair, I don't know that this is necessarily a point we have different ways of looking at it. There's other opportunity. I just left the Water Quality Control Commission meeting at the Roundhouse where this 303(d) 305(b) listing was one of the specific agenda items and they – just so you understand the schedule better and then I will respond to your question, Madam Chair. The public comment period closes before the next meeting, probably January 25th. They would like to have, the Environment Department would like to have a final draft for submission on February 9th and it will be submitted to the Water Quality Control Commission March 1st after they respond to the public comments and they will respond. They are required by EPA to respond to all of the comments whether they agree with them or not.

So in terms of the TMDL which is pushed out, and continually pushed out and continually pushed out, they will have to respond to the comment. We'll be hearing the integrated list at the March 12th Water Quality Control Commission meeting and then the list goes to EPA on April 1st.

It's our unfortunate experience that – you know, we represent a lot of other stakeholders in front the Environment Department and the Water Quality Control Commission – and I'm going on the record with this, so here it goes – it's our unfortunate experience that the department blows off a lot of public comment. They respond it in writing but in terms of taking action that's something that doesn't happen the way that a lot of stakeholders want. So in terms of going to the Commission – either I or my staff attend all Water Quality Control Commission meetings. When the agenda comes out for the March 12th meeting, there's no meeting in February because of the session, we depending on the Board's direction, we can present technical testimony to the Commission. The final draft will come out February 9th and fortunately we will have another Board meeting before the March 12th Water Quality Control Commission hearing. Commissioner Hansen, I'm sorry.

CHAIR HAMILTON: Two more.

MR. LAZARUS: Yeah, two more but we won't have their final draft until February 9th which puts us past our first meeting in February.

CHAIR HAMILTON: Good point, yes.

COUNCILOR ROMERO-WIRTH: Okay. Maybe since we were just handed this memo, can either or both of you just kind of walk us through what it is we're saying. I jumped right into TMDLs but maybe I should have backed up and had you all describe what's in this letter. What are saying in terms of the comment that they're asking for.

MR. LAZARUS: I think on the TMDLs I'll refer to Kyle on that and I'll talk about the public water supply as it shows up later in the letter.

COUNCILOR ROMERO-WIRTH: Okay. So on page one it says, "Segment 114 Rio Grande – Cochiti Reservoir to San Ildefonso boundary" and that's where we get into TMDLs. What essentially does that paragraph say?

MR. HARWOOD: Thank you, Councilor. So, yes, as you know the first two paragraphs are introductory. The first one describes our project. The second one describes the matter that we're responding to. Under the Segment 114 heading we note that we made this comment previously in 2022 comments, the same comment round for that integrated list comment period. And the Segment 114 water is listed as impaired and we're not then subject to TMDL despite that action being necessary to improve water quality. We pointed out that many of the TMDLs are intended to address years long impairments that were estimated to be listed even in 2021 and in those response to comments, NMED said that TMDLs are usually issued four years after the last water quality survey which was done in 2017/2018. So their further response at that time was that the next water quality survey would include Segment 114 would occur in the 2023/2024 and push out the issues of TMDLs until 2027.

COUNCILOR ROMERO-WIRTH: So, again, what we're taking issue with is that they're pushing that out so far.

MR. HARWOOD: Right. That they have now given themselves an extension of time, sort of speak, and it's not the first one. It is just the latest round.

Then the new Draft Integrated Report shows that it is not subject to monitoring until 2025, nevertheless stating that it is a priority. So what this comment letter states is that the Board requests information about how NMED establishes these priorities and how Segment 114 is used as a source water and needs NMED's prioritization. And we further go on to say that the draft Impairment List, we quote, "procedures are in place under the purview of the Board," this is them referencing our Board/ LANL MOU. As you know – so they are somewhat responding to our comment by pointing out that we have our own separate ENS system and so what we do in counterpoint is say, it is important to recognize that these procedures are meant to augment and not replace the basic NMED water quality protections as timely development of TMDLs for this segment. The last sentence there before the new heading, "The Board requests that NMED accelerate THDL issuance for stream Segment 114 that are source waters for drinking water supplies."

We're calling out their continued delays and we're also pointing out that while they reference our BDD/LANL MOU with its ENS, that is meant to be our own supplementary approach on top of the state's baseline water quality approach which we feel that they are delaying to implement.

COUNCILOR ROMERO-WIRTH: Okay, no, please go ahead.

MR. HARWOOD: The next segment is related to setting TMPLs in the LA Pueblo Canyon stretch and the paragraph that starts, "The US EPA Agency"

quotation here by the hydrologic connection, this is where Jay has picked up the request for an assessment of the public water supplies as it relates to the LA Pueblo Canyon stretch. And if – I believe I'll have Jay describe this section more fully.

MR. LAZARUS: Madam Chair, Board members, so NMED looks at different types of uses and through specific reaches have water quality sufficient to support those uses. They look at wildlife. They look at irrigation. They look at livestock watering and they look at public water supply. In what they've proposed for LA Canyon – let me back up a second. Rick asked me to look at EPA's stormwater analysis for Los Alamos County. That's where this quote comes from, from Lori Tanner, USEPA in Dallas, and I had discussions with her and her staff specifically about it where they identified specific constituents of concern in the canyon and described the direct hydrologic connection from Los Alamos Canyon to the Rio Grande. What we're asking them to do is look at this as this is our source – and even though we have the early notification system, that's just for certain flood events. It is not for specific flow events or anything that may be an underflow of the sediments during or below the dry reaches. So what we're requesting them to do is assess Los Alamos Canyon and its tributaries from their headwaters all the way down to our diversion as public water supply. We'll see how they respond to that. But the Board's real issue is Los Alamos Canyon and its tributaries and the reach from Los Alamos Canyon confluence Rio Grande to the diversion and that's what we're requesting. And even though there is no public water supply drawing water from the canyon distributaries there is a hydrologic connection to the main stem and then downstream to where we are.

COUNCILOR ROMERO-WIRTH: And the concern is the legacy waste in that canyon and its potential to get into those tributaries; correct?

MR. LAZARUS: Legacy waste in the –

COUNCILOR ROMERO-WIRTH: And I may not be characterizing it correctly so give me the right – what are we concerned about in those canyons?

MR. LAZARUS: We're concerned about the tributaries to LA Canyon and LA Canyon itself.

COUNCILOR ROMERO-WIRTH: And what's in those tributaries that we're concerned about reaching the BDD intake?

MR. LAZARUS: Radionuclides, PCBs and heavy metals.

COUNCILOR ROMERO-WIRTH: Okay. And you wouldn't characterize that legacy waste; you'd characterize it as something else?

MR. LAZARUS: No, no, it's definitely legacy waste and I don't know how much is currently being contributed. But definitely legacy waste.

COUNCILOR ROMERO-WIRTH: That's helpful to me. And I kind of jumped the gun on the TMDLs on whether it's appropriate for us to be commenting on that since that's not directly what they're asking for and that question was already answered.

I think I'll leave it there and allow other members to ask question and then see if I have any others. Thank you.

CHAIR HAMILTON: Commissioner Hansen.

COMMISSIONER HANSEN: Thank you, Madam Chair. Thank you, Kyle and Jay. I did read this letter yesterday afternoon when it was sent out and I made comments about Councilor Villarreal's name. But I think that it is really important that

NMED, EPA understand that the flow meter that we installed is only a flow meter that has no other ability. And so I find them using that as a reason not to be concerned about all of the other contaminants including the TMDLs seem absurd to me. The main reason we installed that flow meter was so we could protect and augment. It doesn't designate or track or do any of these other things plus all of this water – legacy contaminants are running through pueblo land.

So I think it's really important that we get some response from them and it was really noteworthy to me that Kyle mentioned or Jay whoever mentioned it, that they will respond to all public comments.

CHAIR HAMILTON: Thank you. Councilor.

COUNCILOR ROMERO-WIRTH: Thank you, Madam Chair. I just want to make sure that Commissioner Hansen has the most up to date letter. The letter that was sent yesterday is not the letter that we all are looking at here in the chamber. And so I don't know whether that was emailed to her or if it could be emailed to her because I do think there's a little bit of a difference in those two versions and that's what I was referring to, Commissioner, is that this latest letter was just handed to us in chambers right at the beginning of the meeting.

COMMISSIONER HANSEN: Okay. I did not have – had not received an update that I know of of that letter.

CHAIR HAMILTON: Right, that is the issue. I think the changes and I'm sure Kyle can summarize the changes briefly.

MR. HARWOOD: Yes, Madam Chair. And I will just mention to you, Commissioner Hansen, I just texted you the additional paragraphs that Jay suggested. I am sorry that I didn't have a chance to email the text out to you before the meeting but I think that we've discussed the additional two paragraphs and if it's okay with you, Jay, I'll just summarize those quickly.

The first paragraph just references that EPA jurisdictional analysis of waters in LA Canyon and points out the recognized federal hydrologic connection between LA Pueblo Canyon and the Rio Grande which I know, Commissioner, you are well familiar with. Then the second big paragraph that was not in the draft you saw yesterday was the Board requesting that NMED assess the LA Canyon for suitability as a public water supply which I also think is something that you and I talked about in the past. Perhaps you haven't seen this.

COMMISSIONER HANSEN: I was trying to follow the letter and I couldn't figure out what was going on because I couldn't find the first paragraph that you were talking about. So thank you for making that clarification. It would have been nice to know in the beginning that there was a new copy of the letter. Thank you, Councilor Romero-Wirth for pointing that out to me.

MR. HARWOOD: And did you receive that text, Commissioner?

COMMISSIONER HANSEN: Well, it's a little challenging to read in a text so I hope that you will send me an email with it.

MR. HARWOOD: Yes, ma'am.

COMMISSIONER HANSEN: I understand what you're talking about.

MR. HARWOOD: Thank you very much.

CHAIR HAMILTON: Just a couple of things that I wanted to add – given that the TMDLs are the – you alluded to this, but just for clarity. TMDLs are one of the

mechanisms that are used to address water quality problems in listed segments. So I feel that it is valuable to list that because it is forcing continued – at least it opens the door for the continued interactions that we keep using that to get them to address the water quality problems. So it is not explicitly requested but it is an implied mechanism that is the part that is frankly meaningful to us because it's the water quality that we're trying to make sure that is retained at a high quality. And, Commissioner Hansen, are you comfortable because you've been working on this. I assume you're comfortable even though you haven't seen the updated letter given that we've gone through and had the technical details summarized during the meeting?

COMMISSIONER HANSEN: Yes, I am comfortable. I understood what was going on. I just wondered whether I was missing something so I kept looking for it. But I was also listening to Jay and listening to Kyle and I do agree with what they have added and I think it was important that we added this in.

CHAIR HAMILTON: That's good and I appreciate and probably agree and would just request that even if it doesn't make it into the packet, if we could get things electronically before the meeting so we can review things. That's just a general for all the materials, anything that is on the agenda to be able to review ahead of time. But I appreciate that you guys were working on this until the last minute so it is kind of a two-edge sword and appreciate that you summarized all of that for us. That was helpful.

Is there more discussion or what's the pleasure of the Board?

COMMISSIONER HANSEN: Madam Chair, I move to approve the letter and then they'll work on getting signatures from all of us and I'll get a new copy of the letter.

COUNCILOR ROMERO-WIRTH: Second.

**The motion passed by unanimous voice vote.**

CHAIR HAMILTON: Motion passes. And thank you, Board members, for working through this at the last minute. Thanks for working on this and Jay thanks for being here and contributing to this.

## 6. MATTERS FROM THE PUBLIC

CHAIR HAMILTON: Is there anyone from the public wishing to speak? Do you want to come up, please and identify yourself.

MICHAELENE KYRALA: Hi, my name is Michaelene Kyrala and I'm the general manager of the Las Campanas Water Cooperative. So I'm actually not a member of the public. I'm supposed to be a Board member as well. We're just non-voting Board members.

CHAIR HAMILTON: Yes.

MS. KYRALA: So just as a reminder, we are a part of this organization and I would appreciate be included when materials are distributed as we are supposed to be helping be part of this. I look forward to working with everybody.

CHAIR HAMILTON: Do we not usually do that?

MS. LONG: Madam Chair, yes, we do. There may have been a change in the alternate member that we didn't know about or it didn't get communicated. But, of

course, they would be included with all the materials and with notices of meetings. So we'll get that corrected.

CHAIR HAMILTON: Thank you.

MS. KYRALA: Thank you. The larger issue that is happening at BDD is that staff doesn't seem to be clear that there are four –

CHAIR HAMILTON: I'm sorry is your microphone on?

MS. KYRALA: Sorry. Just a reminder that there are four partners there. I am having trouble with the auditing firm also not understanding that there are four partners and they don't know who the organizations are that are part of it. We've had checks that have gone missing and we can't get answers on what we need to do – these are checks that are years and years out.

So I am really excited. I want this to be a positive relationship and these are issues that have come up and we haven't been able to get any changes through the normal channels so this is the chance I had. So I look forward to working with everybody in the future and Rick and Bernardine both have my email address if anybody wants to get in touch with me.

CHAIR HAMILTON: Excellent, thank you. Is there anybody else from the public? Yes, go ahead, Joni.

JONI ARENDS (CNNS): Thank you for this opportunity to speak members of the BDD Board and staff. I appreciate the work on the TMDLs and the other issues with regard to the New Mexico Environment Department.

I should introduce myself to Councilor Cassutt. My name is Joni Arends. I'm with Concerned Citizens for Nuclear Safety. I've been watching the Buckman Board for 22 years now or manifestations of the Buckman effort to protect Santa Fe's drinking water.

So I do want to mention Chair Romero-Wirth made comments about the legacy waste and I think it's important to refresh folks' memory that the Manhattan project was based around Ashley Pond and to the north of Ashley Pond is Los Alamos Canyon – no, is Pueblo Canyon and to the south is Los Alamos Canyon and as you move further east through those canyon systems they merge at the Y and then the canyons, the Los Alamos and the Pueblo canyons merge and travel together down to the Rio Grande. And legacy waste was buried, was discharged, was emitted into the air for decades into those canyon system and I just want to emphasize that there are still waste disposal sites on top of the mesas on the sides of the canyons and all the way down through the canyon systems towards the Rio Grande.

And I look forward to working with you in 2024. Thank you.

CHAIR HAMILTON: Thank you. Is there anyone else from the public that wishes to make a comment? Okay, I'll go ahead and close public comment.

## 7. MATTERS FROM THE BOARD

CHAIR HAMILTON: Matters from the Board, yes, Commissioner Hansen.

COMMISSIONER HANSEN: Thank you, Madam Chair. I really appreciate the fact that there is now a better zoom link. I am under the weather and I did not want to come and share what I have gotten – what somebody shared with me. I'm really completely appreciate that.

Welcome, Councilor Cassutt, to this Board. Both Commissioner Hamilton and I have served on this Board for the past seven years and are really very committed to protecting our drinking water.

There is one other thing that I want to say is that Las Campanas Co-op is in my district and for many years Ginnie was the board members from the Co-op attended on a regular basis and for awhile there was no response from anybody from the Las Campanas Co-op to attend our Board meetings and I am happy to see that the executive director has come and that they plan on attending again. But there was outreach done to them extensively but nobody ever showed up. So we did have representatives a number of years ago and I think the pandemic just changed everything.

Thank you.

CHAIR HAMILTON: Thank you very much. Any other Board members? Thank you.

**8. NEXT MEETING:** Thursday, February 1, 2024 at 4:00 p.m**.**

**9. ADJOURN**

Having completed the agenda and with no further business to come before the Board, Chair Hamilton declared this meeting adjourned at approximately 11:50 a.m.

Approved by:

_____
Anna Hamilton, Board Chair

Respectfully submitted:

Karen Farrell, Wordswork

**ATTEST TO**

_____
KATHARINE E. CLARK
SANTA FE COUNTY CLERK

Buckman Direct Diversion

**Date:** **February 1, 2024**

**To:** **Buckman Direct Diversion Board**

**From:** **Randy Sugrue, BDD Operations Superintendent**

**Subject:** **Update on BDD Operations for the Month of January 2024**

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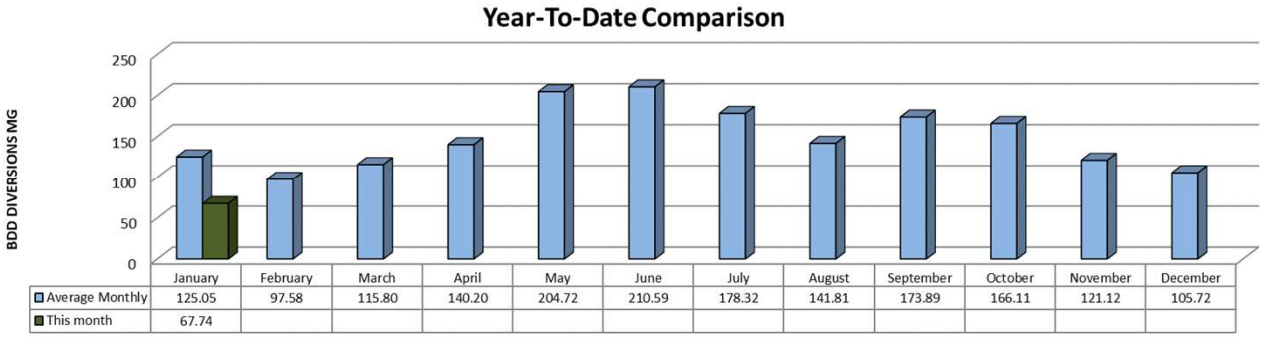
**ITEM:**

1. This memorandum is to update the Buckman Direct Diversion Board (BDDB) on BDD operations during the month of January 2024. The BDD diversions and deliveries have averaged, in Million Gallons Per Day (MGD), as follows:
    a. Raw water diversions: 2.19 MGD.
    b. Drinking water deliveries through Booster Station 4A/5A: 1.94 MGD.
    c. Raw water delivery to Las Campanas at BS2A: 0.0 MG
    d. WTP Onsite water storage variation: 0.25 MGD Average. (Average gain or loss per day to the 12MG WTP onsite storage.)

2. The BDD is providing approximately 31% percent of the water supply to the City and County for the month.

3. The BDD year-to-date diversions are depicted below:




| | January | February | March | April | May | June | July | August | September | October | November | December |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Monthly | 125.05 | 97.58 | 115.80 | 140.20 | 204.72 | 210.59 | 178.32 | 141.81 | 173.89 | 166.11 | 121.12 | 105.72 |
| This month | 67.74 | | | | | | | | | | | |

4. Regional Demand/Drought Summary and Storage-see page 2.

**Regional Water Overview**

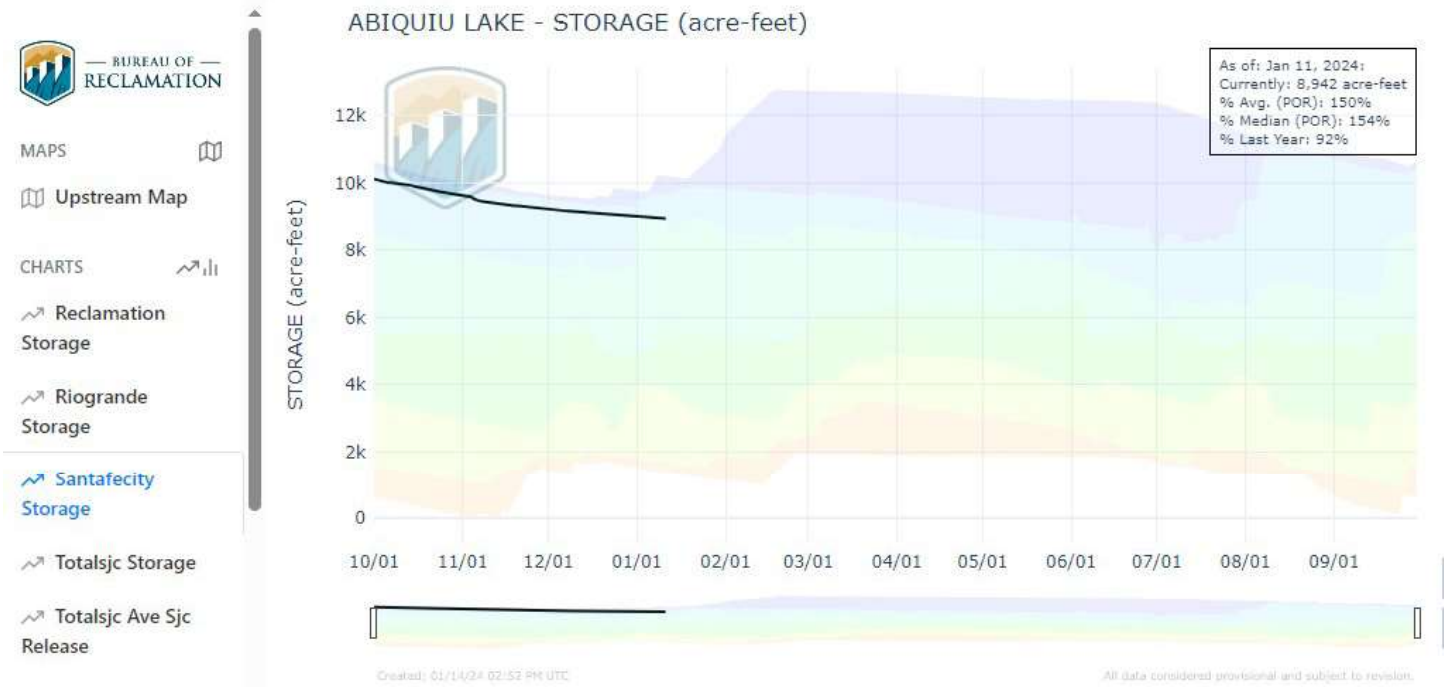
Daily metered regional water demand for the month of January 2024 is approximately 6.2 MGD.

Rio Grande flows for January 2024 averaged approximately 500 CFS (cubic feet per second.)

CRWTP reservoir storage: Nichols: 70%/McClure: 7% (18% combined) Watershed Inflow: 0.7 MGD

City/County/LC Storage- as updated by partners. As of January 11, 2024 City of SF Abiquiu SJC storage is at about 8,942AF.

As of July 1, 2023 the City of Santa Fe has been allocated 5230AF of 5230AF and SF County 375AF of 375AF of SJCP water.




ENSO Summary
January 15, 2024
El Niño conditions are observed.*
Equatorial sea surface temperatures (SSTs) are above average across the central and eastern Pacific Ocean. The tropical Pacific atmospheric anomalies are consistent with El Niño. El Niño is expected to continue for the next several seasons, with ENSO-neutral favored during April-June 2024 (73% chance).

**Buckman Direct Diversion Monthly SJC and Native Diversions**

**Jan-24** In Acre-Feet

| Month | **Total SJC + Native Rights** | **SP-4842 RG Native** COUNTY | **SD-04842-A RG Native VIA SFC** LAS CAMPANAS | **SJC Call Total** | **SP-2847-E SJC Call** CITY | **SP-2847-N-A SJC Call** LAS CAMPANAS | **SP-2847-E SJC Undiverted** CITY | All Partners Conveyance Losses |
|---|---|---|---|---|---|---|---|---|
| JAN | **207.946** | **50.000** | **0.000** | 157.946 | **105.574** | **0.000** | 0.000 | 1.089 |
| FEB | **0.000** | **0.000** | **0.000** | 0.000 | **0.000** | **0.000** | 0.000 | 0.000 |
| MAR | **0.000** | **0.000** | **0.000** | 0.000 | **0.000** | **0.000** | 0.000 | 0.000 |
| APR | **0.000** | **0.000** | **0.000** | 0.000 | **0.000** | **0.000** | 0.000 | 0.000 |
| MAY | **0.000** | **0.000** | **0.000** | 0.000 | **0.000** | **0.000** | 0.000 | 0.000 |
| JUN | **0.000** | **0.000** | **0.000** | 0.000 | **0.000** | **0.000** | 0.000 | 0.000 |
| JUL | **0.000** | **0.000** | **0.000** | 0.000 | **0.000** | **0.000** | 0.000 | 0.000 |
| AUG | **0.000** | **0.000** | **0.000** | 0.000 | **0.000** | **0.000** | 0.000 | 0.000 |
| SEP | **0.000** | **0.000** | **0.000** | 0.000 | **0.000** | **0.000** | 0.000 | 0.000 |
| OCT | **0.000** | **0.000** | **0.000** | 0.000 | **0.000** | **0.000** | 0.000 | 0.000 |
| NOV | **0.000** | **0.000** | **0.000** | 0.000 | **0.000** | **0.000** | 0.000 | 0.000 |
| DEC | **0.000** | **0.000** | **0.000** | 0.000 | **0.000** | **0.000** | 0.000 | 0.000 |
| **TOTAL** | **207.946** | **50.000** | **0.000** | **105.574** | **105.574** | **0.000** | **0.000** | **1.089** |

**In Million Gallons**

| Month | **Native** COUNTY | SFC **Native** Las Campanas | **SJC** TOTAL | **SJC** CITY | **SJC** Las Campanas | **SJC Undiverted** CITY | **All Partners Diversions** |
|---|---|---|---|---|---|---|---|
| JAN | 16.287 | 0.000 | 51.448 | 51.448 | 0.000 | 0.000 | 67.735 |
| FEB | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| MAR | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| APR | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| MAY | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| JUN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| JUL | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| AUG | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SEP | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| OCT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NOV | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| DEC | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **TOTAL** | **16.287** | **0.000** | **51.448** | **51.448** | **0.000** | **0.000** | **67.735** |

**Buckman Direct Diversion Monthly SJC and Native Diversions**

**Dec-23** In Acre-Feet

| Month | **Total SJC + Native Rights** | **SP-4842 RG Native** COUNTY | **SD-04842-A RG Native VIA SFC** LAS CAMPANAS | **SJC Call Total** | **SP-2847-E SJC Call** CITY | **SP-2847-N-A SJC Call** LAS CAMPANAS | **SP-2847-E SJC Undiverted** CITY | All Partners Conveyance Losses |
|---|---|---|---|---|---|---|---|---|
| JAN | **202.766** | **170.639** | **0.000** | 32.127 | **32.127** | **0.000** | 0.000 | 0.316 |
| FEB | **198.863** | **198.863** | **0.000** | 0.000 | **0.000** | **0.000** | 0.000 | 0.000 |
| MAR | **298.509** | **283.752** | **0.000** | 14.757 | **-0.183** | **14.940** | 0.000 | 0.148 |
| APR | **539.513** | **456.749** | **68.929** | 13.835 | **13.835** | **0.000** | 0.000 | 0.050 |
| MAY | **594.828** | **462.276** | **132.552** | 0.000 | **0.000** | **0.000** | 0.000 | 0.000 |
| JUN | **584.178** | **458.973** | **125.205** | 0.000 | **0.000** | **0.000** | 0.000 | 0.000 |
| JUL | **775.090** | **29.584** | **0.000** | 745.506 | **600.980** | **144.526** | 0.000 | 3.448 |
| AUG | **691.219** | **0.000** | **0.000** | 691.305 | **661.055** | **30.250** | 0.086 | 3.300 |
| SEP | **543.466** | **0.000** | **0.000** | 548.792 | **488.899** | **59.893** | 5.325 | 2.629 |
| OCT | **450.861** | **0.000** | **0.000** | 462.141 | **409.826** | **52.315** | 11.280 | 4.339 |
| NOV | **305.383** | **0.000** | **0.000** | 310.512 | **297.964** | **12.549** | 5.129 | 3.046 |
| DEC | **201.257** | **0.000** | **0.000** | 214.254 | **214.254** | **0.000** | 12.996 | 2.142 |
| **TOTAL** | **5,385.935** | **2,060.836** | **326.686** | **3,033.229** | **2,718.756** | **314.473** | **34.816** | **19.417** |

**In Million Gallons**

| Month | **Native** COUNTY | SFC **Native** Las Campanas | **SJC** TOTAL | **SJC** CITY | **SJC** Las Campanas | **SJC Undiverted** CITY | **All Partners Diversions** |
|---|---|---|---|---|---|---|---|
| JAN | 55.583 | 0.000 | 10.347 | 10.347 | 0.000 | 0.000 | 65.930 |
| FEB | 64.776 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 64.776 |
| MAR | 92.427 | 0.000 | 4.752 | -0.059 | 4.819 | 0.000 | 97.179 |
| APR | 148.778 | 22.453 | 4.484 | 4.484 | 0.000 | 0.000 | 175.714 |
| MAY | 150.579 | 43.176 | 0.000 | 0.000 | 0.000 | 0.000 | 193.755 |
| JUN | 149.503 | 40.783 | 0.000 | 0.000 | 0.000 | 0.000 | 190.286 |
| JUL | 9.636 | 0.000 | 240.180 | 193.965 | 46.562 | 0.000 | 249.817 |
| AUG | 0.000 | 0.000 | 222.731 | 213.366 | 9.764 | 0.028 | 222.731 |
| SEP | 0.000 | 0.000 | 176.814 | 157.483 | 19.331 | 1.735 | 176.814 |
| OCT | 0.000 | 0.000 | 148.909 | 132.288 | 16.887 | 3.674 | 148.909 |
| NOV | 0.000 | 0.000 | 100.009 | 95.960 | 4.049 | 1.671 | 100.009 |
| DEC | 0.000 | 0.000 | 68.993 | 68.993 | 0.000 | 4.233 | 68.993 |
| **TOTAL** | **671.282** | **106.412** | **977.219** | **876.827** | **101.412** | **11.341** | **1,754.914** |

# Memorandum

Buckman Direct Diversion

**Date:** **January 26, 2030**

**To:** **BDD Board**

**From:** **Rick Carpenter, BDD Facilities Manager**

**Re:** **BDD Facilities Manager Monthly Update to the BDD Board**

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**Item and Issue**

Below is the monthly update from the BDD Facilities Manager for the February, 2024 Board meeting:

- Major Repair and Replacement (MR&R) Fund. The BDD Facility Manager is to provide updates as needed on MR&R fund expenditures or other major expenditures on projects. There no MR&R items to report this month; however, the BDD experienced a failure of an HDPE raw water pipeline recently and that pipeline has been taken off-line. Repairs are expected to take place in March or April and, while a hard cost estimate has not yet been received, the cost could be near $100,000. This is an unexpected occurrence and therefore the cost was not anticipated in the annual MR&R Plan. Updates will be provided to the Board as appropriate.

- BDD Re-Build Project Progress. The Technical Working Group is working with City of Santa Fe Procurement in developing the RFQ/RFP process and will provide further information as available.

- Current Vacancies. The following positions are vacant/open and currently advertised:
  - Journeyman Electrician (closed 1/26/24, list of eligible candidates is pending)
  - Automation and Security Technician
  - Financial Manager
  - Water Operator Intermediate
  - Water System Operator Basic

# Memorandum

Buckman Direct Diversion

Date: October 26, 2023

To: Buckman Direct Diversion Board

From: Rick Carpenter
Kyle S. Harwood

Subject: 2022 Annual Report of Middle Rio Grande Endangered Species Collaborative Program

**ITEM:**

Update concerning the activities of the Collaborative Program.

**BACKGROUND:**

The BDD Board sought membership on the Executive Committee of the Middle Rio Grande Endangered Species Collaborative Program (MRGSCP) in November 2019 after years of participating in the Collaborative Program as an interested observer and invitee of the NM Interstate Stream Commission. In early 2020 the Board was invited to join the MRGSCP Executive Committee and participate fully in the discussions and actions to manage threatened and endangered species in the Rio Grande region.

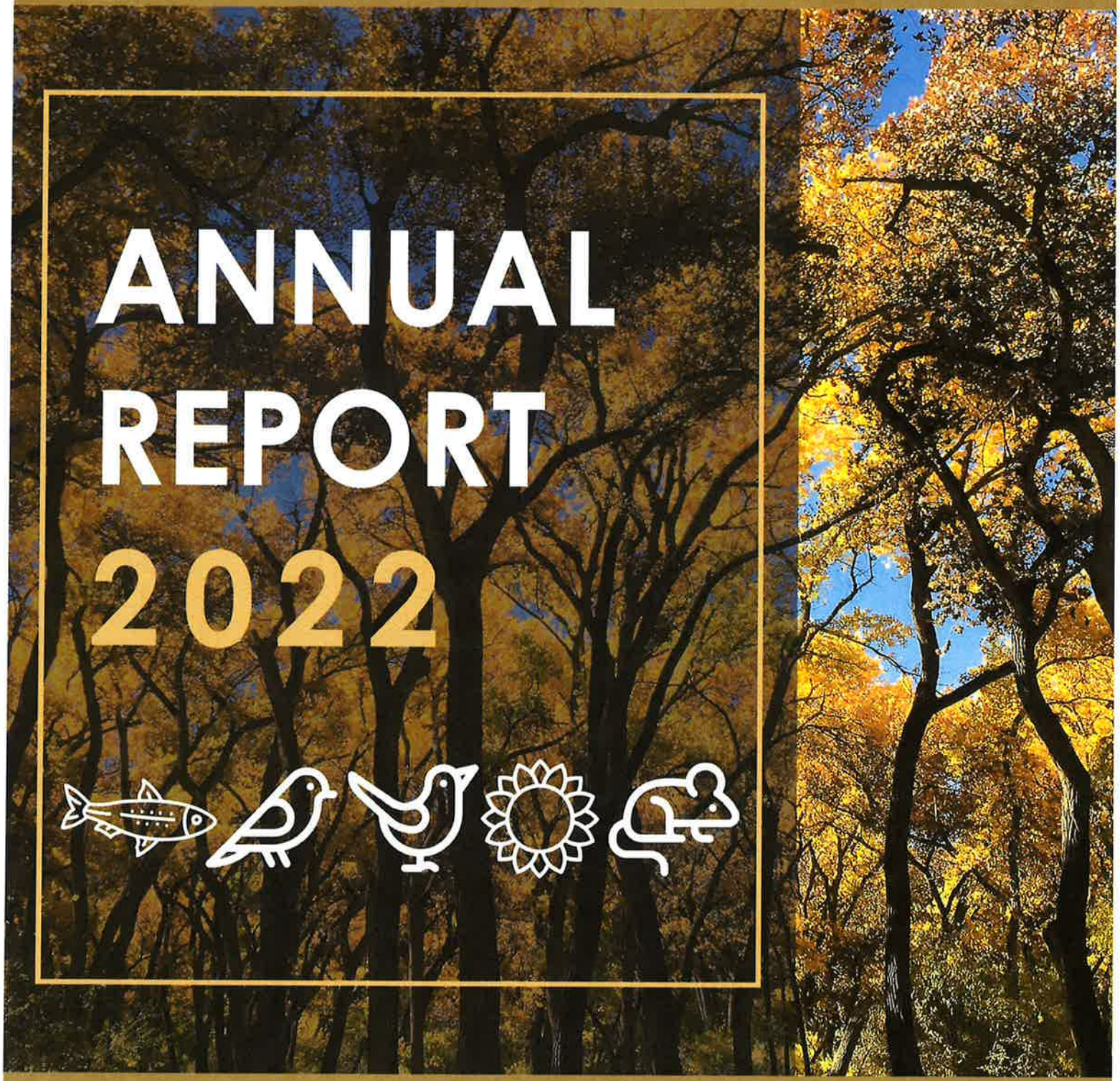
This Annual Report is provided to the BDD Board as a regular briefing concerning the activities of the Collaborative Program.

There are 3 species that are pending a listing decision in the coming months and an update will be provided to the BDD Board when those decisions are announced.

**Action Requested:**

None at this time.

Program Portal: https://webapps.usgs.gov/MRGESCP/



# ANNUAL REPORT 2022

## Middle Rio Grande Endangered Species Collaborative Program

# TABLE OF CONTENTS




**2022 ANNUAL REPORT PREPARED BY:**

WEST

Western EcoSystems Technology, Inc. (WEST)
Environmental and Statistical Consultants
901 Lamberton Place, Northeast South Suite
Albuquerque, New Mexico 87107

**ON BEHALF OF:**

The Middle Rio Grande Endangered Species Collaborative Program


**PHOTO CREDITS:**

***Cover photo and pg 2 photo:*** *Danielle Galloway, U.S. Army Corps of Engineers*
***Pg 3 photo, pg 6 banner, pg 8 banner, pg 14 banner, pg 18 banner, pg 21 banner:*** *Mike Marcus*
***Pg 5 banner, pg 12 banner, pg 19 banner, and pg 23 photo:*** *SWCA Environmental Consultants staff*
***Pg 9 and 10 banner:*** *J. N. Stuart*
***Pg 11 banner:*** *Debbie Lee, Program Support Team*
***Pg 20 banner:*** *Eric Coombs*
***Pg 22 banner:*** *S. David Moore, U.S. Bureau of Reclamation*
***Pg 22 species photos:*** *[left to right] J. N. Stuart; Museum of the Big Bend; Andy Reago and Chrissy McClarren; U.S. Fish and Wildlife Service; and Shannon Caruso, University of New Mexico*

# NON-FEDERAL CO-CHAIR'S LETTER

**from Mark Kelly, Non-Federal Co-Chair of the Executive Committee**
*Albuquerque Bernalillo County Water Utility Authority*

As I reflect on all that we accomplished in 2022 as a Collaborative Program, I feel proud – proud and excited for all that we have teed up for 2023. With the convening of the first biennial Collaboratory in December 2022, we officially moved from planning to practice. In other words, we have finished establishing the Collaborative Program as a science and adaptive management program, and are—as noted at the Collaboratory—shifting to using the framework we've developed to make meaningful, timely, scientifically sound, and actionable management recommendations.

Last year, we started realizing the Collaborative Program's potential for addressing priority management issues in the face of the reality of the new Middle Rio Grande ecosystem under climate change. In 2022, we saw two fires in the bosque: one around Belen, New Mexico, which burned nearly 900 acres, and one in Albuquerque, New Mexico, which burned over 30 acres. We also saw drying in the Angostura Reach for the first time in nearly 40 years. These events underscore the trends we have seen in vegetative communities, hydrology, geomorphology, weather, and listed species.

In response to interest from multiple signatories on the topic, we held a workshop focused on management of vegetated islands and bars in fall 2022. The Collaborative Program also, in partnership with the Bosque Ecosystem Monitoring Program and the City of Albuquerque Open Space Division, hosted a field trip to the bosque burn site. Such events are important steps in developing a common understanding of the issues facing the Middle Rio Grande, taking into account any potentially competing priorities and goals, and collaboratively finding strategies to address the issues.

As we move into 2023, we will continue tackling difficult listed species-related issues marked by scientific uncertainty. The Collaborative Program, through its use of sound scientific processes and principles, adaptive learning, and collaborative dialogue, can recommend scientifically justified solutions to priority management questions facing managers in the Middle Rio Grande.

Mark Kelly
Non-Federal Co-Chair of the Executive Committee

# ACRONYMS & ABBREVIATONS

| | |
|---|---|
| ABCWUA | Albuquerque Bernalillo County Water Utility Authority |
| AM | Adaptive management |
| Audubon | Audubon Southwest |
| BEMP | Bosque Ecosystem Monitoring Program |
| BDD | Buckman Direct Diversion |
| CoA | City of Albuquerque |
| Collaborative Program/Program | Middle Rio Grande Endangered Species Collaborative Program |
| EC | Executive Committee |
| FPC | Fiscal Planning Committee |
| HR | Habitat restoration |
| Long-Term Plan | Long-Term Plan for Science & Adaptive Management |
| MRG | Middle Rio Grande |
| MRGCD | Middle Rio Grande Conservancy District |
| NMDGF | New Mexico Department of Game and Fish |
| NMISC | New Mexico Interstate Stream Commission |
| NMMJM | New Mexico meadow jumping mouse |
| PESU | Pecos sunflower |
| Reclamation | U.S. Bureau of Reclamation |
| RGSM | Rio Grande silvery minnow |
| SAMC | Science and Adaptive Management Committee |
| SAMIS | Science and Adaptive Management Information System |
| SDM | Structured decision making |
| SWFL | Southwestern willow flycatcher |
| UNM | University of New Mexico |
| USACE | U.S. Army Corps of Engineers |
| USGS | U.S. Geological Survey |
| YBCU | Yellow-billed cuckoo |

# GUIDING PRINCIPLES

## Our Mission

The Middle Rio Grande Endangered Species Collaborative Program (Collaborative Program or Program) provides a collaborative forum to support scientific analysis and implementation of adaptive management to the benefit and recovery of the listed species pursuant to the Endangered Species Act within the Program Area, and to protect existing and future water uses while complying with applicable state, federal, and tribal laws, rules, and regulations.

## Our Species of Interest

The Collaborative Program supports the recovery of five federally listed species inhabiting the Middle Rio Grande (MRG): the endangered Rio Grande silvery minnow (RGSM; *Hybognathus amarus*), the endangered southwestern willow flycatcher (SWFL; *Empidonax traillii extimus*), the threatened yellow-billed cuckoo (YBCU; *Coccyzus americanus*), the endangered New Mexico meadow jumping mouse (NMMJM; *Zapus hudsonius luteus*), and the threatened Pecos sunflower (PESU; *Helianthus paradoxus*).

## Our Goals

- Establish and maintain a self-sustaining population of endangered RGSM distributed throughout the MRG.
- Maintain and protect the MRG recovery unit goals for endangered SWFL.
- Maintain and protect suitable threatened YBCU habitat in the MRG.
- Establish and maintain a self-sustaining endangered NMMJM population in the MRG.
- Maintain and protect the threatened PESU in the MRG.
- Avoid the future listing or up-listing of species in the Collaborative Program area.
- Manage available water to meet the needs of endangered species and their habitat.

# COMMITTEE MEMBERS

## Executive Committee (EC)

### CO-CHAIRS

| | |
|---|---|
| Mark Kelly | Non-Federal Co-Chair, EC Representative for Albuquerque Bernalillo County Water Utility Authority (ABCWUA) |
| Katrina Grantz | Federal Co-Chair, U.S. Bureau of Reclamation (Reclamation) |

### REPRESENTATIVES

| | |
|---|---|
| Paul Tashjian | Audubon Southwest (Audubon) |
| Kim Eichhorst | Bosque Ecosystem Monitoring Program (BEMP) |
| Rick Carpenter | Buckman Direct Diversion (BDD) |
| Colleen Langan-McRoberts | City of Albuquerque (CoA) |
| Anne Marken | Middle Rio Grande Conservancy District (MRGCD) |
| Bill Grantham | New Mexico Office of the Attorney General (NMOAG) |
| Matthew Wunder | New Mexico Department of Game and Fish (NMDGF) |
| Page Pegram [Jan–Jun] | New Mexico Interstate Stream Commission (NMISC) |
| Grace Haggerty [Jun–Dec] | NMISC |
| Blane Sanchez | Pueblo of Isleta |
| Michael Scialdone | Pueblo of Sandia |
| Alan Hatch | Pueblo of Santa Ana |
| Thomas Turner | University of New Mexico (UNM) |
| LTC Patrick Stevens [Jan–Aug] | U.S. Army Corps of Engineers (USACE) |
| LTC Jerre Hansbrough [Aug–Dec] | USACE |
| Jennifer Faler | Reclamation |
| Shawn Sartorius | U.S. Fish and Wildlife Service |

***EC Representatives:*** *[back row left to right]* ***Jim Wilber*** *(alternate for Reclamation),* ***Dustin Chavez-Davis*** *(alternate for CoA),* ***Matthew Wunder, Mark Kelly, Kyle Harwood*** *(alternate for BDD),* ***Ryan Gronewold*** *(alternate for USACE),* ***Bill Grantham*** *[front row left to right]* ***Grace Haggerty, Anne Marken, Michael Scialdone, Kim Eichhorst***

## Fiscal Planning Committee (FPC)

### CO-CHAIRS

| | |
|---|---|
| Grace Haggerty | Non-Federal Co-Chair |
| Debra Hill | Federal Co-Chair |

### MEMBERS

| | |
|---|---|
| Mark Kelly | ABCWUA |
| Quantina Martine | Audubon |
| Kim Eichhorst | BEMP |
| Dustin Chavez-Davis | CoA |
| Brittney Erdmann | MRGCD |
| Anne Marken | MRGCD |
| Bill Grantham | NMOAG |
| Virginia Seamster | NMDGF |
| Michael Scialdone | Pueblo of Sandia |
| Lynette Giesen | Reclamation |
| Thomas Turner | UNM |
| Ryan Gronewold | USACE |

## Science and Adaptive Management Committee (SAMC)

### MEMBERS

| | |
|---|---|
| Thomas Archdeacon | Aquatic Ecology Expert |
| Meaghan Conway | Ecosystem Function Expert |
| Megan Friggens | Climate Science Expert |
| Ryan Gronewold | Hydrology Expert |
| Mo Hobbs | Aquatic Ecology Expert |
| S. Dave Moore | Terrestrial Ecology Expert |
| Ari Posner | Geomorphology Expert |
| Ara Winter | Statistics/Modeling Expert |
| Alan Hatch | EC *Ex Officio* Member |

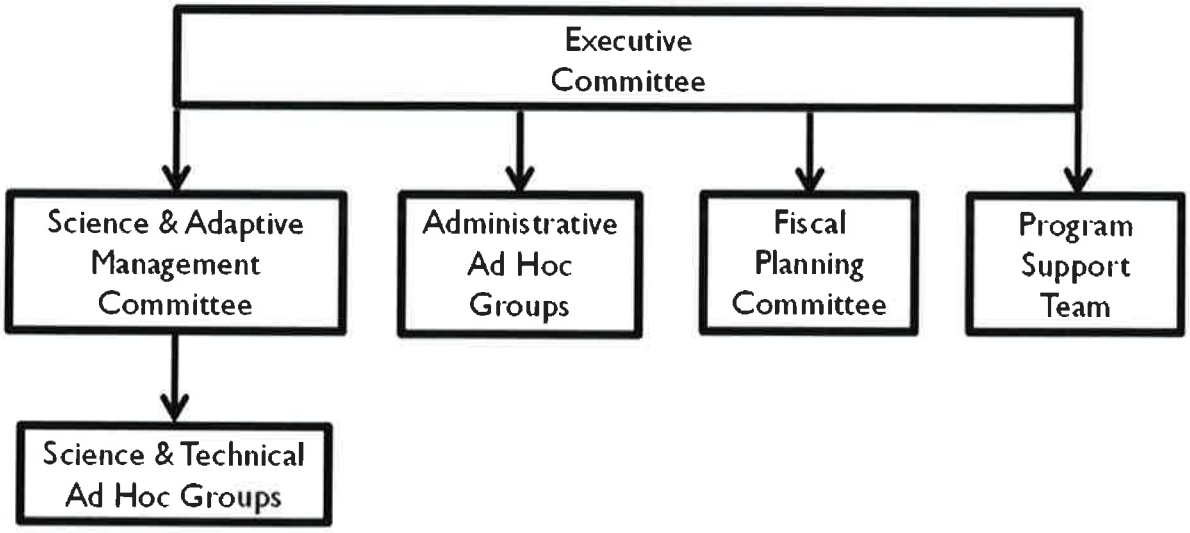



*Figure 1. Structure of Collaborative Program committees and groups.*

# THE RICK BILLINGS MEMORIAL AWARD

**RICK BILLINGS**

Former member and supporter of the Collaborative Program, award namesake.

Rick Billings was the former EC Non-Federal Co-Chair, an EC member, and a long-time supporter of the Collaborative Program. In his memory, Reclamation's Albuquerque Area Office sponsors an annual award recognizing an individual's contributions to the success of the Collaborative Program.

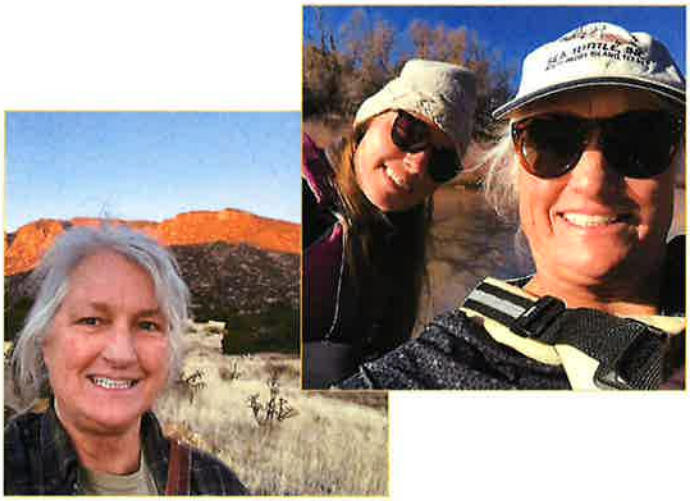
The winner of the 2022 Rick Billings Memorial Award is Grace Haggerty from the NMISC. Grace was unanimously nominated for the award, with her nominators citing her many years in the Collaborative Program, high engagement, and work with non-federal and federal organizations alike among their reasons for selecting her.

> *"The Collaborative Program is in a much better place because of Grace and she deserves some recognition for all her hard work."*

> *"[Grace] has been a resource to her agency's staffing and to the work of the other non-federal and federal [Collaborative] Program participants."*

As one nominator accurately stated, "Grace has been a guiding force for the Collaborative Program for many years." As a stalwart supporter, she regularly attends meetings, contributes her technical expertise to committees and groups, and contracts important work that benefits the Collaborative Program. For example, Grace has contracted with GeoSystems Analysis to develop the RioRestore geospatial database of habitat restoration (HR) sites, and with Dr. Charles Yackulic at the U.S. Geological Survey (USGS) to develop the RGSM Integrated Population Model. In addition, Grace is also a champion of the Los Lunas Silvery Minnow Refugium as a place for rearing RGSM and as a potential experimental facility. Grace has also served as the Non-Federal Co-Chair for the FPC for several years, in addition to her role as the EC representative for the NMISC.

The Collaborative Program would like to recognize Grace's continual support by awarding her the 2022 Rick Billings Award!



**GRACE HAGGERTY**

Winner of the 2022 Rick Billings Memorial Award, pictured rafting with her daughter [top] and hiking [bottom].

# JOURNEY TO ADAPTIVE MANANGEMENT

**Provided by Debbie Lee**
Program Manager
*Program Support Team*

Collaborative Program signatories have been attempting to develop an adaptive management (AM) program for listed species in the MRG since the late 2000s. The Collaborative Program's first AM plan, *Adaptive Management Plan Version 1*, was finalized in 2011, but it was only within the last few years that a functional plan was fully realized. A traditional AM cycle has six primary steps: assess, design, implement, monitor, evaluate, and adjust. To apply this cycle to the Collaborative Program, we had to identify not only the operational limitations of our signatory organizations, but also our assumptions about what the Collaborative Program was and what it had the potential to be. Once those limitations and assumptions were defined, opportunities for the Collaborative Program and its signatories to implement AM became clearer.

Successful AM is transparent, well documented, and iterative. In order to meet these standards, the Collaborative Program devoted a significant portion of the last few years to developing the tools and processes needed for implementing AM. Using a modified version of the U.S. Agency for International Development's Collaborating, Learning, and Adapting Framework, we identified conditions needed for either enabling AM or implementing AM within the Collaborative Program, the elements that define each condition, and the tools that support each condition (Figure 2).

One of the most important tools we developed to support AM is the Program Portal, a website housing the Collaborative Program's Calendar, Document Library, data sets, and Interactive Map. Having a public-facing collection of resources ensures all participants have access to the same up-to-date information and data, which is foundational to AM.

In 2022, the EC adopted the ecosystem approach, which was an important addition to its AM process. The ecosystem approach focuses on supporting the essential structure, processes, and functions that keep an ecosystem in balance, so it can continue to provide the benefits and services on which its inhabitants depend. Importantly, this places the Collaborative Program's listed species within a larger spatial and temporal context, which is necessary for managing the dynamic MRG ecosystem, and the physical conditions within the river and historic floodplain. By applying the ecosystem approach, the Collaborative Program can identify and protect vital ecosystem functions, plan in the face of uncertainty, and integrate the management goals of different organizations into one shared vision.

| | ENABLING ADAPTIVE MANAGEMENT | | | IMPLEMENTING ADAPTIVE MANAGEMENT | | |
|---|---|---|---|---|---|---|
| **CONDITIONS** | **CULTURE** | **PROCESSES** | **ENGAGEMENT** | **COLLABORATION** | **LEARNING** | **MANAGEMENT RELEVANCE** |
| **ELEMENTS** | ✓ Openness<br>✓ Relationships & Networks<br>✓ Continuous Learning & Improvement<br>✓ Reputation<br>✓ Value | ✓ Knowledge Management<br>✓ Institutional Memory<br>✓ Decision-Making<br>✓ Peer Review<br>✓ Timeline | ✓ Investment<br>✓ Resources<br>✓ Information Sharing<br>✓ Mutual Benefit<br>✓ Relevance | ✓ Internal Collaboration<br>✓ External Collaboration | ✓ Results & Findings<br>✓ Addressing Uncertainty<br>✓ Scientific Evidence Base<br>✓ Documenting Change<br>✓ Improvement of Tools | ✓ Recommendations<br>✓ Innovation<br>✓ Responsiveness<br>✓ Ecosystem Approach<br>✓ Scenario Planning |

*Figure 2. Conditions for enabling and implementing AM within the Collaborative Program and elements that define each condition.*

# JOURNEY TO ADAPTIVE MANAGEMENT

The key milestones for the Collaborative Program's journey to developing a functional AM process through 2022 are shown in Table 1:

| Table 1. Key Milestones in Development of the Program's Adaptive Management Process |
|---|
| **2011** Completed *Adaptive Management Plan Version 1* |
| **2017** Held EC Taos Retreat reaffirming commitment to the Program and direction to adopt AM as the decision framework |
| **Apr 2018** Approved a new Program operational structure |
| **May 2018** Developed key critical scientific uncertainties for RGSM, SWFL, YBCU, and NMMJM |
| **Jun 2019** Approved a new mission statement |
| **Sep 2019** Incorporated YBCU, NMMJM, and PESU into Program species of interest |
| **Dec 2019** Held first Science Symposium |
| **Dec 2019** Premiered new Program Portal |
| **Feb 2020** Approved new Program goals |
| **Sep 2020** Approved SAMC charter |
| **Dec 2020** Launched Interactive Map, including RioRestore geospatial database, on Program Portal |
| **Dec 2020** Approved Science & Adaptive Management Plan |
| **Jul 2021** Adopted revised By-Laws |
| **Jul 2021** Approved Science Objectives |
| **Mar 2021** Developed Science Strategies for Objectives |
| **Oct 2021** Developed administrative Biennial Schedule |
| **Dec 2021** Approved Long-Term Plan for Science & Adaptive Management |
| **Jun 2022** Approved Peer Review process |
| **Jun 2022** Adopted the Ecosystem Approach |
| **Dec 2022** Premiered Science and Adaptive Management Information System (SAMIS) |
| **Dec 2022** Held first Collaboratory |

A major theme at the December 2022 Collaboratory was the need to identify and challenge assumptions. The ecosystem approach serves to address our previous assumption that "what is good for a particular species is good for the system." This assumption may no longer hold true given the observed changes in the system over the past century, as well as the projected future changes. As we move forward with implementing AM, the Collaborative Program is working to provide scientifically supported recommendations to management and funding agencies. These recommendations will help to prioritize research that addresses critical scientific uncertainties and help to focus management of listed species on strategies that offer the greatest potential conservation benefit.

To fulfill the Collaborative Program's role of supporting AM in the MRG, we must be open to learning, changing, and making mistakes. We must consistently test our assumptions in order to ensure our actions and activities are those most beneficial to listed species and their habitats into the future. We also must listen to our signatories and elicit the input of external organizations in order to regularly realign the Collaborative Program's priorities with the management needs of the present and future.

The Collaborative Program's AM process is detailed in the Long-Term Plan for Science & Adaptive Management (Long-Term Plan), found on the Program Portal. It is meant to be a living document, continually assessed and revised to reflect how the Collaborative Program can operate more effectively and be more responsive to the priorities of its signatories.

# BURN SITE FIELD TRIP

**Provided by Michelle Tuineau**
Project Coordinator
*Program Support Team*

On May 25, 2022, a fire started in the Albuquerque bosque and burned approximately 34 acres before it was contained and put out. In response to this major fire event, BEMP and the CoA, Open Space Division hosted a visit of an area of the burn site behind Bosque School, referred to as the Deep Dark Woods, for Collaborative Program participants. On June 17, 2022, 38 participants from BEMP, Pueblo of Sandia, Pueblo of Santa Ana, NMISC, Audubon, USACE, Reclamation, UNM, Tetra Tech, Inc., CoA Open Space, CoA Parks & Recreation, New Mexico State Forestry, Bosque School, and the Program Support Team attended the impromptu field trip.

The group of stakeholders, managers, and researchers discussed post-fire mitigation strategies, monitoring needs, safety, and overall brainstorming for the Deep Dark Woods burn site and other burned areas of the bosque. Over the two-hour visit, the group toured the burn site and broke into small groups for discussion. They discussed landscape considerations, fuels reduction, water and hydrology, soil and topography, vegetation, public outreach and education, and potential study questions and data collection efforts.

To follow up on the visit, CoA Open Space formed a task force to develop a draft plan for the Deep Dark Woods burn site. The task force met on June 30, 2022, and went on to implement ideas such as data collection to better understand the unstable post-fire conditions and regeneration of both native and invasive species, as well as steps to address public perception and safety. Students at the Bosque School created videos linked to posted QR codes in and around the site to educate the public on the dangers associated with post-fire areas that have many dead and dying cottonwood snags. Still more ideas were generated at this meeting that addressed soil health, topography, regaining vegetative diversity, and controlling invasive species. Aspects of these ideas will be implemented at the site in the future.

More information about this fire was presented during Collaborative Seminar: Post May 2022 Montaño Fire Analysis, available on the Program YouTube channel.

*Photos: Participants visiting the Deep Dark Woods bosque burn site. Credit: Debbie Lee, Program Support Team.*

# WORKSHOP ON MANAGEMENT OF VEGETATED ISLANDS AND BARS

**Provided by Catherine Murphy**
Science Coordinator
*Program Support Team*

On October 4-5, 2022, forty-two participants representing seventeen different organizations attended an in-person Collaborative Program workshop that focused on management of vegetated islands and bank-attached bars hosted by the Pueblo of Santa Ana at the Tamaya Wellness Center. A small planning group of Collaborative Program volunteers organized the two-day event with the goal of identifying planning and research needs relating to the workshop topic. To support that goal, a panel of four invited speakers presented attendees with historical and technical context on vegetated islands/bars, which prompted discussions within the subsequent breakout groups. Each of the three successive breakout sessions was facilitated by one volunteer from the small planning group and one Program Support Team member, who guided participants through a structured decision making (SDM) process. SDM is an organized approach that enables multiple stakeholders to analyze a decision by breaking it into its component parts.

Invited speakers presented information on important physical and ecological features of vegetated islands/bars, as well as associated trends and forecasts. Mike Harvey, Tetra Tech, Inc., presented a summary of the hydrology and geomorphology of the MRG. Ari Posner, Reclamation, discussed river channel management and maintenance activities in the MRG. Todd Caplan, GeoSystems Analysis, Inc., presented on establishment of riparian vegetation in the channel and related impacts to the SWFL. Finally, Dagmar Llewellyn, Reclamation, examined current conditions and future projections for the MRG. The speakers summarized key takeaways from their presentations and participated in a panel discussion with workshop attendees immediately following the talks. Recordings of all presentations, as well as the panel question/answer session, are available on the Program YouTube channel.

Next, the workshop participants took part in a real-time group polling exercise to assess the urgency and uncertainty of management issues related to vegetated islands/bars (Table 2). The exercise was designed to collectively assess and explore differences in priorities and perceptions among participants regarding each management issue. The group discussion that followed highlighted not only differences in how participants perceived issues relating to management of vegetated islands/bars, but also variations in how they defined both urgency and uncertainty. With this list of issues assessed collaboratively, workshop participants broke into smaller breakout groups to work through an SDM process.

**Table 2. Issues Related to Vegetated Islands and Bank-Attached Bars**

| |
|---|
| Floodplain inundation on/near islands/bars |
| Aquatic habitat value adjacent to islands/bars |
| Management of wetlands on/near islands/bars |
| Control of invasive species on islands/bars |
| Flows and sediment transport around islands/bars |
| Stability/persistence of islands/bars |
| Water conveyance around islands/bars |
| Surface-groundwater exchange on/near islands/bars |
| Evapotranspiration rate associated with islands/bars |
| Fire fuels reduction on islands/bars |
| Bosque habitat being "replaced" by islands/bars |
| Vegetation encroachment on islands/bars |
| Effect of islands/bars on channel width, depth, and incision |
| Impact of islands/bars on depletions and channel efficiency |
| Habitat value of islands/bars |
| Determining who is responsible for managing islands/bars |

During Breakout Session I, each group focused on three or fewer principal issues related to vegetated islands/bars and developed problem statements addressing each of them. Similarly, in Breakout Sessions II and III, the groups developed one or more objectives and strategies, respectively, for each of their problem statements.

To close the workshop, participants gathered to review developed strategies, share additional insights, and identify important themes that emerged during discussions. The need for a more comprehensive and common understanding of vegetated islands/bars was recognized by all. To avoid confusion during future discussions among stakeholders, it was proposed to develop a glossary of technical terms relating to vegetated islands/bars. In addition, compilation of a list of currently available data sets relevant to the workshop topic was suggested to help identify data needs for improved management. Participants also requested the development of a conceptual model representing ecosystem functions and physical river conditions, which would support collaboration around shared goals. Additional research, planning, and management efforts identified during the workshop will be summarized in a report.

Although participants differed in their approach to the topic of vegetated islands/bars, one important central theme was agreed upon by all: management of vegetated islands/bars requires the balancing of three primary management priorities in the MRG, which are water delivery, flood control, and ecosystem management. In the face of an increasingly dynamic river system, achieving this balance will be possible only through collaboration and partnerships, and the Collaborative Program provides an appropriate forum for this task.

*Photos: Participants at the Workshop on Management of Vegetated Islands and Bank-Attached Bars. Credit: Catherine Murphy, Program Support Team.*

# 2022 COLLABORATORY: FROM PLANNING TO PRACTICE

**Provided by Michelle Tuineau**
Project Coordinator
*Program Support Team*

The Collaborative Program hosted its first ever Collaboratory on December 6-7, 2022. The two-day event was attended by fifty-three participants each day and sixty-four attendees total. Attendees represented a wide range of affiliations, including academic institutions, federal agencies, irrigation districts, local agencies, non-governmental organizations, private companies, pueblos/tribes, and state agencies. The diversity of representation in the room led to many connections and conversations that would not otherwise have occurred, and attendees had high praise for the value of exchanging ideas, sharing priorities, and planning for the future of the Collaborative Program together.

In the previous three years, the Collaborative Program did the hard work to accomplish its goal of establishing itself as a science and AM program, which required the development of many processes, including the Long-Term Plan, Biennial Schedule, and peer review process. With the accomplishment of its first goal, the Collaborative Program is now poised to take on a new goal, one that tests and adaptively improves the many processes it developed. The new goal of the Collaborative Program is to use an AM framework to make meaningful, timely, scientifically sound, and actionable management recommendations to benefit the listed species of the MRG and their habitat.

The Collaboratory set the stage for this goal by adding management relevance to the Collaborative Program's science activities, as well as using signatory feedback to help determine the science priorities for the next two years. With the Collaboratory, the Collaborative Program takes a huge step away from planning and into the practice of fully interacting with its science and AM tools and processes.

On Day One of the Collaboratory, Debbie Lee, Program Support Team, helped to frame the structure of the Collaboratory during her overview of AM presentation. Figure 3 depicts the sequential structure of Collaboratory sessions. The sessions were designed to increase in temporal scale and scale of influence, starting with a foundational focus (i.e., building the program) and moving to an immediate focus (i.e., existing activities), then a short-term focus (i.e., signatory priorities), then a long-term focus (i.e., priorities for MRG ecosystem), and finally an aspirational focus (i.e., broader opportunities).

After Debbie reviewed the progress and future path of the Collaborative Program, Captain Jon C. Duffy, U.S. Navy, retired, presented on strategic planning. Jon focused on the U.S. Navy's planning process, the basic principles of which can easily be applied to other areas, including the Collaborative Program. Following this presentation, participants were split

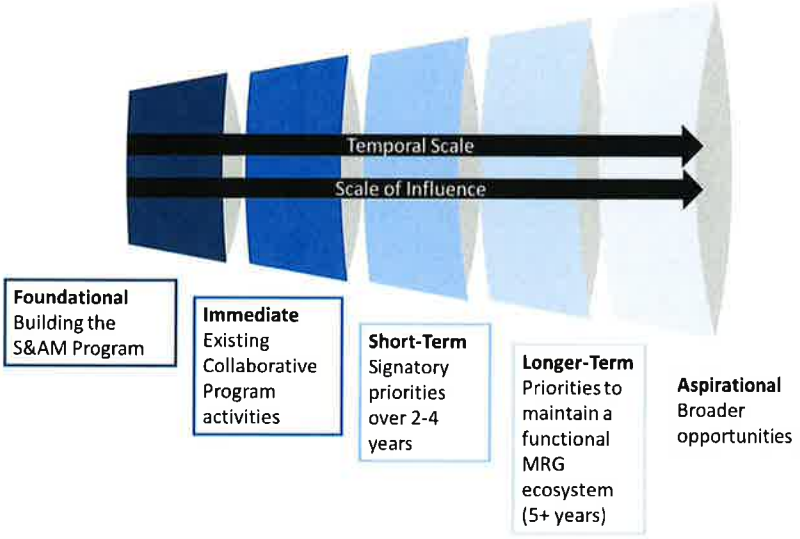



*Figure 3. Sequential structure of Collaboratory sessions; sessions increased in temporal scale and scale of influence.*

into breakout groups to discuss the following Collaborative Program science activities: RGSM management (two groups), integrated species management (one group), the Management of Vegetated Islands and Bank-Attached Bars Workshop (one group), and drying in Angostura Reach (one group). Groups identified the top one to three management objectives for each activity and suggested any changes to the Collaborative Program's planning and research around them. The session was designed to align the Collaborative Program's current science activities with AM needs in the MRG.

To begin Day Two of the Collaboratory, three back-to-back presentations were given to highlight the different interests and concerns in the MRG that should be considered when planning ahead. Josh Mann, water lawyer, presented on balancing water needs; Amador and Katy Lente, small farmers on the Pueblo of Isleta, spoke on their perspective as members of the agricultural community; and Dave Moeser, a hydrologist, environmental scientist, and data analyst with the U.S. Geological Survey New Mexico Water Science Center, presented on streamflow response to potential changes in climate in the Upper Rio Grand Basin. Dr. Moeser's presentation was particularly important to future discussions as he discussed how long-term drought has led to significant changes in the hydrograph, which has huge implications for species and water management.

With these perspectives in mind, participants were again split into breakout groups to brainstorm strategies for ecosystem management given the changing hydrograph. Groups identified management issues that the Collaborative Program can help address, then selected one to three of the most important issues, and finally came up with assumptions, opportunities, knowledge gaps, and potential strategies for those issues.

The outcomes and next steps from the Collaboratory were presented at the Collaborative Seminar on February 16, 2023. The Collaboratory outcomes combined with outcomes from the Workshop on Management of Vegetated Islands and Bank-Attached Bars (October 2022) and Workshop on Habitat Restoration (August 2021), will directly inform the Collaborative Program's multi-year planning efforts. Based on analysis of the outcomes from the workshops and Collaboratory, the focus areas in Table 3 emerged as important to the Collaborative Program. Moving forward, the Collaborative Program will define an end goal for each focus area and develop immediate, short-term, and long-term plans for accomplishing them. This path ensures all of the work of Collaborative Program participants will be acknowledged and used to drive us forward!

All presentations from the Collaboratory are available on the Program YouTube page.

| Table 3. Focus Areas for Multi-Year Planning |
|---|
| Climate Scenario Planning |
| HR Planning, Design, and Assessment |
| Management of Vegetated Islands and Bank-Attached Bars |
| RGSM Management and Science |
| Water Operations and Flexibility |
| Strategic Planning for River Drying in the MRG |

*Photos: Participants at the 2022 Collaboratory. Credit: Debbie Lee, Program Support Team.*

Middle Rio Grande Endangered Species Collaborative Program

# 2022 YEAR IN REVIEW

JAN

Driscoll Seminar

Sunsetted the 2022 MOA Admin Ad Hoc Group

*Yellow-billed Cuckoo (YBCU)

FEB

Yackulic Seminar

MAR

Approved the 2022 MOA

HR Coordination Meeting

Approved the Long-Term Plan with the Biennial Schedule

Sunsetted the Peer Review Admin Ad Hoc Group

## WHAT IS THE COLLABORATIVE PROGRAM?

**A partnership of 16 signatory entities that supports actions in the Middle Rio Grande aimed at protecting and recovering *five federally listed species**, while preserving existing and future water uses.**

NOV

Portal Stakeholder Meeting

HR Coordination Meeting

Management of Vegetated Islands and Bank-Attached Bars Workshop

DEC

HR Coordination: Drone Discussion

Formation of the Strategic Plan for Potential Drying S&T Ad Hoc Group

Hummel Seminar

Collaboratory

Approval of 2023 Work Plan

*Pecos Sunflower (PESU)

Osborne Seminar

OCT

## FROM PLANNING TO PRACTICE

**In 2022, the Collaborative Program executed its plan to establish itself as a science & adaptive management program and put its newly developed support tools to practice. Planning accomplishments (indicated in white), such as approving the peer review process, were made early in the year. The year was later dominated by accomplishments that put tools to practice (indicated in black), such as the workshop, Collaboratory, and an ad hoc group publication and mailer.**

## WHO PARTICIPATED?

**185+** participants from **35+** groups joined in Collaborative Program meetings, field trips, seminars, workshops, and the Collaboratory.

**53** people were added to our contact list.

**MAY**

Parrish Seminar

**JUN**

Approved the Peer Review Process

Approved the Ecosystem Approach

**JUL**

Set membership for the Fiscal Planning Committee

HR Coordination Meeting

Bosque School Burn Site Field Trip

Angostura Reach Drying

**AUG**

Chavez, McCollough, and Shaw Seminar

Dudley Seminar

Formation of the RGSM Hypotheses Development S&T Ad Hoc Group

**SEP**

Drying mailer from the Public Outreach and Messaging on Drying Admin Ad Hoc Group

HR Coordination Meeting

Publication from the RGSM Population Modeling S&T Ad Hoc Group

Portal Stakeholder Meeting

*Southwestern Willow Flycatcher (SWFL)

*New Mexico Meadow Jumping Mouse (NMMJM)

*Rio Grande Silvery Minnow (RGSM)

## SCIENCE COMMUNICATION BY-THE-NUMBERS

**1** Workshop
**1** Collaboratory
**1** Field Trip

**5** HR Coordination Meetings
**6** Newsletters
**7** Collaborative Seminars

**23** Publications Shared
**28** MRG Announcements Shared

The picture icon indicates there are event recordings available on the Program Portal.



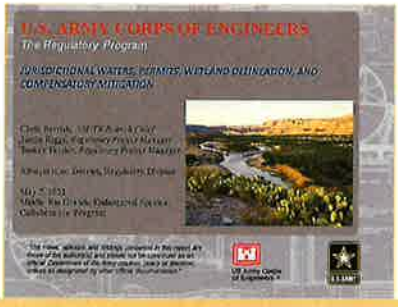
**KEY:** Admin = Administrative; HR = Habitat Restoration; MOA = Memorandum of Agreement; MRG = Middle Rio Grande; S&T = Science & Technical

# 2022 COLLABORATIVE SEMINARS

In 2022, the Collaborative Program hosted seven seminars from invited speakers presenting on work relevant to listed species in the MRG. All seminars were recorded and posted to the Collaborative Program YouTube channel at https://www.youtube.com/@mrgescp.


***JAN 12** Katey Driscoll, U.S. Forest Service, presented on Statistical Designs and Potential Indicators for Evaluation of Restoration Success.*

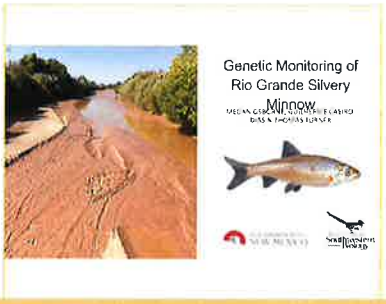

***FEB 24** Dr. Charles Yackulic, USGS, presented on the RGSM Integrated Population Model and Expert Elicitation.*




***MAY 5** Chris Parrish, Justin Riggs, and Tucker Feyder, USACE, presented on Jurisdictional Waters, Permits, Wetland Delineation, and Compensatory Mitigation.*


***AUG 11** Katia Chavez, Rayne McCollough, and Dan Shaw, Bosque School, presented on Post May 2022 Montaño Fire Analysis (a.k.a. "Deep Dark Woods Fire").*


***AUG 23** Robert Dudley, UNM, presented on the 2021 RGSM Population Monitoring Program.*




***OCT 19** Megan Osborne, UNM, presented on Genetic Monitoring of the RGSM.*


***DEC 14** Ondrea Hummel, Tetra Tech, Inc., presented on the Bosque Assessment and Update Prioritization.*

# 2022 SIGNATORY ACTIVITY COLLAGE


PIT tagging RGSM for the fish movement study


YBCU from avian surveys


YBCU from avian surveys


SWFL fledgling from avian surveys


SWFL habitat burn


Horizon Academy West 4th graders at a BEMP site


SWFL nest from avian surveys


Bosque School 6th graders walking to a BEMP site


Horizon Academy West 4th graders observing pond life at the BioPark BEMP site


Bernalillo Middle School students watching deer at the Santa Ana BEMP site


Oyster mushrooms in the bosque

# WHAT OUR SIGNATORIES HAVE TO SAY ABOUT THE COLLABORATIVE PROGRAM

"The Collaborative Program has evolved quite a bit since I went to my first meeting 12 years ago and most changes have been for the better. With Reclamation's commitment to funding the Program Support Team, the almost ad-hoc lead-from-behind feel the Program had has been replaced with an effort that is more organized and focused. Science is being put first, giving the move to Adaptive Management real heft. Best for me is the return of the Habitat Restoration Workgroup (now HR Coordination Group), which provides a forum for river/bosque managers to come together to discuss relevant natural resource issues and learn from each other. Recovering endangered species will never be a perfect process and, especially, the Rio Grande silvery minnow may not make it despite a tremendous effort, but the Program is better poised to aid in recovery than it was a decade ago.

*– Michael Scialdone, Pueblo of Sandia, Bosque Project Manager*

"The Collaborative Program is one of the few that is a fully interdisciplinary, democratic governance of stakeholders who synergistically work together using hypothesis-driven adaptive management to rapidly address issues related to climate change and stakeholder needs and obligations.

*– Kim Eichhorst, BEMP, Science and Research Director*

"In 2003, I was UNM's first representative to the Interim Steering Committee, which formed what is currently the Collaborative Program. Really important changes have happened since then. In the age of megadrought, the partners have come together like never before to attempt to manage instream flows to benefit the natural system that relies on spring flow pulses, overbank flooding, and sustained water during dry summers. An increased focus on science and data-driven policy making is an essential part of this, and expanded possibilities and opportunities for adaptive management. Now, 20 years on, we are better equipped to face new challenges of water scarcity and multiple uses. Large collaborative efforts are hard and often unwieldy, but they lead to lasting solutions and more inclusive willingness to tackle new challenges head on.

*– Thomas Turner, UNM, Professor of Biology and Curator of Fishes in the Museum of Southwestern Biology*

"The Middle Rio Grande is an incredible greenbelt that runs through the heart of New Mexico and desert southwest. This vital ecosystem provides numerous benefits to the community and supports an abundance of wildlife. The Collaborative Program is a powerful group of stakeholders who share a common interest in supporting the health of the Middle Rio Grande for critical and endangered species. The management of the Middle Rio Grande has become more complex due to climate change, invasive species, development pressure, wildfires, and many other issues. The Collaborative Program is adapting to these complex times through research and monitoring, utilizing and collaborating on scientific methods, and applying a holistic approach to management that promotes an overall healthy ecosystem. This is especially helpful for the Albuquerque's Open Space Division, which manages over 4,000 acres in the bosque in the state's largest metropolitan area.

*– Colleen Langan-McRoberts, CoA Open Space Division, Open Space Superintendent*

"The Collaborative Program has gone through many phases with various goals and objectives during its over 20 years of existence. The Program's current mission of providing a collaborative space in support of science and adaptive management is very relevant as signatories seek a new path forward with changing hydrological conditions and great uncertainty. I look forward to the Collaborative Program and the Middle Rio Grande becoming a model for these types of efforts across the nation.

*– Jim Wilber, Reclamation, Deputy Area Manager of the Albuquerque Area Office*

# MESSAGES FOR 2023

**Provided by Debbie Lee**
Program Manager
*Program Support Team*

**Provided by Catherine Murphy**
Science Coordinator
*Program Support Team*

## We are better together...

One of the purposes of the 2022 Collaboratory was to acknowledge the Collaborative Program's transition from planning to practice. When the Collaborative Program adopted an AM plan tailored to its unique capacity in 2021, it established the tools for developing, evaluating, refining, justifying, and communicating recommendations for endangered species management in the MRG. The primary challenge before us is to find novel solutions within a complex and seemingly rigid decision environment. Trying to collaborate in this decision space can seem tedious and risky, but engaging in a deliberate and transparent process together, however, can increase stakeholder buy-in and produce lasting results. Our signatories see the benefit of utilizing a collaborative forum to generate creative and robust solutions for their shared set of problems.

## We see bigger factors at play...

Practical management recommendations must take into account the larger environmental influences that will affect outcomes. In the MRG Basin, these include increased variability in both the river hydrograph and the response of the bosque ecosystem to a changing climate. Navigating these uncertainties for endangered species management will require wide-ranging expertise and a shared long-term outlook. By tracking relevant science and defining likely and extreme climate futures, the Collaborative Program will help its signatories plan in the face of uncertainty. By placing endangered species conservation within the context of an ecosystem approach, the Collaborative Program will enable its signatories to recognize and adapt to shifting paradigms in ecological structure and function. Importantly, the ecosystem approach recognizes the influence of humans on the ecosystem, which is sound practice in a river system as highly managed as the MRG.

## We share priorities...

Implementation of collaborative and planning frameworks in 2023 and beyond will further help the Collaborative Program use AM to address complex issues affecting our listed species. Major management issues that have been brought to the Collaborative Program by signatories thus far include restoration monitoring and assessment, island and bar vegetation, and river drying. Each of these multifaceted topics presents a unique set of management challenges requiring careful consideration. Collaboration and proper framing are critical for effective management of issues that affect multiple stakeholders, species, and decision makers. By prioritizing next steps for these issues in the 2023 Work Plan, the Collaborative Program can capitalize on the collective expertise of our participants with a coordinated approach. Adhering to the process we've developed and documenting scientific evidence in SAMIS will also ensure transparency and help to maintain forward momentum and facilitate faster implementation of effective AM.

# SCHEDULE FOR 2023

| | |
|---|---|
| JANUARY | FPC Meeting |
| FEBRUARY | SAMC Meeting |
| | HR Coordination Field Trip |
| MARCH | EC Meeting |
| APRIL | FPC Meeting |
| MAY | SAMC Meeting |
| | HR Coordination Meeting |
| JUNE | EC Meeting |
| JULY | FPC Meeting |
| AUGUST | SAMC Meeting |
| | HR Coordination Field Trip |
| SEPTEMBER | EC Meeting |
| OCTOBER | FPC Meeting |
| | Climate Futures Planning Workshop |
| NOVEMBER | SAMC Meeting |
| | HR Coordination Meeting |
| DECEMBER | EC Meeting |
| | Science Symposium |





# FEDERAL CO-CHAIR'S LETTER

**from Katrina Grantz, Former Federal Co-Chair of the Executive Committee**
*U.S. Bureau of Reclamation*

I have had the honor and privilege to serve as the Federal Co-Chair for the Collaborative Program since April 2021. In December 2022, I stepped down from that role, and am now reflecting on my time with the Collaborative Program and the opportunities I see for the future. I find myself optimistic and excited for the future of the Program and all the great things that it will accomplish.

My predecessor, Wayne Pullan, referred to his time with the Collaborative Program as "doing God's work," and while that may seem like an exaggeration, I find, in some ways, I have to agree. As the American Southwest faces increasing stressors from climate change, decreasing water supply, and increasing water demand, we know any path forward must utilize collaborative solutions. Endangered species are, in many ways, the proverbial canary in the coal mine. They are the early indicators of threats to the larger ecosystem. Given the increasing uncertainty regarding the Middle Rio Grande ecosystem and its species, the Collaborative Program's move to adopt an ecosystem approach in 2022 was timely.

In 2023, the Collaborative Program will be tackling just what that future may look like and what the impacts will be on the bosque and its species. The Climate Futures Planning Workshop is vitally important to both the Collaborative Program and its signatories for providing clarity to an uncertain future and helping us plan better for it. I encourage everyone to participate in the workshop and help us collectively identify not just threats but solutions and opportunities.

As we move into implementation of adaptive management, we know engagement that is sincere, complete, and transparent, is vitally important for the success of the Collaborative Program, and, as I see it, of the Middle Rio Grande. We have built an amazing thing with the Collaborative Program, and I have hopes of it becoming the model for other riverine programs in the West.

We all know adaptive management and collaboration are hard; they can both be time-consuming and slow. But in the end, the results are much more meaningful. While I may not officially be a part of the Collaborative Program any more, I will still be watching from afar and look forward to seeing the amazing results of your work!

Katrina Grantz
Former Federal Co-Chair of the Executive Committee

*"The Program's current mission of providing a collaborative space in support of science and adaptive management is very relevant as signatories seek a new path forward with changing hydrological conditions and great uncertainty."*

*– Jim Wilber, U.S. Bureau of Reclamation*

# Middle Rio Grande Endangered Species Collaborative Program

# ANNUAL REPORT 2022

# *Memorandum*

**Date**: January 19, 2024
**To**: Buckman Direct Diversion Board
**From**: Jay Lazarus, Peter Hunt, Glorieta Geoscience (GGI)
Kyle Harwood, EFMH

**Subject**: Summary of the scoping comments received and EM-LA's responses to comments *on Draft Chromium Interim Measure and Final Remedy Environmental Assessment*

As required by the National Environmental Policy Act (NEPA), in December 2023, EM-Los Alamos National Laboratory issued its responses to comments on the *Draft Chromium Interim Measure and Final Remedy Environmental Assessment*. The BDD's primary concerns on the Interim Measures are related to the effectiveness of the Chromium treatment system and depletions on Rio Grande flows resulting from pumping extraction wells in an effort to control and remediate the Chromium plume.

At the BDD November 2023 Board meeting, John Rhoderick, New Mexico Environment Department (NMED) Water Protection Director informed the Board that NMED agreed with the extraction well program but will require a modification to the reinjection plan that was in place. GGI agrees with NMED that injecting the same volume of water that is extracted does not adequately remediate the plume. Discharge of treated groundwater to the regional aquifer was through up to six Class V Underground Injection-Control (UIC) wells. This groundwater is extracted from a series of wells (CrEX-1, 2 etc.) then treated primarily with ion exchange (IX) resin beads. After passing through the treatment system, the groundwater is then injected back into the aquifer through the Class V Underground Injection-Control (UIC) wells. The analytical results recorded in quarterly reports from DP-1835 show that the groundwater that is re-injected almost always has chromium concentrations below or at the report detection limit (RDL) of 10 micrograms per liter (pre-2018) and 3 micrograms per liter (post 2018). The sample results of the injected water are below the USEPA drinking water standard of 100 micrograms per liter and the NMED groundwater standard of 50 micrograms per liter for Total Chromium. It should be noted that the analytical data report does not distinguish between Chromium 6 and Total Chromium.

These results indicate that the IX filtration system employed is quite effective at removing chromium from the regional aquifer as the average concentration of chromium in the extracted groundwater is 198 micrograms per liter (2016-2022 analytical data from N3B IM reports). However, since EM-LANL was injecting the same volume of water that they are extracting, no cone of depression was created. Instead of developing hydraulic control on the plume, EM-LA was "pushing the plume around". Although this measure does not consumptively use water and thus alleviates concerns about depletions from the Rio Grande, creating a cone of depression is necessary to achieve hydraulic/hydrologic control of the plume.

To create a cone of depression, EM-LA needs to extract a greater volume of water than it is reinjecting, requiring transferring water rights into the extraction wells to offset the consumptive use. Of the four (4) proposed remedial measures only Option 2, Mass Removal via Land Application will create the cone of depression required to control the plume. This option will require a transfer of approximately 1600-1700 ac-ft/year of consumptive use water rights to the extraction wells and will have a depletion effect on the Rio Grande of approximately 2.3 cfs.

**RECOMMENDATION**
Based on the analytical data from the IX treatment system the Board should support Option 2, continued operation of the IX treatment system with land application of treated water to create the needed cone of depression with the caveat that Rio Grande depletions be fully offset.

Buckman Direct Diversion
**341 Caja del Rio Santa Fe, NM 87506**

January 22, 2024

mailto:EMLA-NEPA@em.doe.gov

EM-LA NEPA Document Manager
U.S. DOE Environmental Management Los Alamos Field Office
1200 Trinity Drive, Suite 400
Los Alamos, NM 87544

**RE: Chromium Draft EA Comment**

To whom it may concern,

The Buckman Direct Diversion Board (the Board) is the governing body for the Buckman Direct Diversion, a single point of diversion on the Rio Grande that the City of Santa Fe, Santa Fe County, and their limited partner, Las Campanas, share to divert their San Juan-Chama and native Rio Grande water rights. Diverted water is treated and introduced into the regional water system. The government entities are represented on the Board.

As required by the National Environmental Policy Act (NEPA), in December 2023, EM-Los Alamos National Laboratory issued its responses to comments on the *Draft Chromium Interim Measure and Final Remedy Environmental Assessment*. The BDD's primary concerns on the Interim Measures are related to the effectiveness of the Chromium treatment system and depletions on Rio Grande flows resulting from pumping extraction wells in an effort to control and remediate the Chromium plume. The Board provides the following comments.

The analytical results recorded in quarterly reports from DP-1835 show that the groundwater that is re-injected almost always has chromium concentrations below or at the report detection limit (RDL) of 10 micrograms per liter (pre-2018) and 3 micrograms per liter (post 2018). The sample results of the injected water are below the USEPA drinking water standard of 100 micrograms per liter and the NMED groundwater standard of 50 micrograms per liter for Total Chromium.
These results indicate that the ion exchange (IX) filtration system employed is effective at removing chromium from the regional aquifer. However, since EM-LANL was injecting the same volume of water that they are extracting, no cone of depression was created. Although this measure does not consumptively use water and thus alleviates concerns about depletions from the Rio Grande, creating a cone of depression is necessary to achieve hydraulic/hydrologic control of the plume.

Based on the analytical data in the DP-1835 quarterly reports from the IX treatment system the Board supports Option 2, continued operation of the IX treatment system with land application of treated water to create the needed cone of depression with the caveat that Rio Grande depletions be fully offset.
We appreciate the opportunity to provide these comments and look forward to your response.

Commissioner Anna Hamilton
Santa Fe County Commission District 4
BDD Board Chairperson

Councilor Carol Romero-Wirth
Santa Fe City Council District 2
BDD Board Vice Chairperson

Commissioner Anna Hansen
Santa Fe County Commission District 2
BDD Board Member

Councilor Renee Villarreal
City of Santa Fe District 1
BDD Board Member

JC Helms
BDD Board Citizen-at-large Member

Date: December 26, 2023

To: Buckman Direct Diversion Board

From: Kyle S. Harwood, counsel

Subject: Presentation and Update Regarding Department of Energy (DOE) DRAFT Chromium Cr(VI) Interim Measure and Final Remedy Environmental Assessment (DRAFT EA), Los Alamos, NM.

Comment Deadline for DRAFT EA is February 12, 2024

Item and Issue:

The Buckman Direct Diversion (BDD) Board has monitored and participated in DOE's development of a draft National Environmental Policy Act (NEPA) Environmental Assessment (EA) for the Chromium Cr(VI) plume at LANL. This contaminant plume has the potential to impact water quality, and the remediation of the plume may have implications for the groundwater and surface water in the vicinity of the Buckman Project intake.

The BDD Board approved a comment letter to the scoping of the EA at the June 1, 2023 meeting, see BDDB packet from that agenda attached to this memo.

The DOE released the draft EA with a comment deadline of February 12, 2024, see the U.S. Department of Energy (DOE) Office of Environmental Management Los Alamos Field Office (EM-LA) Notice of Availability and Public Meeting/Comment Period attached to this memo.

Background and Summary:

On April 28, 2023, the U.S. Department of Energy (DOE) Office of Environmental Management Los Alamos Field Office (EM-LA) gave notice of two public meetings to be held on May 8th and 9th to address scoping for the Chromium Interim Measure and Final Remedy Environmental Assessment and a deadline of June 6, 2023 for scoping comments. As a part of this process, the DOE EM-LA considered comments from the BDD Board. In accordance with the National Environmental Policy Act (NEPA), the DOE EM-LA has prepared a draft Environmental Assessment (EA) that evaluates potential environmental impacts of DOE's Proposed Action, a combination of treatment options whereby EM-LA would use adaptive site management (ASM) to select, implement, and manage removal of hexavalent chromium from source areas and the groundwater.

The CEQ regulations in 40 CFR 1508.9(b) require that an EA include a brief discussion of 3 reasonable alternatives to a proposed action. The Proposed Action alternative includes four options, or a combination of these options, that can selectively be implemented to remediate chromium-contaminated

groundwater below Sandia and Mortandad canyons at Los Alamos National Laboratory. EM-LA would utilize these options individually or in combination, to improve the effectiveness of remediation, the cost of remediation, or minimize potential effects resulting from the Proposed Action. The EA also evaluates the No Action alternative.

Recommendation:

The purpose of this January BDDB agenda item is to update the BDD Board on this EA comment deadline and request direction on whether the Board would like comments prepared for consideration at the February Board meeting ahead of the February 12, 2024 deadline.

Date: May 19, 2023

To: Buckman Direct Diversion Board

From: Rick Carpenter
Kyle S. Harwood

Subject: Hexavalent Chromium EA (Environmental Assessment) Scoping Comment letter
Los Alamos National Laboratory

**ITEM:**

Request approval to send the attached comment letter in response to the EA scoping deadline of June 6, 2023.

**BACKGROUND:**

The comment period for the Hexavalent Chromium (Cr6) Interim Measure EA has a deadline of June 6, 2023. We expect the draft EA will be released in the coming months, which will be a detailed document with its own comment period, and we expect a final EA to be released before the end of 2023. Recognizing the Board's specific scope of interest in groundwater pollution in the vicinity of the Pajarito Plateau the draft scoping comment letter focuses on the scope of the EA, the process and the possible impacts to the Rio Grande in the vicinity of the BDD Project intake.

With respect to the BDD Board Resolution 2022-2, 'A Resolution of the Buckman Direct Diversion Board Concerning the Mission, Goals and Values of the Board Regarding Rio Grande Water Quality' this issue relates to the adopted goals and values described in 1, 2, 3, 6, 7 and 8 of that Resolution.

**Action Requested:**

Staff recommends submittal of the scoping comment letter by June 6, 2023.

Buckman Direct Diversion
**341 Caja del Rio Santa Fe, NM 87506**

June XX, 2023

*Via email to: emla-nepa@em.doe.gov*

ATTN: NEPA Document Manager
U.S. DOE Environmental Management
Los Alamos Field Office
1200 Trinity Drive, Suite 400
Los Alamos, NM 87544

**RE: HEXAVALENT CHROMIUM EA SCOPING COMMENT**
**LOS ALAMOS NATIONAL LABORATORY**
**BUCKMAN DIRECT DIVERSION BOARD**

To Whom It May Concern:

Herein are comments on the above-captioned matter from the Buckman Direct Diversion ("BDD") Board, the governing body for the Buckman Direct Diversion. The BDD is a single diversion point on the Rio Grande that the City of Santa Fe, Santa Fe County, and their limited partner, Las Campanas, share to divert their San Juan-Chama and native Rio Grande water rights. Diverted water is treated and introduced into the regional water system. The government entities are represented on the Board.

The BDD is on the Rio Grande, approximately 3 miles downstream of Otowi Bridge, a short distance downstream of the location of the confluence of Los Alamos Canyon and the Rio Grande. Los Alamos Canyon and its tributaries have been contaminated by operations of Los Alamos National Laboratory ("LANL"), and downcanyon migration of those contaminants to the Rio Grande is well-documented. The Board is therefore understandably concerned about runoff in the Los Alamos Canyon watershed, and about the long-term actions LANL may take that could jeopardize or otherwise fail to protect the Rio Grande.

The Board offers the following comments concerning the scope of the proposed LANL Hexavalent Chromium Interim Measure EA ("EA"):

- The EA should analyze the groundwater/surface water connection, particularly with respect to how the pumping effects of the extraction wells called for in the Interim Measure will deplete Rio Grande surface flows, which are a present and future use of the resource for drinking water. This analysis should include potential cumulative impacts, and how those impacts could affect off-site resources (e.g., the Rio Grande).

- The EA should include an analysis of the method of offset or identifying consumptive use. Depletions upstream of the BDD intake that are not offset may directly affect the

BDD's ability to provide water to its customers, the City of Santa Fe and the County of Santa Fe.

- The EA should analyze whether the Interim Measure under the 2016 Consent Order is an adequate mechanism to assure that the Hexavalent Chromium Plume is sufficiently and timely characterized and, if necessary, remediated to a degree that present and future uses of potentially-affected resources – including the Rio Grande – are protected and sustainable.

- DOE should ensure in the EA that the four options and "Adaptive Site Management" are clearly defined, explained, and contain adequate supporting documentation. Pumping conditions under Option 1 ("Expanded Pump and Treat with Expanded Injection") should be analyzed and explained. Locations, volumes, and times of Land Application under Option 2 should be clearly delineated.

- DOE subject matter experts struggled at the public scoping meeting on May 8, 2023 to define the assumed conditions that would exist under the "no action alternative," which normally in an EA process assumes the subject project would not move forward. The Board understands that the "no action alternative" in this case is in fact pumping and extracting at up to 280 gallons per minute as was occurring under the Interim Measure in late 2022. The Board further understands that the Interim Measure would move forward regardless of the outcome of the EA. DOE should ensure the "no action alternative" and this apparent contradiction with its common meaning is clearly explained.

- Generally, the Administrative Record for the EA should be easily available to the public, transparent, and contain all documents (not just links to documents or other websites) upon which DOE is relying.

- The U.S. Environmental Protection Agency ("USEPA") has devoted significant resources to bolstering the federal and state engagement with stakeholders, particularly tribes, pueblos, local governments, and utilities because such engagement improves the decision-making process attendant to the environmental effects of polluting industries and clean-up. The EA should therefore analyze the positive environmental impacts of improved engagement – including providing these entities with early "previews" of proposed federal, state, and local permitting actions. DOE should consider employing some other these enhanced public engagement practices in the EA process.

- Because of the highly technical issues the EA is expected to address, the keen interest in the subject members of the public have expressed since the contamination was revealed to the public in 2005, and the need and time it takes for government entities to deliberate and make transparent their comments, the Board suggests the draft EA be released for at least a 90-day comment period.

Respectfully,

Commissioner Anna Hamilton
Santa Fe County Commission District 4
BDD Board Chairperson

Councilor Carol Romero-Wirth
Santa Fe City Council District 2
BDD Board Vice Chairperson

Commissioner Anna Hansen
Santa Fe County Commission District 2
BDD Board Member

Councilor Renee Villarreal
City of Santa Fe District 1
BDD Board Member

JC Helms
BDD Board Citizen-at-large Member

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# Welcome to the Public Scoping Meeting for the Chromium Interim Measures and Final Remedy Environmental Assessment

Public Scoping Meetings
May 8-9, 2023

EM-LA
ENVIRONMENTAL MANAGEMENT
SAFETY ❖ PERFORMANCE ❖ CLEANUP ❖ CLOSURE

EM-LA thanks you for your participation.
The presentation will begin momentarily.

# Today's Agenda

## NEPA Process

- National Environmental Policy Act (NEPA)
- Purpose of Public Scoping Meetings
- Public Scoping Comment Procedures
- Timeline for Comment Submission
- How to Submit a Substantive Comment

## Project Background

- Purpose and Need for Agency Action
- Potential Alternatives
- Draft Environmental Assessment (EA)

# National Environmental Policy Act (NEPA)

**NEPA is a Federal law that requires agencies to identify and consider the environmental consequences of implementing proposals**

**The analysis of environmental consequences presented in an EA accomplishes the following objectives:**

- Identifies and describes the affected environment
- Provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI)
- Evaluates the potential environmental consequences of reasonable alternatives

The EA process concludes with a FONSI or decision to proceed with EIS

# Public Scoping Meetings

## The Purpose of Public Scoping Meetings

Provide the public with information regarding the Chromium Interim Measures (IM) and Final Remedy, and how EM-LA will evaluate proposed alternatives in the EA

- Describe the NEPA process and objectives of the EA
- Provide an overview of public scoping comment procedures
- Receive public input on other options or alternatives and other resources to be considered for the EA

Public scoping is not required for an EA. EM-LA is conducting scoping meetings as part of its stakeholder engagement priority and because there is significant interest in the hexavalent chromium plume.

# Public Scoping Comments

## Public Scoping is the first stage in the EA Process

The Public Scoping Phase provides EM-LA with the opportunity to identify issues of interest and concern to frame the environmental analysis, and to more effectively shape the alternatives to be considered

EM-LA is seeking feedback from stakeholders, including local, state, and federal agencies; local and state elected officials, pueblos, non-governmental organizations, and the public on the development of the EA

Public scoping comments will be part of the official NEPA record and a summary will be included in the Draft EA.

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# Timeline and Procedures for Comment Submission

**30-day Public Comment Period Starts**
**May 8, 2023**

↓

**Public Scoping Meetings**
**May 8-9, 2023**

↓

**30-day Public Comment Period Ends**
**June 6, 2023**

↓

**Draft EA Available**
**Anticipated for July 2023**

↓

**DOE Announces Findings**
**December 2023**

**Provide comments TODAY by:**

- Recording a verbal comment with the stenographer
- Submitting a written comment form to the EM-LA representatives

**Submit comments LATER by:**

- Submitting comments via email, with "Chromium EA Scoping Comment" in the subject line:

  emla-nepa@em.doe.gov

- Or submitting comments by U.S. Mail:

  ATTN: NEPA Document Manager
  U.S. DOE Environmental Management
  Los Alamos Field Office
  1200 Trinity Drive, Suite 400
  Los Alamos, NM 87544

**Comments should be postmarked by June 6, 2023, for consideration in the Draft EA**

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# Comments

**NEPA requires a rigorous process to be followed prior to making a final decision, including consideration of comments**

- Substantive comments identify potential alternatives, information, and analyses relevant to the NEPA evaluation
- All substantive comments received, whether spoken, written, or electronic, will be given equal consideration

To receive a notice of availability of the Draft EA, please sign up for the notification list by entering your contact information on the meeting sign-in form or sending an email to **emla-nepa@em.doe.gov**

# Purpose and Need

- In accordance with applicable Federal and state regulations, and the 2016 Compliance Order on Consent (Consent Order) between DOE and the New Mexico Environment Department (NMED), EM-LA needs to assess, identify, clean-up, and otherwise address environmental contamination at LANL

- The purpose of the proposed action is to remediate hexavalent chromium contaminated groundwater below Sandia and Mortandad canyons
- EM-LA needs to evaluate both the Interim Measures and a final remedy

- The primary objective of the IM is to control downgradient migration of the hexavalent chromium plume, with the benefit of removing some chromium mass from the regional aquifer
- EM-LA now needs to evaluate alternatives for groundwater remediation to achieve compliance with the New Mexico chromium groundwater standard

# Potential Alternatives

## No Action Alternative
### Continue Interim Measures and Plume Characterization

- This alternative is a continuation of the preferred alternative in the *Environmental Assessment for Chromium Plume Control Interim Measure and Plume-Center Characterization, Los Alamos National Laboratory, Los Alamos, New Mexico* (DOE/EA-2005, December 2015) and Finding of No Significant Impact (FONSI, December 2015)
- The 2015 Assessment prioritized the Chromium Plume Interim Measures and Plume Characterization

- Under the No Action Alternative, EM-LA would control plume migration and maintain hexavalent chromium contamination levels within the LANL boundary while long-term corrective action remedies continue to be evaluated and implemented
- EM-LA would continue to further characterize the plume to evaluate the effectiveness and feasibility of implementing a final remedy

# Potential Alternatives

## Proposed Action
### Adaptive Site Management

- Under this alternative, EM-LA would use Adaptive Site Management (ASM) to select and implement remedies to remediate the hexavalent chromium plume
- The goal of ASM is to create a framework of structured and continuous planning, implementation, and monitoring that accommodates new information and changing site conditions to develop effective and efficient cleanup strategies

- In accordance with the 2016 Consent Order, the final remedy will be selected by NMED after EM-LA submits a Corrective Measures Evaluation (CME) Report to NMED
- The CME Report will identify and evaluate potential corrective measures for removal, containment, and/or treatment of the hexavalent chromium plume
- In the CME Report, DOE will also recommend a preferred alternative for remediation
- NMED will then issue a Statement of Basis, engage in a public comment period, and select a remedy

# Poster Session and Comment Submittal

Public scoping, history of the plume, potential alternatives, and other information on the NEPA EA process is provided in the following posters

# EM-LA, N3B, and Leidos Introductions

| EM-LA Representatives | Contractor Representatives |
|---|---|
| Lee Bishop, Director, Office of Quality and Regulatory Compliance | Shawn Stone, N3B Environmental Programs and Services Director |
| Jesse Kahler, NEPA Compliance Officer | Sean Dolan, N3B Cultural Resources Specialist |
| Hai Shen, NEPA Document Manager | Clark Short, N3B Water Project Manager |
| Cheryl Rodriguez, Program Manager, Soil and Water Remediation, Office of Cleanup Execution | Mike Erikson, N3B Director, Water Oversight Program |
| Tom McCrory, Senior Geologist, Office of Cleanup Execution | Troy Thomson, N3B Program Manager, Environmental Remediation |
| | Jenifer Nordstrom, Leidos, NEPA Support Program Manager |

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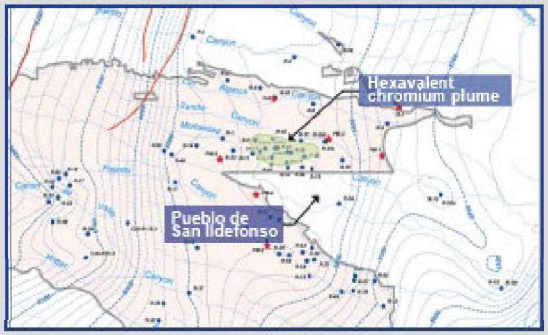
# Historical Context of the Hexavalent Chromium (Cr) Plume

## Origin of the Hexavalent Cr Plume

- The source of the hexavalent Cr plume was a non-nuclear power plant at Los Alamos National Laboratory (LANL) that periodically flushed water containing potassium dichromate from the plant's cooling towers into Sandia Canyon from 1956-1972.
- Up to 160,000 lbs of hexavalent Cr was released during this period, but most of it did not migrate into the regional aquifer.
- Current measurements estimate the hexavalent Cr plume is ~1 mile long x ½ mile wide.




## Movement of the Hexavalent Cr Plume

- Water containing hexavalent Cr traveled down Sandia Canyon.


- Unsaturated zones in tilted rock formations beneath the canyon allowed hexavalent Cr to infiltrate into the regional aquifer underlying Mortandad Canyon.

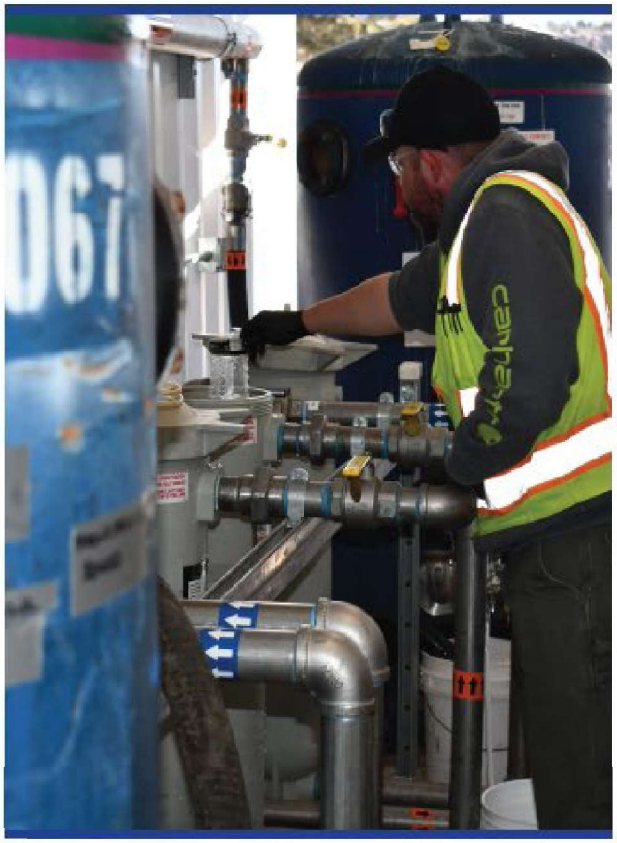
## First Samples

- Monitoring Well R-28 was installed in Mortandad Canyon in 2004 to investigate the regional aquifer beneath LANL.
- The first groundwater samples from R-28 contained hexavalent Cr concentrations ~8x the New Mexico drinking water standard.
- EM-LA prepared the Environmental Assessment for Chromium Plume Control Interim Measure and Plume-Center Characterization (DOE/EA-2005) to analyze environmental impacts of actions to limit downgradient migration of the plume edge in the regional aquifer.

# The Interim Measures (IM) for Hexavalent Chromium Plume Control

## Primary Goal of the IM

- The goal of the IM is to control migration of the hexavalent chromium (Cr) groundwater plume while long-term corrective action remedies are evaluated.
- Plume control is achieved through extraction and treatment of contaminated groundwater ("pump and treat") and injection of treated (clean) groundwater along the downgradient plume edge.
- The IM includes extraction and injection wells and associated equipment necessary to prevent migration of the hexavalent Cr plume beyond the LANL boundary.



## Key Highlights Associated with IM Design

- Installed Sentinel Wells R-35a and R-35b in 2006 as an early warning signal for hexavalent Cr approaching Los Alamos County supply well PM-3.
- Prior to the IM, 10 regional monitoring wells, 2 perched-intermediate wells, and 6 core holes/ piezometers were installed to define the nature and extent of the plume.
- Hydraulic control successfully moved the southern extent of the hexavalent Cr plume ~500 feet away from the Pueblo de San Ildefonso.

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# Posters

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# Potential Alternatives

## No Action Alternative – "Continue Interim Measures and Plume Characterization"

- Under the No Action Alternative, EM-LA would continue to control plume migration and maintain hexavalent chromium contamination levels within the LANL boundary while long-term corrective action remedies continue to be evaluated and implemented.
- EM-LA would continue to further characterize the plume to evaluate the effectiveness and feasibility of implementing a final remedy.

## Alternative 1 – "Adaptive Site Management"

- EM-LA would use adaptive site management to select and implement remedies to remediate the hexavalent chromium plume.
- This approach would create a framework of structured and continuous planning, implementation, and monitoring that accommodates new information, changing site conditions, and public participation.
- EM-LA is considering the following options, or a combination of these options:
  - **Option 1:** Expanded Pump and Treat with Expanded Injection
  - **Option 2:** Expanded Pump and Treat with Land Application
  - **Option 3:** Expanded Pump and Treat with Injection and/or Land Application and In-situ Treatment
  - **Option 4:** Monitored Natural Attenuation

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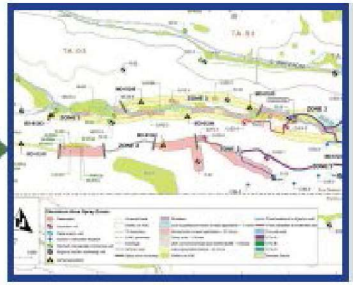
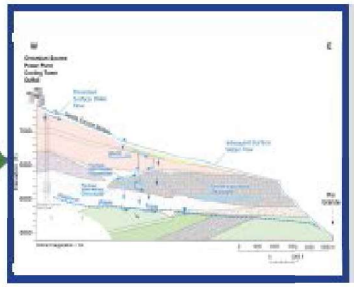
# Adaptive Site Management Options

**Continue Interim Measures and Plume Characterization:**
Pump and treat contaminated water, inject treated (clean) water that meets the New Mexico chromium groundwater standard. Continue characterization with additional monitoring wells, studies, and modeling.

**Option 1 - Expanded Pump & Treat with Expanded Injection:**
Additional extraction and injection wells for increased mass removal and rates of pump and treat and injection into regional aquifer.

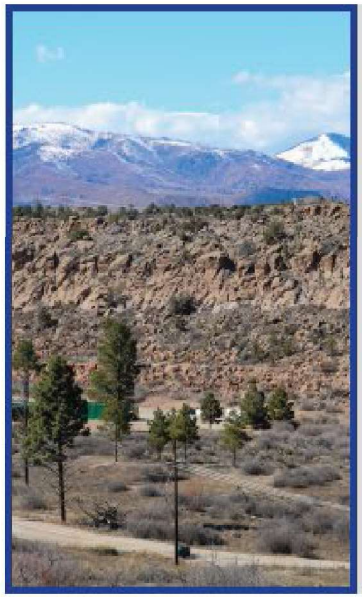


**Option 2 - Land Application:**
Additional extraction and injection wells as in Option 1, and additional treated groundwater disposition through land application.



**Option 3 - In-Situ Treatment:**
Similar to Option 2 in adding extraction and injection wells, but amendments are also deployed in groundwater to rely on chemical processes to reduce and immobilize hexavalent chromium without removing it from the ground.

In-situ is a remediation strategy for treatment in groundwater that involves manipulating aquifer conditions with the goal of converting hexavalent chromium to trivalent chromium within the aquifer.



**Option 4 - Monitored Natural Attenuation:**
Viable option following operation of other remedial actions once concentrations of hexavalent chromium meet the New Mexico chromium groundwater standard.

Relies on natural physical, chemical, or biological processes to further reduce concentrations of hexavalent Cr.

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# Posters

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# National Environmental Policy Act (NEPA)

## Purpose of the NEPA Environmental Assessment (EA)

- EM-LA is initiating the National Environmental Policy Act (NEPA) process to evaluate potential environmental impacts of continued operations of the Interim Measures (IM) to control migration of the hexavalent chromium plume and to evaluate the environmental impacts of alternatives for the final remedy.
- Public scoping meetings provide interested stakeholders with opportunities to ask questions and submit comments on the considered alternatives for the proposed EA. After public comments are received, EM-LA will prepare a Draft EA.
- The proposed action may include well pad and access road installation and maintenance, piezometer placement, and pipeline placement in the 100-year floodplain in Mortandad and Sandia canyons on LANL.

## NEPA Timeline

**30-day Comment Period Starts**
May 8, 2023

↓

**Public Scoping Meetings***
May 8-9, 2023

↓

**30-day Comment Period Ends**
June 6, 2023

↓

**Draft EA Notice of Availability***
Summer 2023

↓

**Final EA Notice of Availability**
Winter 2023

**Includes opportunities for public involvement*

## How to Provide Scoping Comments

**Provide comments TODAY by:**

- Recording a verbal comment with the court reporter

**Submit comments LATER by:**

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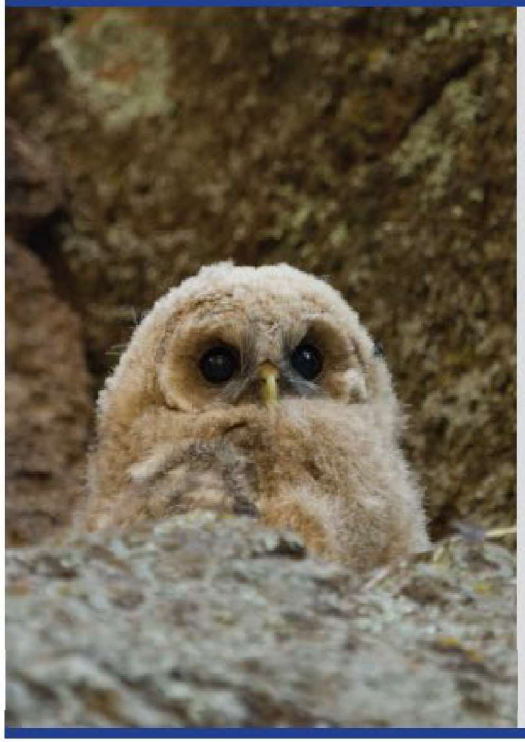
# Environmental Assessment

## Resources to Be Evaluated



- **Cultural Resources**
- **Ecological Resources**
  - » Vegetation
  - » Wildlife
  - » Threatened and Endangered Species
  - » Migratory Birds and Sensitive Species
- **Water Resources**
  - » Groundwater
  - » Surface Water
- **Visual Resources**
- **Air Quality**
- **Geology and Soils**
- **Environmental Justice**
- **Socioeconomics**
- **Land Use**
- **Noise**
- **Traffic and Transportation**
- **Utilities and Infrastructure**
  - » Electricity
  - » Water
  - » Roads
- **Hazardous Materials and Waste Generation**
- **Human Health and Worker Safety**

# Thank You for participating in the Public Scoping Meeting

**EM-LA would like to thank all attendees for their interest and participation**

**A review on how to submit comments outside of this meeting is available on the following slide**



For your convenience, a copy of this presentation is available online at: www.energy.gov/em-la/presentations

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# Timeline and Procedures for Comment Submission

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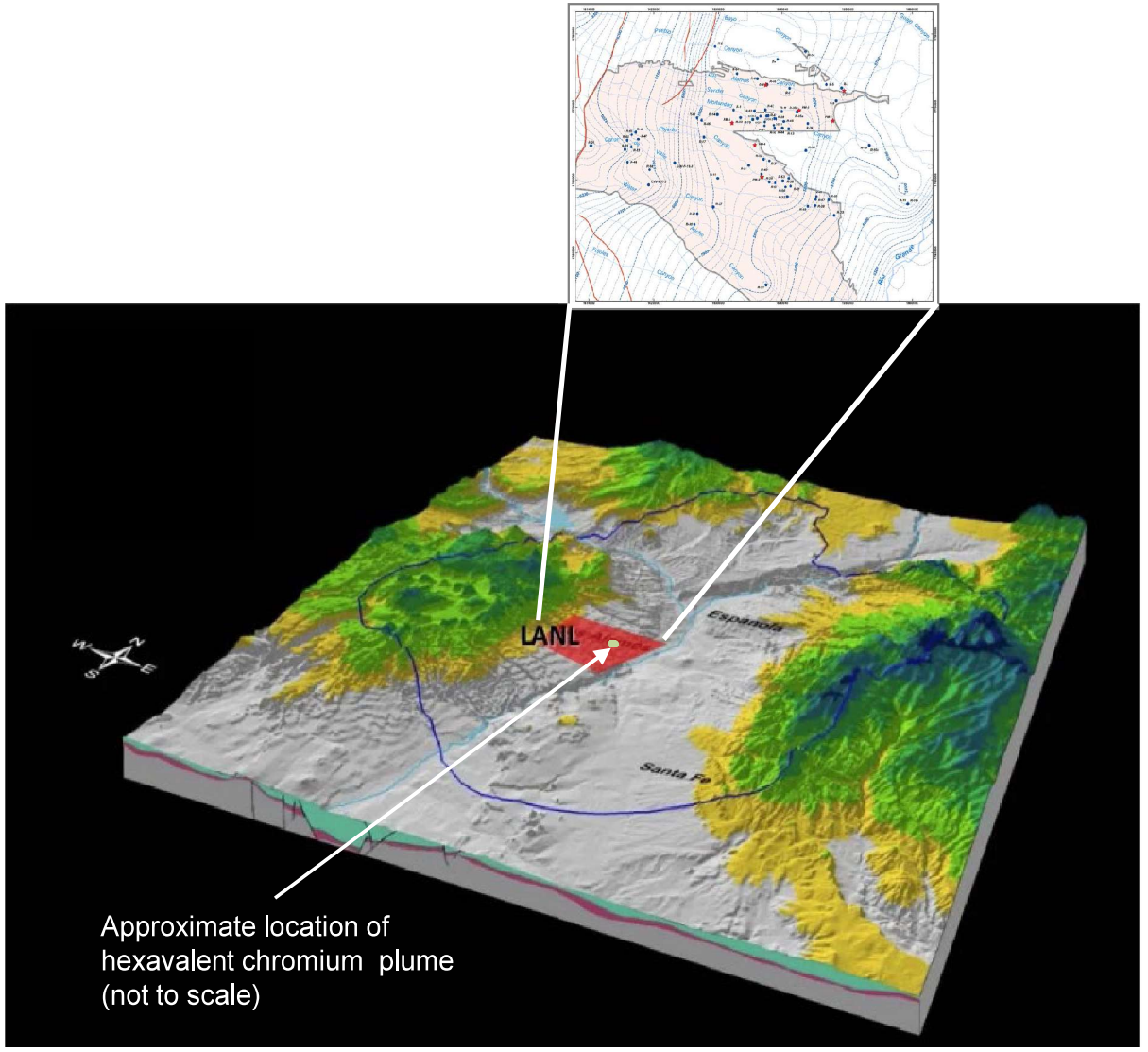
# BACKUP SLIDES

# Background

- The regional aquifer beneath the Laboratory is part of the Espanola Basin
- The basin is ~ 50 miles long and ~18 to 40 miles wide
- Hexavalent chromium plume footprint is approximately 1 mile long and ½ mile wide




Location of the Los Alamos National Laboratory within the Espanola basin (image from Vessilinov et. al 2010)

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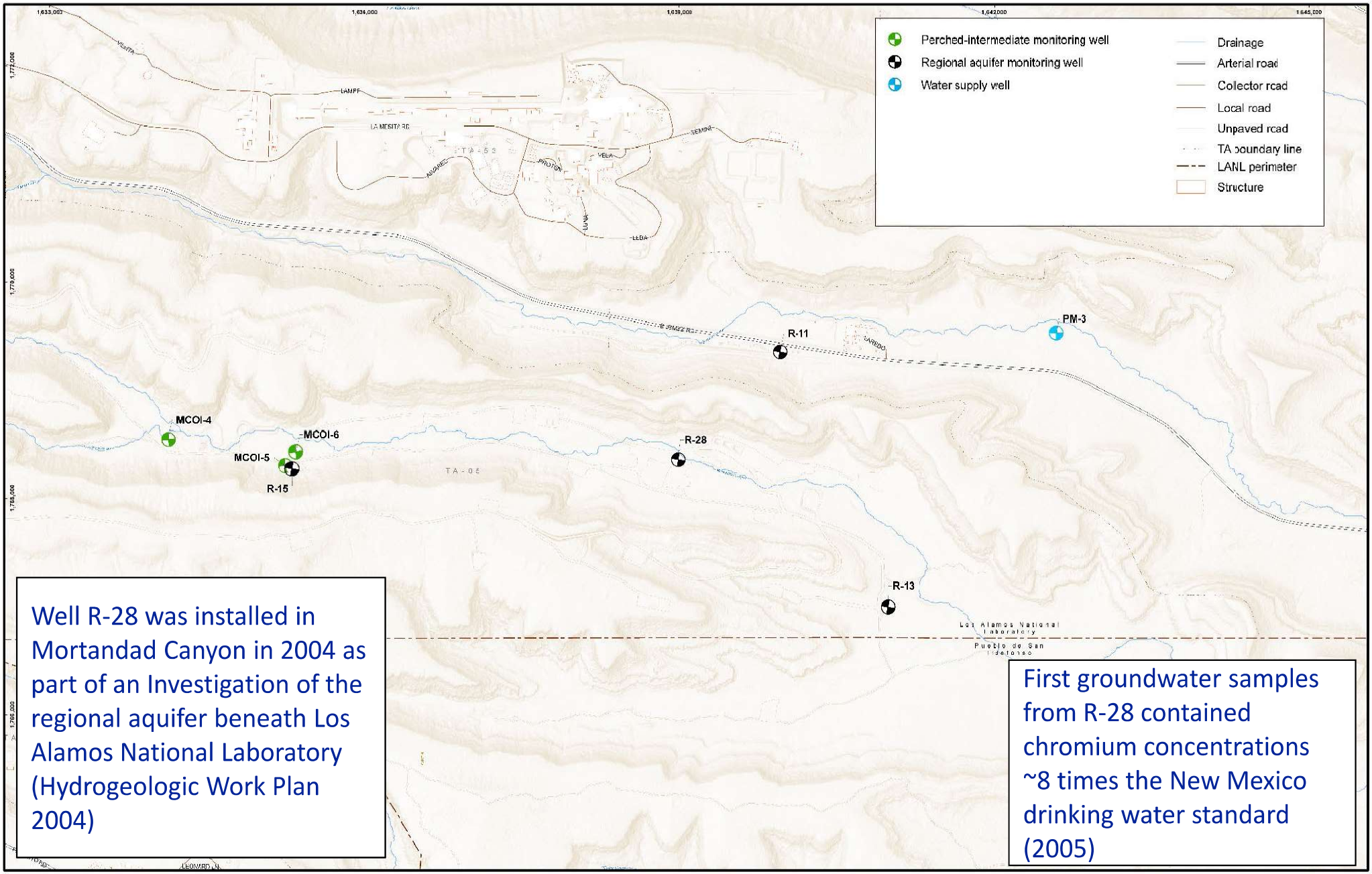
# First Samples at R-28




Well R-28 was installed in Mortandad Canyon in 2004 as part of an Investigation of the regional aquifer beneath Los Alamos National Laboratory (Hydrogeologic Work Plan 2004)

First groundwater samples from R-28 contained chromium concentrations ~8 times the New Mexico drinking water standard (2005)

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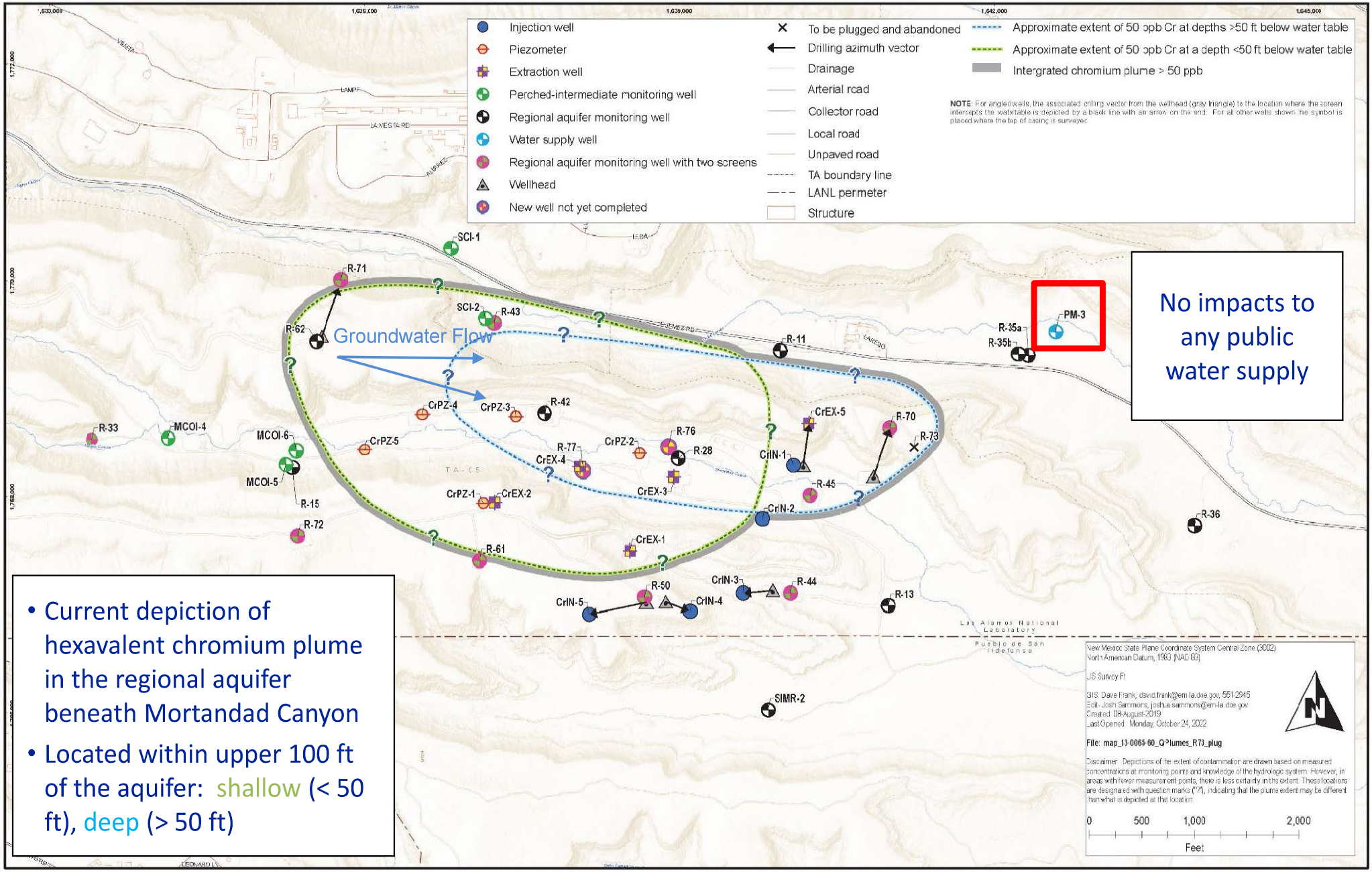
# Hexavalent Chromium Plume




No impacts to any public water supply

- Current depiction of hexavalent chromium plume in the regional aquifer beneath Mortandad Canyon
- Located within upper 100 ft of the aquifer: shallow (< 50 ft), deep (> 50 ft)

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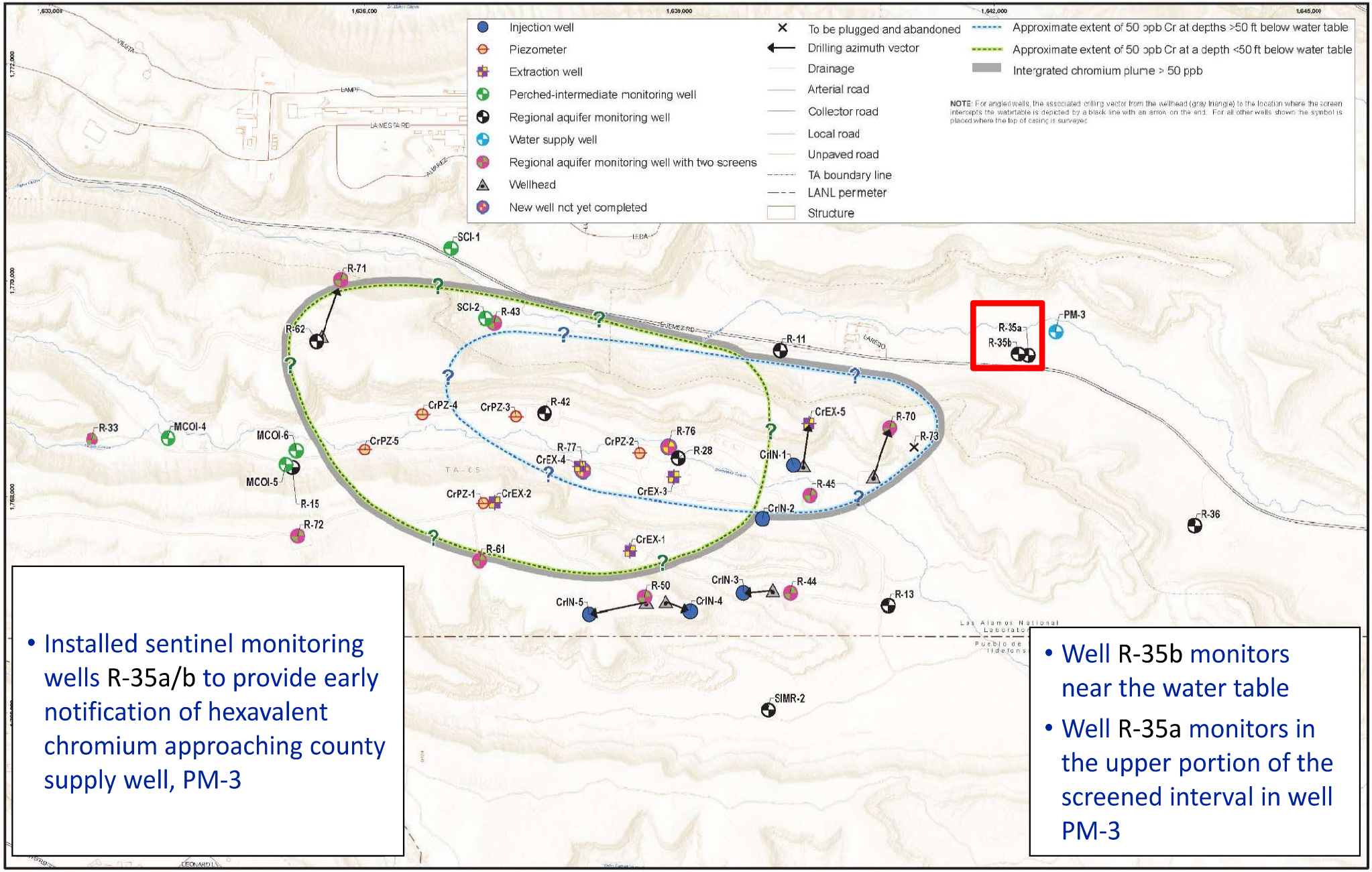
# Sentinel Monitoring Wells




- Installed sentinel monitoring wells R-35a/b to provide early notification of hexavalent chromium approaching county supply well, PM-3

- Well R-35b monitors near the water table
- Well R-35a monitors in the upper portion of the screened interval in well PM-3

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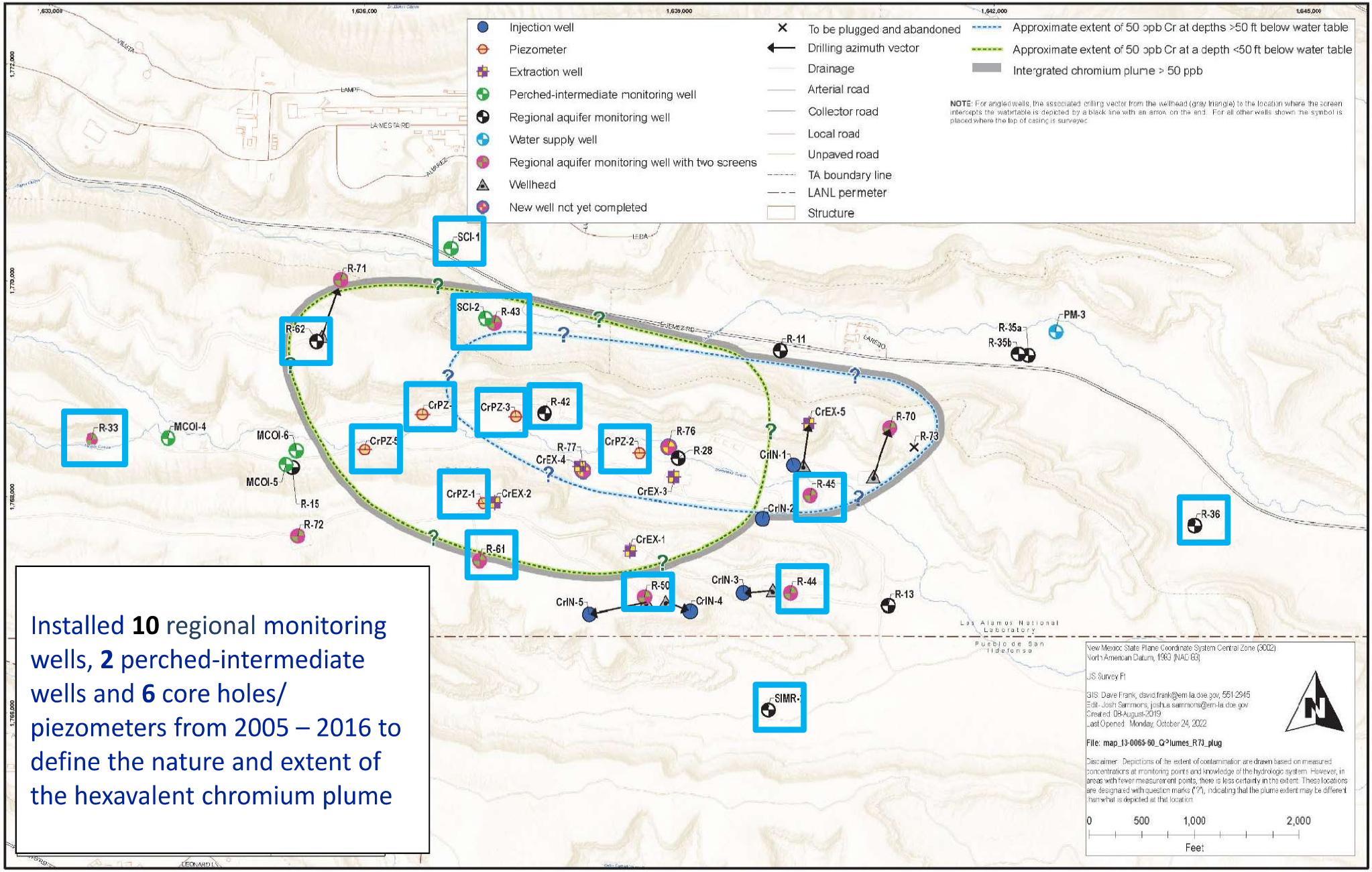
# Monitoring Wells




Installed **10** regional monitoring wells, **2** perched-intermediate wells and **6** core holes/ piezometers from 2005 – 2016 to define the nature and extent of the hexavalent chromium plume

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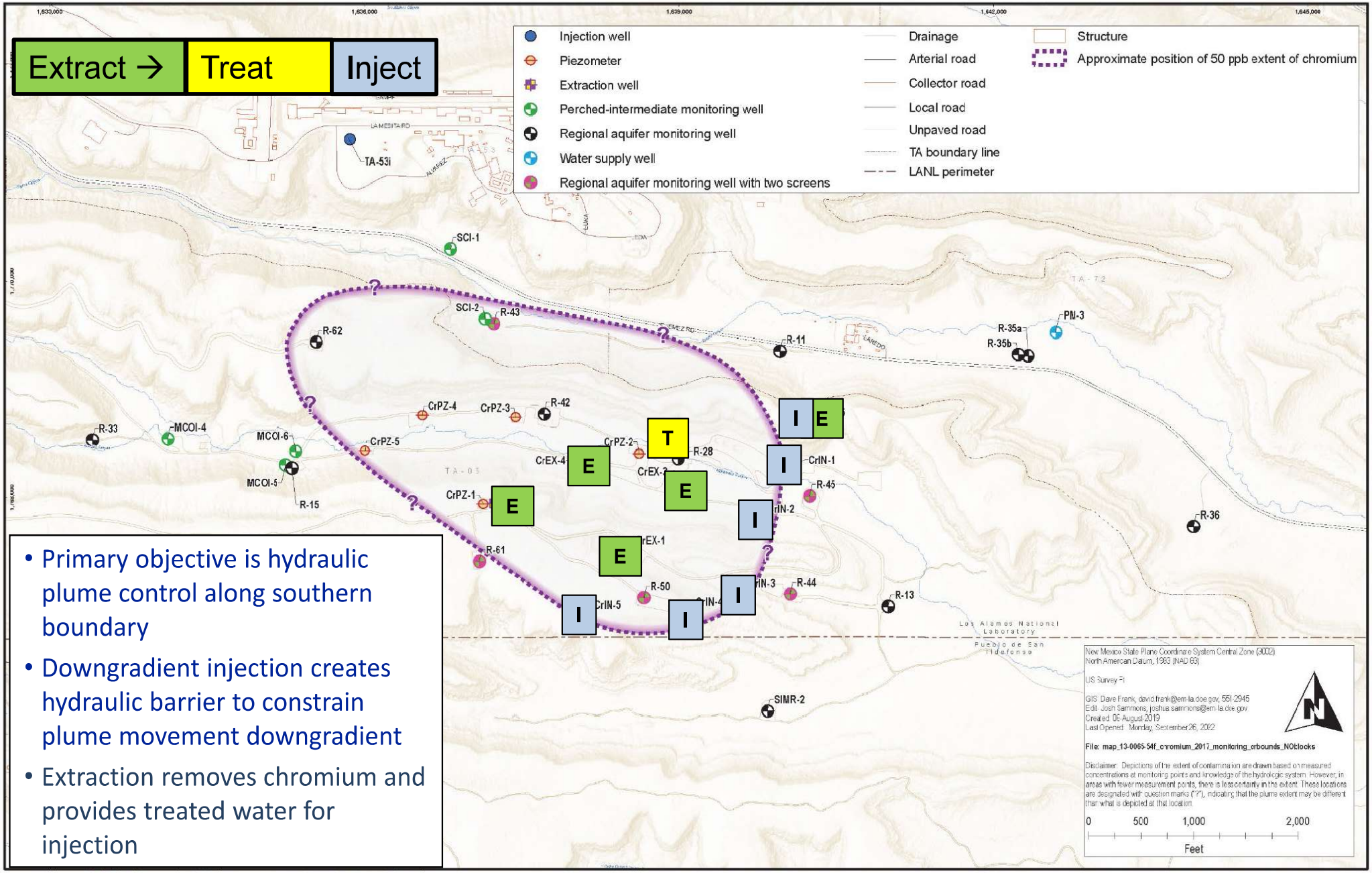
# Plume Control Interim Measure Configuration



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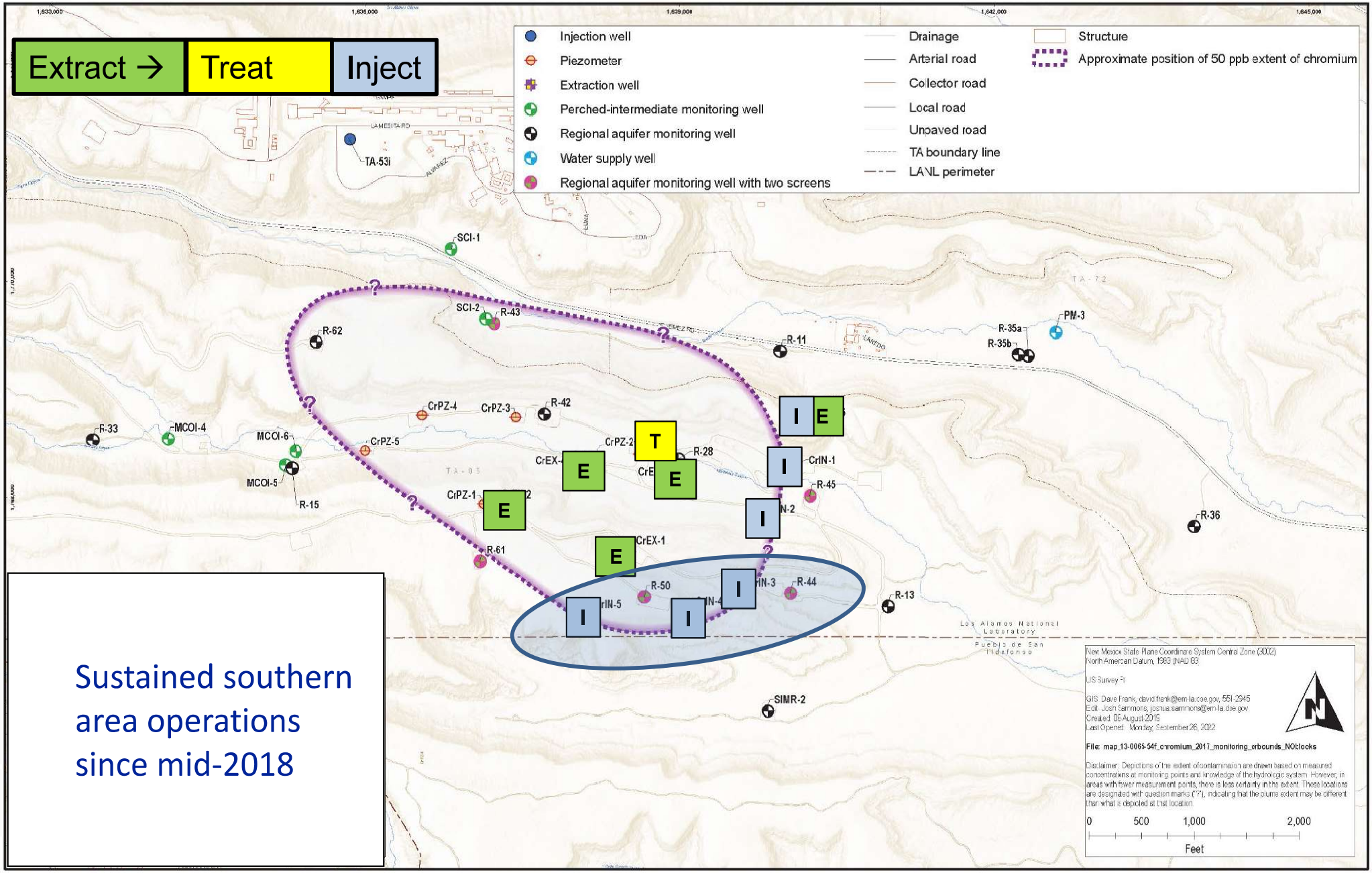
# Plume Control Interim Measure Configuration




Sustained southern area operations since mid-2018

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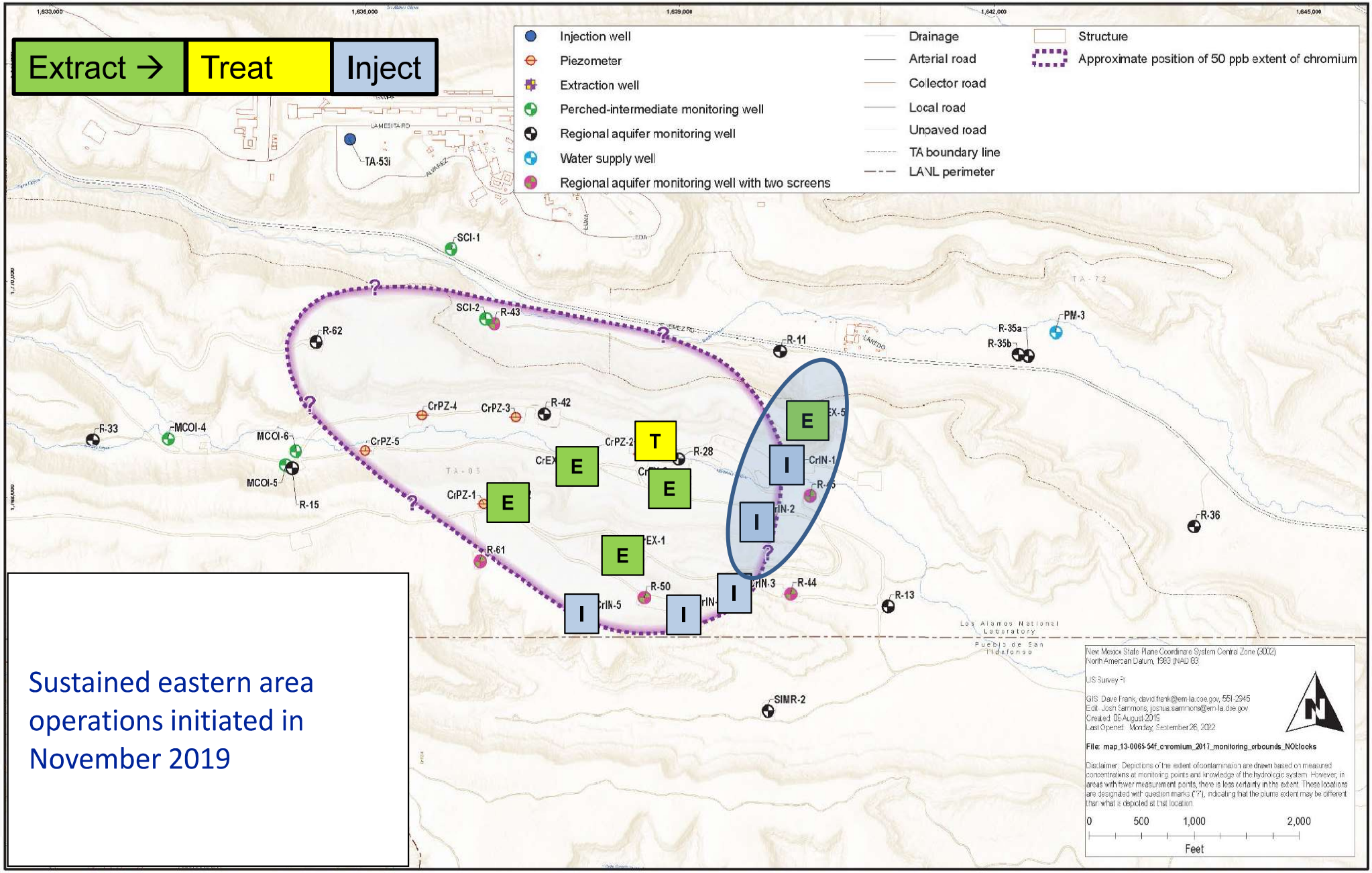
# Plume Control Interim Measure Configuration




Sustained eastern area operations initiated in November 2019

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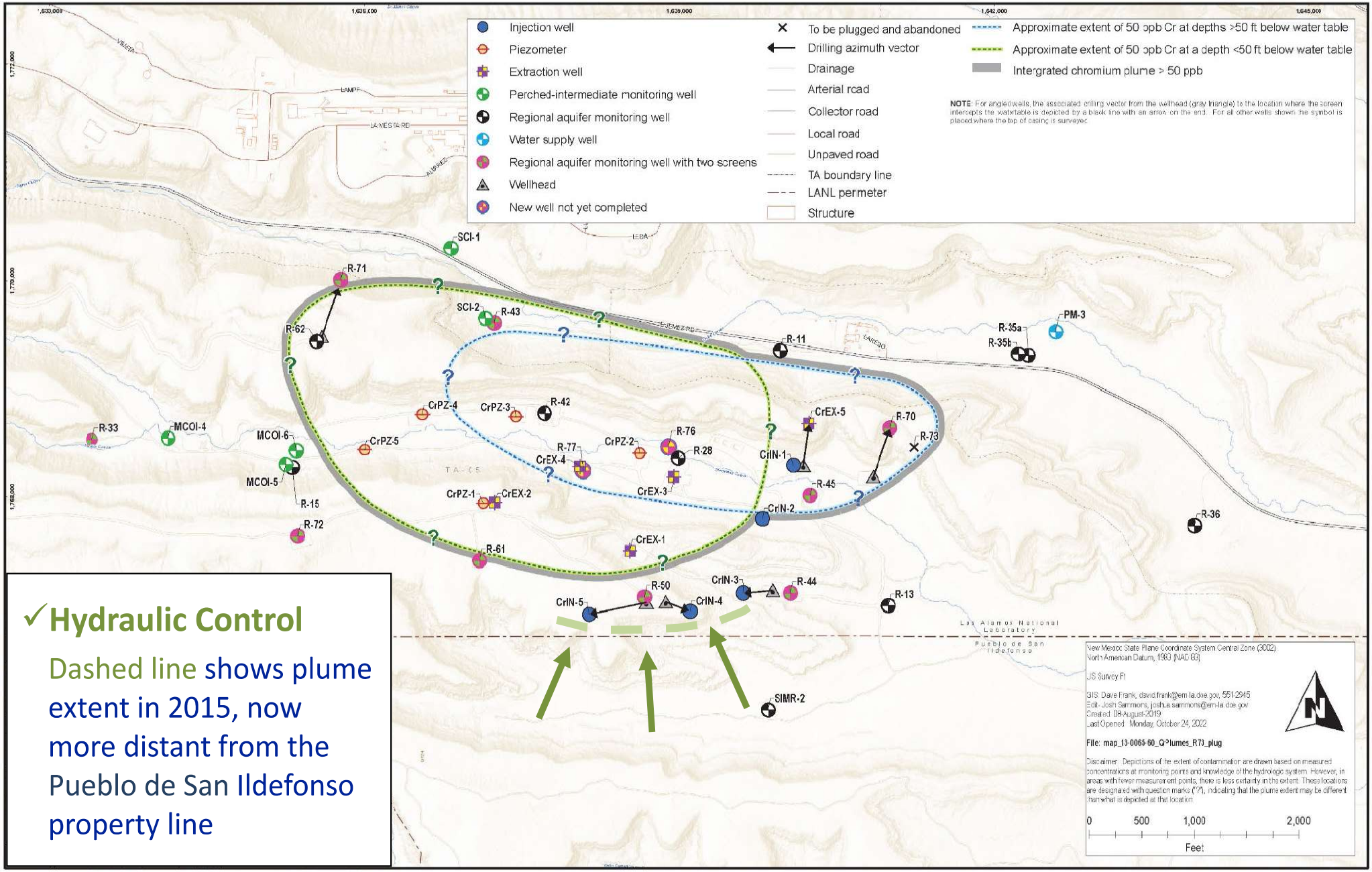
# Plume Control Interim Measure Success




✓ **Hydraulic Control**

Dashed line shows plume extent in 2015, now more distant from the Pueblo de San Ildefonso property line

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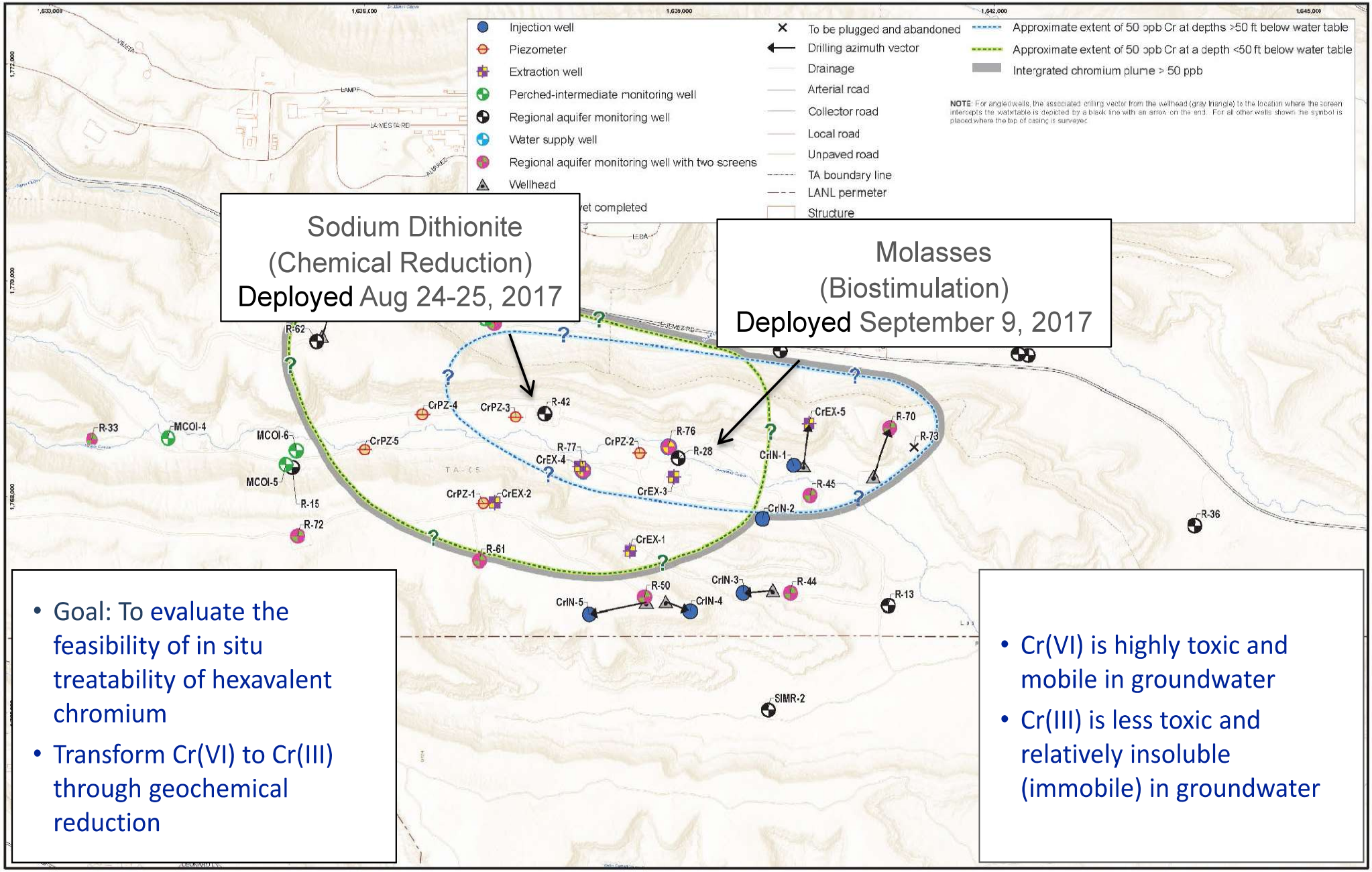
# Amendments Pilot Tests 2017




- Goal: To evaluate the feasibility of in situ treatability of hexavalent chromium
- Transform Cr(VI) to Cr(III) through geochemical reduction

- Cr(VI) is highly toxic and mobile in groundwater
- Cr(III) is less toxic and relatively insoluble (immobile) in groundwater

## NOTICE OF AVAILABILITY AND PUBLIC MEETINGS/COMMENT PERIOD

## DOE Environmental Management Los Alamos Field Office Issues Notice of Availability of the Draft NEPA Environmental Assessment for Chromium Interim Measures and Final Remedy

In accordance with the National Environmental Policy Act (NEPA), the U.S. Department of Energy (DOE) Environmental Management Los Alamos Field Office (EM-LA) has prepared a draft Environmental Assessment (EA) that evaluates potential environmental impacts of DOE's Proposed Action, a combination of treatment options whereby EM-LA would use adaptive site management (ASM) to select, implement, and manage removal of hexavalent chromium from source areas and the groundwater. The Proposed Action alternative includes four options, or a combination of these options, that can selectively be implemented to remediate chromium-contaminated groundwater below Sandia and Mortandad canyons at Los Alamos National Laboratory. The EA also evaluates the No Action alternative.

The draft EA is available for public review at https://www.energy.gov/nepa/doeea-2216-chromium-interim-measure-and-final-remedy-los-alamos-new-mexico, and on the Los Alamos Legacy Cleanup Electronic Public Reading Room: eprr.em-la.doe.gov.

### Public Comments and Meetings

**EM-LA invites public comment on the draft EA during a 60-day comment period commencing with this notice on December 14, 2023, and ending on February 12, 2024.** To enhance public and stakeholder participation, EM-LA is providing two meetings to share information and gather verbal and written comments on the draft EA. Participants will have opportunities to ask questions and submit comments on the proposed alternatives and options, and on the draft EA. DOE plans to complete the final EA after consideration of comments received on the draft EA.

Public meetings are scheduled for the following dates and times:

**Monday, January 22, 2024:** In-person meeting at Cities of Gold Hotel and Casino Ballroom, 10 Cities of Gold Road, Pojoaque, New Mexico from **6:00-8:00 p.m. MDT**

**Wednesday, January 24, 2023:** Virtual meeting from **1:00-3:00 p.m. MDT**

- To join via video through your computer or smart device, go to https://Zoom.us/join and enter Meeting ID: 849 7723 8202. You will be prompted to enter a Passcode: 062428 and your name.
- To join via audio (participants will hear the presentation but not see it), call +1 669-444-9171 and enter the above Meeting ID and Passcode.

**Public comments must be received by February 12, 2024.**

EM-LA is providing two additional options to submit written comments:

- **Email:** EMLA-NEPA@em.doe.gov. Please use the subject line: Chromium Draft EA Comment
- **U.S. Mail:** EM-LA NEPA Document Manager, U.S. DOE Environmental Management Los Alamos Field Office, 1200 Trinity Drive, Suite 400, Los Alamos, NM 87544

**Date:** **February 1, 2024**

**To:** **Buckman Direct Diversion Board**

**From:** **Nancy R. Long**

**Subject:** **Election of Chair and Vice Chair**

## ITEM AND ISSUE:

Election of Chair and Vice Chair to the Buckman Direct Diversion Board.

## BACKGROUND AND SUMMARY:

The Joint Powers Agreement between the City and the County establishing the Buckman Direct Diversion Board ("Board") provides that the Board shall annually elect a Chairperson and a Chairperson Pro-Tempore (Vice Chair).

The Rules of Order for the Board regarding the election of the Chair and Vice Chair provide as follows:

> During the February meeting of each year, or as soon thereafter as possible a Chair and Vice-Chair of the Board shall be elected. The Chair position shall rotate between a City and County member each year. The Vice-Chair shall be elected from the opposite entity. Elections shall also be held when required to fill any vacancy that occurs in the Chair or Vice-Chair position.

Since the Chair elected at the last election was a County Commissioner, the Chair to be elected at this meeting, shall be a City Councilor and the Vice-Chair shall be a County Commissioner.

## ACTION REQUESTED:

It is recommended that the Board elect its officers for the next term.