

Los Alamos

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

memorandum

TO: Distribution
Charles Nylander
FROM: Charles Nylander, ESH-18
DATE: July 31, 1998
MAIL STOP/TELEPHONE: K497/5-4681
SYMBOL: ESH-18/WQ&H:98-0233
SUBJECT: **MWIP QUARTERLY MEETING MINUTE NOTES**

Attached are the minutes from the first Los Alamos National Laboratory Monitoring Well Installation Project Quarterly Meeting. It was held on June 29, 1998 in Los Alamos. The major agreements reached in the meeting are:

- Completion of R-9 and R-12 wells will be approximately a year from now; a completion proposal with technical rationale will be presented at a future meeting.
- LANL will produce a comparison of the R-9 planned data collection to the actual data collection.
- R-15 will be drilled starting in October, 1998 and R-7 will be drilled in spring FY99.
- NMED Hazardous and Radioactive Management Bureau will send comments on the Monitoring Well Installation Project Annual Report.

Please review these minutes for accuracy. If you have identify changes that should be made, please submit them to Charlie Nylander.

CN/em

Attachments: a/s

Distribution:

Steve Yanicek, NMED-OB, w/att., MS J993
Michael Dale, NMED-OB, w/att., MS J993
John Ordaz, DP-13, HQ, Washington, w/att.
T. Longo, EM-40, HQ, Washington, w/att.
Bonnie Koch, LAAME, LAAO, w/att., MS A316
Ted Taylor, LAAME, LAAO, w/att., MS A316
Tom Baca, EM-DO, w/att., MS J591
Julie Canepa, EM/ER, w/att., MS M992
Dennis Erickson, ESH-DO, w/att., MS K491



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HSUA LANL
TA-O
g/m/n

Distribution (con't):

Charlie Nylander, ESH-18, w/att., MS K497
K. Agogino, EPD, AL, Albuquerque, New Mexico, w/att.
David Rogers, ESH-18, w/att., MS K497
Steven Veenis, ESH-18/Vis, w/att., MS M995
Bruce Gallaher, ESH-18, w/att., MS K497
Billy Turney, ESH-18, w/att., MS K497
Ken Mullen, ESH-18, w/att., MS K497
Everett Springer, EES-15, w/att., MS J495
David Broxton, EES-1, w/att., MS D462
Patrick Longmire, CST-7, w/att., MS J534
Alice Barr, ESH-19, w/att., MS K498
Kelly Bitner, Mactec, Albuquerque, New Mexico, w/att.
Robert Enz, DOE LAAO, w/att., MS A316
Allyn Pratt, EES-13, w/att., MS J521
Deborah Woitte, w/att., MS A187
Rick Warren, EES-1, w/att., MS D462
Stephen Mclin, ESH-18, w/att., MS K497
Robert Gilkeson, EES-13, w/att., MS H865
Steven Rae, ESH-18, w/att., MS K497
Victoria George, EM-ER, w/att., MS M992
David McInroy, EM-ER, w/att., MS M992
David Bradbury, EM-ER, w/att., MS M992
William B. Martin, EM-ER, w/att., MS M992
Allison Dorries, EES-13, w/att., MS M992
Roy Micholotti, CST-7, w/att., MS E525
Steve Bolivar, EES-13, w/att., MS H865
Diana Hollis, EM-ER, w/att., MS M992
Brent Newman, EES-15, w/att., MS J495
Elizabeth Keating, EES-5, w/att., MS C306
Larry Winter, EES-5, w/att., MS F665
Alan Stoker, SAIC, w/att., MS J521
Jim Holt, NWT-PO, w/att., MS F629
Robert Hull, LATA, w/att., MS M321
Sue Swanton, LATA, w/att., MS M321
Mark Cummings, TSA-4, w/att., MS F604
LANL Reading Room, w/att., MS C314
Mark Everett, MK/PMC, w/att., MS M327
Andy Crowder MK/PMC, w/att., MS M327
Kahil Nasser, HLA, Denver, Colorado, w/att.
Chris Hanlon-Meyer, NMED-OB, w/att., MS J993
Carey Bare, ESH-20, w/att., MS M887
WQ&H File, w/att., MS K497

Distribution (con't):

Balleau Groundwater
901 Rio Grande Blvd. NW Ste. F 242
Albuquerque, New Mexico 87105

B. Garcia, Bureau Chief
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo St., Building A
P.O Box 26110
Santa Fe, NM 87505

J. Kieling
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo St., Building A
P.O Box 26110
Santa Fe, NM 87505

J. Young
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo St., Building A
P.O Box 26110
Santa Fe, NM 87505

J. Parker
DOE Oversight Bureau
New Mexico Environment Department
2044 Galisteo St., Building A
P.O Box 26110
Santa Fe, NM 87505

M. Leavitt, Bureau Chief
Ground Water Quality Bureau
New Mexico Environment Department
1190 St. Francis Drive
P.O Box 26110
Santa Fe, NM 87502

P. Bustamante
Ground Water Quality Bureau
New Mexico Environment Department
1190 St. Francis Drive
P.O Box 26110
Santa Fe, NM 87502



Distribution (con't):

J. Davis
Surface Water Quality Bureau
New Mexico Environment Department
1190 St. Francis Drive
P.O Box 26110
Santa Fe, NM 87502

P. Maggorie
Environmental Protection Division
New Mexico Environment Department
1190 St. Francis Drive
P.O Box 26110
Santa Fe, NM 87502

D. Neleigh
Environmental Protection Agency, 6PD-ON
Region 6
1445 Ross Avenue
Dallas, TX 75202-2733

**Los Alamos National Laboratory
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Participants**

| | | | |
|--------------------|---------------|----------|-------------------------------------|
| Kelly Bitner | MACTEC, Inc. | 242-7525 | kellybitner@mactec-nm.com |
| Steve Bolivar | LANL/FSF | 667-1868 | bolivar@lanl.gov |
| David Broxton | LANL/EES-1 | 667-2492 | broxton@lanl.gov |
| Mark Cummings | LANL | 665-3476 | mcummings@lanl.gov |
| Michael Dale | NMED | 672-0049 | staple@fimad.lanl.gov |
| Bruce Gallaher | LANL | 667-3040 | gallaher@lanl.gov |
| Chris Hanlon-Meyer | NMED/DOE OB | 827-1536 | chris_hanlonmeyer@nmenv.state.nm.us |
| Janet Harry | LANL/EES-5 | 667-1637 | janeth@fimad.lanl.gov |
| Kim T. Hill | EPA/NMED HRMB | 827-1558 | talbotb@hotmail.com |
| John Kieling | NMED/HRMB | 827-1558 | john_kieling@nmenv.state.nm.us |
| Bonnie Koch | DOE/LAAO | 665-7202 | bkoch@doe.lanl.gov |
| Brent Newman | LANL/EES-15 | 667-3021 | bnewman@lanl.gov |
| Charlie Nylander | LANL/ESH-18 | 665-4681 | nylander@lanl.gov |
| Steven Rae | LANL/ESH-18 | 665-1859 | steverae@lanl.gov |
| David Rogers | LANL/ESH-18 | 667-0313 | slug@lanl.gov |
| John Young | NMED/HRMB | 827-1558 | laramide@mailexcite.com |

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Charlie Nylander introduced the meeting as the first Quarterly meeting. It is an opportunity to discuss the status, activities, planning for the monitoring well project.

R-12 Status

David Broxton described the status of R-12. R-12 is parked with a temporarily completed 4" PVC well. Provided a handout showing the rock units, and saturated zones, and completion information.

The geology encountered in R-12: Alluvium from the surface to 20 ft. The Bandelier Tuff (Otowi member and Guaje pumice) from 20 feet to 130 feet (The Otowi and Guaje were missing in R-9). There is a soil at the base of Guaje. It is seen consistently around the Lab and may be a perching unit. Below the Bandelier is the Cerros del Rio basalt from 130 to 491 feet. There is a tephra (2 ft. thick) at base that was a perching in R-9, but in R-12 it was not. Below the basalt is the Old Alluvium from 491 to 535 feet. Within the Old Alluvium are clay-rich lake deposits 13 ft. thick. Beneath the Old Alluvium is the Puye Formation from 535 feet to 785 feet. The Puye in R-12 is similar to the Puye in R-9 in that the bottom half is tuffaceous and clay-rich. Santa Fe Group basalt underlies the Puye Formation at a depth of 785 feet. At R-9 the argon date on basalt at the bottom is 8.5 million years old, so it is Santa Fe Group.

In R-12 the casing strings and seals are: 14-in. casing to 448 ft. (within the Cerros del Rio basalt), ran out of that size. Used 12-inch to 486 ft. (near the top of the Old Alluvium) but it was not strong enough. Switched to 10-in. casing through first perched zone to a depth of 520 ft. The temporary well has screen from 800 to 820 feet and 10 ft. sump.

R-12 hydrology: the first perched zone was encountered at 443 ft. in the Cerros del Rio Basalt. The water rose to 242 feet, indicating it was under confined conditions. The bottom of the perched zone was at the lake bed deposits in the Old Alluvium, at a depth of 520 feet. Saturation in the perched zone was discontinuous. It was wet, dry, wet, dry, etc. Three seals were placed and then taken out within the zone. The lake bed deposits formed a natural seal, so no bentonite was required to seal this zone. Below the perched zone it was a dry hole. However, at total depth of 733.8 ft. when the drilling was stopped overnight, the hole contained water the next morning. There was not enough water to get a sample. Core was collected from 716 to 799 feet and the core was dry. At 905 ft. we encountered saturated conditions, no confining conditions and the water level was within 1 foot of the regional aquifer level in R-9. There was a meeting to decide how deep to go with R-12. The consensus was that to make that decision analytical results are needed to monitor water level with respect to PM-1 pumping.

A cross-section from R-12 to R-9 (second page of the handout) shows the geology and hydrology. There is a southerly dip in the Cerros del Rio Basalt and the Old Alluvium. The Puye is thicker in R-9 than in R-12. The Santa Fe Group basalt has a northern dip.

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The perched zones in R-9 and R-12 are not connected because the water chemistry the perched systems suggests they are not related. The 180-ft. zone in R-9 does not match in the 492-ft. zone in R-12. The high uranium in basalt in R-9 at 282 feet is the same stratigraphic interval as the 492-foot in R-12 but different chemistry. The 3 zones in the Puye in R-9, above the regional aquifer may correspond to the disappearing zone in R-12 at 734 feet. The regional aquifer is within 1 ft. of same elevation in R-9 and R-12 and unconfined.

Geochemistry: Three samples were collected in the perched zone. Originally thought all were from the same water, but the 464-foot sample seems different, particularly the chloride content. Tritium is elevated relative to background; uranium slightly elevated compared to background, but not as high as R-9.

John Young asked if there is confidence in the seal. Dave Broxton responded that they think it is an excellent seal. Michael Dale asked if the water at 741 ft. could be from above. Dave Broxton responded that there is no way to know. Don't know what to make of it. If it is natural it is small. It does line up with the three zones in the Puye at R-9. There has been a 60-90 ft. drop in water level since pumping began and these may be remnant zones.

Michael Dale asked if a neutron log was run. John Young asked what geophysics were run in R-12. Dave Broxton responded that geophysics were run, but he did not bring the information regarding the type and intervals to this meeting. However, about 12% core was recovered.

John Young asked what was learned from R-12. Dave Broxton said that what was learned includes:

- Lateral limitation in perched zones. The perched systems do not extend beneath the mesas.
- Hydrologic setting of regional aquifer. It is the same elevation in both holes. Static water level different than measured in water supply well. Integrated pressures in water supply wells raises water levels by upward gradient. Need to discuss importance of upward gradient.

Michael Dale asked when did the samples go out for analysis. There was a mix-up with the 464- and 495-ft. samples. Dave Broxton said that the mix-up was corrected. The samples were sent for analysis a couple of weeks ago, but there will probably be holding time problems.

Steve Rae asked if both PM-1 and PM-3 have been pumping. Michael Dale responded that they have both been running at night. Dave Broxton said the R-12 has been instrumented to measure water levels to see how the pumping of the water supply wells effects R-12.

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Bruce Gallaher asked how extensive is the "old Alluvium." Dave Broxton answered that it is below the Cerros del Rio basalt. Includes clasts of basalt. Type locality near water tank on front hill road described by Griggs. Described more on eastern side of Lab, but may have been missed on West. It is present in Lower Los Alamos Canyon and areas to north. Generally eastern and northeastern portions of Lab. Bruce Gallaher said there are previous descriptions of soil. Is this the same as Old Alluvium? Dave Broxton said there are separate and distinct soils. One notable soil is at the base of the Guaje, and that is not the same as the Old Alluvium.

Bruce Gallaher noted that the background concentrations in the handout should be considered as a general guideline rather than an absolute number because there is more uncertainty in the data than is presented here.

R-9 Status

David Broxton said the GIT has not recommended additional ideas for R-9. Discussed deepening R-9 or R-12 to evaluate gradients in regional aquifer. The factors that recommend R-9 for deepening are: R-12 is so close to PM-1 where we already have deep information; R-9 is closer to sources in Los Alamos Canyon. Factors that recommend R-12 for deepening are: R-12 may be down-gradient from Mortandad; it is intended to be a water protection supply well, so maybe it should be deeper. These discussions are continuing. We are probably a year before completing either well. The budget is lower next year and drilling new wells is a higher priority. We can talk about true priorities for installing wells. With the budget for next year we can probably do 1 deep well and the completion of either R-9 or R-12. Bonnie Koch asked if Canyons would have money to drill the intermediate wells in Mortandad Canyon next year. Dave Broxton said that at this point there is not extra money for intermediate wells. DP has funds for wells. The intermediate wells were predicted on \$60 million ER budget, and we are expecting less.

Charlie Nylander asked what the State opinion was on that. NMED said they will wait until you come up with a proposal and rationale.

R-9/R-12 planning vs. actual

Chris Hanlon-Meyer said LANL was going to do a spreadsheet. We wanted to do an audit. Want to find out what was done versus planned without having to go to FIP. Dave Broxton said that information would be in the completion reports, which are in progress now. The FIP is most current planning documents. However, the Hydrogeologic Workplan will be used as the baseline for the comparison of planned vs. actual, although we will also compare to FIP. The work has changed significantly from Los Alamos/Pueblo workplan, so we probably will not use that for comparison. Chris Hanlon-Meyer said we want to track these in real time. We don't want to wait for completion report. Dave Broxton said there would be interim completion reports.

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Bonnie Koch asked if you could just do core and geophysics. Bob Enz will meet with Schlumberger to find what logs are available and what can be digitized. Dave Broxton said geophysics are hard to predict particularly which part of the hole will stay open. R-12 the basalt collapsed in the Puye squeezed too much. Michael Dale said if can't get geophysics we recommend more core to measure porosity, permeability, saturation. Important to contaminant transport. Dave Broxton said the cuttings are remarkable. They are from cutting face, come up quickly, and large pieces, good for describing lithology. Bonnie Koch we could look back at R-12 and see how much more core you could have gotten. Dave Broxton said we could have gotten more core. Got 33% core in R-9 and this area is relatively well known from PM-1. Between R-9 and R-12 and the water wells, this area is pretty well characterized. Very judicious with core because the coring is very expensive. We are on the bare edge of not enough core. Probably 30% is right for these holes. The modeling effort will give more guidance on what units need more information.

Charlie Nylander asked if the interim completion reports would be done before next quarterly meeting. Dave Broxton responded yes. We would like to put together a matrix of planned vs. actual core. I also agree that more core is necessary without geophysics. Charlie Nylander said the Barber rig might make it easier to obtain core. If the interim reports are acceptable we'll go ahead with that. Chris Hanlon-Meyer said the reason they want the matrix is to make technical suggestions to improve next wells.

R-25 Well

R-25 will look very different than R-12 or R-9. It is much deeper because the regional aquifer expected at 1300 ft. The FIP is almost complete [Dave Broxton said the readiness review is today]. We are expecting a mid-July start, possibly July 13. The Barber rig is going to Utah the first week of July for testing before coming to Los Alamos. The plan is to collect 40% core; characterization of unsaturated and saturated zones; geophysics. There are two completion alternatives: single completion and multiple completion with 9 zones (3 saturated perched, 3 unsaturated; 3 in regional aquifer). The estimated costs are:

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|----------------------|-----------------|
| Single completion: | \$1.426 million |
| Multiple completion: | |
| Stainless steel | \$2.315 million |
| PVC | \$1.943 |

The estimate includes a 10% contingency. Costs for multiple completion is "worst case" because didn't take volume discounts into account, and we might get tools that would be applied to other wells.

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Active drilling would be 60 shifts, 9 shifts for well construction; 5 shifts for mob/demob; and 10 standby shifts. We will be drilling with FY98 DP funds and completion with FY99 funds.

Dave Broxton said site prep should be done next week. John Young asked if there would be 5 shifts a week. Dave Broxton said we are planning to work 5 days. (M T W S S) with 12-hr shifts. We will be taking Thursdays and Fridays off because burning ground operations are on those days. We will have to provide escorts for uncleared drillers. Charlie Nylander said we have \$1/2 million worth of casing, bits, etc., on order coming in. This equipment can be used on either the Barber or T-4. It is heavy wall casing and won't have problems. Dave Broxton said we will have the FIP today and will send it electronically as soon as possible.

Charlie Nylander added that the budget estimate had to be done, but a completion decision won't be made until we get down there. Didn't want to go back to funding source and ask for more when completion decision made.

Chris Hanlon-Meyer asked about the continuing costs for specialty equipment and contracts. Charlie Nylander said we looked at equipment and time costs (related to number of zones: more zones, more time). But the sampling costs would be the same. The contract with Westbay includes training and quality checks. No long-term contract for Westbay sampling, necessary, but may want it. Michael Dale asked what the discount is for volume purchases from Westbay. Charlie Nylander said up to 30%, but probably not that much. Will be talking to sales people this week. We can't guarantee how many wells would use the Westbay, but they see a business opportunity. Michael Dale asked what other kinds of hydraulic tests that Westbay system can do. Charlie Nylander said using the pumping port and packers, can do pump test, if the conditions are right. This estimate doesn't assume any discounts.

Well Installation Priorities

Charlie Nylander said that at the annual meeting we jointly decided to start R-25 in July, R-7 in October, two intermediate wells in Mortandad in the Fall 1998 and R-14 in Spring 1999. DP priorities are: R-25 in July, complete in Fall FY99 \$3 million for FY99 – use some to complete R-25 and with remainder would use for R-5 (Pueblo Canyon) and R-31 (Ancho Canyon). Would lap over to FY2000 with R-31 if budget not enough. ER priorities are: R07 in October, two Mortandad intermediate wells in Fall, R-14 in Spring FY99. This is up for discussion. Any NMED ideas for this schedule?

Chris Hanlon-Meyer said that considering the TA-50 Discharge Plan (approval expected soon), it seems like it should be DP responsibility. Why can't DP fund wells in Mortandad Canyon? How was decision made to divide funding? Charlie Nylander responded that we looked at main attributes for each well (in Appendix 5) and tried to discern whether each was landlord or ER based on main mission. That's how the split

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was done. Each sponsor then stepped up to fund their wells. The Mortandad Canyon wells are split (R-14 is DP) and the other is ER. Chris Hanlon-Meyer asked why R-5 and R-31 are higher priority than Mortandad. Dave Broxton said that R-5 is protection well for O-1, and ranked high in reducing stratigraphic/structural uncertainty. Look at high water level in O-1. R-31 is a priority because no deep wells in that part of the Lab.

Bonnie Koch asked if the funding is only for one deep well. Dave Broxton responded that in FY99 ER will have funding for only 1 deep well. Could be R-7 in Los Alamos Canyon or R-15 in Mortandad. Chris Hanlon-Meyer pointed out that Phyllis Bustamante in the Groundwater Quality Bureau has to be satisfied, or she will put the wells in compliance schedule. Kim Hill asked if ER can do the intermediates and DP do the deep well so both can get done as agreed at annual meeting. Charlie Nylander said LANL tried to keep the sponsor rationale devised for each well the same. The decision between R-7 or R-15 for ER or for DP to do R-14 instead of R-5 or R-31 keeps the wells in the same funding program. The workplan was written to use technical basis for changing well priorities. Not adverse to changing priority, just want a good rationale.

John Young said the Groundwater Quality Bureau is pushing for tracing nitrate plume. Consider how to approach that without duplicating. Dave Broxton said that only one of the planned intermediate wells will provide much control on the nitrate plume. Don't know what the budget will be, but have scaled it back compared to this year. Michael Dale said more than 2 holes are needed to guide deep drilling in Mortandad. David Rogers said there are lots of questions. Is there intermediate water? Which way is it flowing?

Charlie Nylander asked if ER did R-7 and R-5 wouldn't that complete Los Alamos Canyon. Dave Broxton responded no, there are 3 more wells planned. We put the Hydrogeologic Workplan together to meet the needs of both programs, and it doesn't take into account the ER schedule. It will give an overall picture of the Lab more quickly, but won't totally coordinate with ER investigations. Need to make a decision about supporting the big picture or ER investigations.

Bonnie Koch asked if it would be a problem from the State perspective with switching R-15 and R-7. John Young said no, HRMB would recommend the switch, to satisfy Groundwater Quality Bureau. They want to characterize any contaminated groundwater. Bonnie Koch pointed out that it is important to keep R-31 for modeling, but R-7 may not be as important. John Young said that HRMB recognizes that putting off R-7 would delay Los Alamos report.

Chris Hanlon-Meyer said the TA-50 Discharge Plan relied on the Mortandad Canyon RFI Workplan and the Hydrogeologic Workplan, so the TA-50 Discharge Plan authors should discuss this with Groundwater Quality Bureau.

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Dave Broxton said that ER has no problem switching R-7 and R-15. Cost and logistics would be about the same. Could be some benefits. The start date will be mid-Sept. We have to do permits and prep work in Mortandad. Charlie Nylander asked if there is a problem with access in winter. Dave Broxton asked if there is access from White Rock. Bruce Gallaher said the road goes through San Ildefonso land, but would be much easier. Dave Broxton said the winter access for R-7 wouldn't be much fun either.

William Stone said the NMED/OB put in alternatives for locations in Mortandad and haven't gotten feedback yet. Dave Broxton said they would like to handle all comments in one package, and waiting for HRMB comments. Haven't thought about it yet. We will look at the location suggestions immediately.

Charlie Nylander said that it looks like possible to switch R-7 and R-15 (ER wells) and R-5 and R-14 (DP wells). R-14 was pretty far down the priority list. Dave Broxton said can't see the point of accelerating both R-15 and R-14. Michael Dale agreed. Dave Broxton suggested accelerating one or the other. Kim Hill said she would rather see the intermediate wells than R-15.

Michael Dale asked how many intermediate wells could be completed for the price of one regional well. Dave Broxton said that it depends on the amount of characterization. There will be 5 good penetrations of Cerro Toledo. R-13, R-15, R-14 and 2 intermediate wells. The wells that are planned will give good idea of what is there and can be expanded if necessary.

Bonnie Koch asked why the NMED representatives keep deferring to the Groundwater Quality Bureau. Bruce Gallaher pointed out that they operate under different regulations. Nitrate is not a RCRA problem, but it is subject to the abatement regulations. John Young said the Groundwater Quality Bureau has concern with schedule. Ten years before done with defining the plume. May go offsite before then. They are not concerned with the approach, just the schedule. HRMB thinks that Los Alamos/Pueblo is about the same priority as Mortandad, but Groundwater Quality Bureau doesn't know about Los Alamos/Pueblo, and is only concerned with Mortandad.

Charlie Nylander said the Discharge Plan has a corrective action to put in clean water, which will improve the situation. Bruce Gallaher pointed out that is in the alluvium. The Groundwater Quality Bureau has invoked the abatement regulations for deeper groundwater. Kim Hill said the NMED needs to go back and discuss this issue with the Groundwater Quality Bureau. Chris Hanlon-Meyer added that the potential switches should be discussed with the Groundwater Quality Bureau.

Dave Broxton said all deep wells in Mortandad will be done by 2001, 3 years from now. If we switch R-7 and R-15, could show moving forward. The intermediates would be FY00, which is when they are scheduled in the Mortandad Canyon RFI Workplan. The trade is vanilla; it doesn't hurt in significant way. Would like to work closely with state

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and GIT to get a stake in the ground R-15 as soon as possible if we go that way. If we decide to make the switch, the permits/access/preparation could hit a snag and may have to come back with a change. Bonnie Koch asked if R-15 hits a snag could do intermediates instead. Dave Broxton said the wells require the same preparation so no difference. The only problem with deep well first, won't know the contacts from intermediate well.

Michael Dale asked where will money come from to complete the work for the TA-50 Discharge Plan if the wells are put in a compliance schedule. Bruce Gallaher said that if the Groundwater Quality Bureau issues a conditional approval requiring a well would have to get money somewhere, possibly through Erickson. Might come from Waste Management. TA-50 has big impact for whole Lab, so the money could probably be found. Could bounce off Steve Rae. Michael Dale said that regulatory priorities should be used. Ancho Canyon is not a regulatory priority, so should the schedule change to take care of those that are regulatory priority. Bruce Gallaher pointed out that two years ago, TQ-49 was the regulatory priority. Don't want to jump around every year. Bonnie Koch urged everyone to keep the groundwater model in mind when establishing priorities. Charlie Nylander said the Ancho hole is as much a regulatory commitment as Mortandad.

Dave Broxton said the proposal is to switch R-7 and R-15. Will get right into the planning for R-15. The intermediate wells had different purpose: to chase vertical extent of tritium and they are planned for 2000 and will be done then. Will work with GIT to select a location. Dave Rogers said there are lots more questions the intermediate wells will answer than the low axis of the Guaje pumice bed. Concerned that we drill the deep well without having the information to put it in the best spot.

Bonnie Koch asked could you check on money for doing one intermediate well before R-15. Dave Broxton responded that we have other commitments: surface work in Mortandad or TA-18. I will discuss it with Julie, but the budget process is not mature enough for that. Charlie Nylander said we will continue to pursue budget questions on intermediate wells, and will switch R-7 and R-15.

TA-16 status

Brent Newman explained there have been two types of drill holes: 1) 17 holes drilled around 260 outfall area. All to 100 ft. depth to look at nature and extent of HE and Ba around outfall. Good idea about extent. Have found preferential flow based on contaminant distribution and saturation. A couple of surge beds, one right in the pond. The water in the surge bed was hot. Fracture flow seems to be controlling tracer from pond to SWSH spring in 3 months. Breakthrough curve is spiky, suggesting fracture flow. Some unit 5, mostly unit 4. At units $\frac{3}{4}$ transition there is spring area.

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- 2) 4 wells drilled to 200-400 ft., one not far from R-25 site. Similar to R-12, two of the wells were dry, but make water overnight. When they were pumped for sampling, they dry up. These may be remnant-saturated zones. One well by Martin Spring, completed and monitoring shows no water. Another well at the 90's line, but no analytical results are back. In terms of R-25, have good coverage of tuff down to unit 3, but not below that. Only other well around is SHB-3. At the Martin Spring well there is some HE and 90's line well also has HE based on spot test but not confirmed by analysis. Interested in R-25 if it intercepts the transient perched zones or the permanent zones that feed springs. From the drilling it appears these are very small and R-25 would be lucky to hit one. The 260 outfall and steam plant have both been cut off. These were significant sources for water. Will be interesting to see how things change. Water Canyon may be getting more water now that the gallery has broken.

The studies are not complete. Have finished Phase 2 and writing RF1 report. Have to do CMS plan and Phase 3 for reducing uncertainty.

Well Drilling Techniques

Chris Hanlon-Meyer faxed telecons from discussions with Nevada. Defer to Michael Dale. Michael Dale said he called Yucca Mountain because they have similar geology/drilling conditions. They have same problem of unknown geology/hydrology. Started drilling 1989. Had problems with cave-ins and not finding perched zones. Experimented with drilling techniques. Settled on modified dual wall reverse air rotary. Most cost-effective way to get all the data they wanted. At a cost of \$400-500/ft. They are trying to delineate perched zones, water chemistry, characterize contacts. Question is, how similar is drilling environment. Would like to see an effort to look into this method. If Barber rig doesn't pan out, might need this. The key is obtaining the data and it is not working. The data is not being obtained. Purtymun used cable tools, water wells used mud rotary, Jamie used air rotary. The point is to obtain data and you are not getting the data.

Bonnie Koch asked when we went to NTS do you remember discussion about their drilling. Charlie Nylander said we did go out there and looked at the wells. They have more hole to stay open. They didn't say anything special about dual wall. Had considered dual wall when writing CDR and discussed with David Miller. At R-12, the drilling cost was about \$500/ft. Michael Dale said they use that method because it works. If it didn't work they would change. They are strong on open hole geophysics because coring is expensive. Even though the cost of R-12 was \$500/ft., it resulted in no data. Very little core and no geophysics. NTS has to have mud or foam in some areas.

Dave Broxton said that data did result from R-12. Michael Dale said that hydrologic data was not produced from R-12, the location of perched zone is only the beginning. Dave Broxton said you can't sample perched zone water with mud rotary. The data necessary

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to understand the perched systems includes where the perched zones are, thickness, water chemistry, and hydrologic parameters. Michael Dale said at R-12, only chemistry data was collected and that is compromised because samples sat in refrigerator. Dave Broxton said that in R-12 we defined zones, spot core in critical zones, moisture profile, and geologic data. Need geologic data to interpret the geophysics. Geophysics is one piece of data and it is secondary. John Young said that R-9 and R-12 are not good examples because the area is well known. Not same for other parts of the Lab. Dave Broxton agreed that when we drill in other less well-known locations, we will collect more data.

Charlie Nylander said if the present LANL drilling technique remains about \$500/ft. and the other data collection costs are above that, then they have to be evaluated on a well-by-well basis. Strive to collect the highest quality and right data for each hole. Mike's point is our awareness of other drilling techniques. If Barber doesn't work, then we'll look at others.

Bonnie Koch asked if the Nevada technique would require a new rig. With collapse zones, they stabilize. Will Barber rig enhance ability to geophysical log? Michael Dale said no, a regular rig with minor change. Dave Broxton said LANL doesn't know the total answer. Can auger ahead, which may allow more geophysics in Bandelier tuff, but below that, don't know. Bonnie Koch said the Barber will reduce cost per foot. Are the 2 techniques equivalent in that we could stabilize? Charlie Nylander said for the open hole logs have to trip out the whole drilling system and leave the whole hole open. Some of the geology here won't stay open. If we get 40% core we may be able to get 40% geophysical logs. Dave Broxton said the NTS had different types of tuffs, they are zeolitic and do not have many perched zones. The tuff there stays open beautifully. A peer review will take place with best people in country. Will go with recommendations of peer review committee. Have relied on Gilkeson, Skalski, and Eddy and they will have to defend what we are doing to the peer review. Michael Dale said the people from NTS would probably come out and help.

Bruce Gallaher asked if the hole can be telescoped with dual wall? Bonnie Koch responded that they did say they telescope at NTS. Charlie Nylander said we will hear what peer review says and see how Barber works and stay in touch with NTS.

Annual Report

John Young said HRMB will send out review of annual report. The major comments are: 1) Material presented at meeting not included in report, 2) No summary of data that led to conclusions, e.g., 260 outfall, 3) No map of sample locations or information on type of sampling, 4) Need summary data tables, e.g., parameters of model and schedule of modeling, 5) More detail needed. The groundwater chemistry and R-9 summary tables were fine.

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Charlie Nylander said it was OK for summary report, but may need more supporting documentation. John Young said HRMB needs schedules to know how to track activities. Was it useful to put together the report? Charlie Nylander said it should drive us to have dialogue about next year's work. The discussions should lead us somewhere. Michael Dale suggested the annual report may be a good spot for ER to dump groundwater data. Dave Broxton said we need to be realistic. Can't get every piece of data from every ongoing investigation. Summarized the highlights. Charlie Nylander said we are working on data management. If we write a sentence that says we base a conclusion on data, you would like to see a table that summarizes the data. Michael Dale said there is not a lot of data. We split with them so I know there isn't much data. Charlie Nylander summarized the annual report should provide the trail from the Hydrogeologic Workplan to our current understanding.

John Young said there is a lot of reliance on the Hydrogeologic Workplan within LANL, e.g., TA-54 monitoring by Hydrogeologic Workplan; of TA-53 lagoons monitoring by Hydrogeologic Workplan. Dave Broxton said we are aware that is happening. Ask which specific wells support that and how it will support it. Charlie Nylander said we need to talk to Julie about this. Also, keep track of those commitments with the GIT. Changes like we discussed today might affect something we are unaware of. Dave Broxton said we could use an administrative database suggested by Khalil.

Bonnie Koch asked to set up the next meeting date. John Young responded, September 30.