

DIARY OF _____

IN REGARD TO THE SUPPORT EFFORT BY

THE ZIA COMPANY



cable tool rig. Reasor drilling to about 1000'. Saw Newman and Blossom and got the most recent firing schedule. Also, we were notified that a 400' addition would be needed on the RC shack in Area 11. Unloaded and set on cribbing two bottles for Area 12.

Feb. 13, 1960 - Sat. TA-49 - Area 3 - Worked drifting the holes to be used Tuesday. Set in the reaming can we designed and it worked OK. Area 10 - Finished welding on the dome and raised it up so we could get the steel walls under it. Set part of the elevator rails. Laborers digging a trench and installing 8" CMP from the cable way to Area 2 over and across the road to Area 12. The two 51 pair signal cable that goes to the house trailer in Area 10 will be installed in the CMP to isolate it. As they were digging it they cut and damaged several RG-18 and RG-10. I called Blossom and we will splice the RG-18 and trace out the RG-10 so they can be tagged at Area 2 and the CP. Blossom will tell us what to do with the RG-10 Monday. Cable tool rig - Slotting and welding casing and lowering into the hole. We are going to 1400' with the casing (12") and then they will drill and undercut the casing to 1500'. Reasor drillers at about 1100' with the finished hole. Also, set and grouted the utility shaft into the calibration chamber at Area 10.

Feb. 14, 1960 - Sun. TA-49 - Area 3 - Drilled drift in 3-U and wagon drilled 3-U and 3-C. Fitters finished setting the piping for 3-A, 3-C, and 3-U. Area 10 - Started working on setting the elevator and discovered

that the frame was fabricated wrong to hold the housing unit and that the reelite was a 3-wire instead of a 4-wire. George Thompson Company was contacted and sent up extra structural steel to modify the stand and a second 2-wire reelite to work with the 3-wire reelite. Set and tacked all the steel walls in the calibration chamber and lowered and positioned the dome to the room and tacked it in place. Laborers installing the 8" CMP to Area 12.

Feb. 15, 1960 - Mon. TA-49 - Area 3 - Casey drillers working on hole 3-Y. Hole 3-A being readied by riggers and fitters for shooting tomorrow.

Area 10 - Welding on metal room and installing elevator guides. Electricians installing underground conduit to equipment room and elevator house. Started smooth wire protective fence for coax runs from Area 12 to Area 10.

Welding casing at the cable tool rig and should have it down to 1300 ft. so they can start drilling by midnight. Reasor rig has broken a drill stem connection between their bit and reamer and had to take it to Farmington to get it fixed. Bert Wier called and said the U. S. G. S. had decided to locate the third water well on the tip of the mesa directly east of where the old fire break takes off into Water Canyon.

Feb. 16, 1960 - Tues. TA-49 - Fired hole 3-A and started recovery work. Grouted the steel room in Area 10 and installing the elevator. Drilling drifts on holes in Area 2. Finishing the inside of the wood

shack at Area 12 with electricians and fitters.

Feb. 17, 1960 - Wed. TA-49 - Recovery work on 3-A in progress with Casey rig. We are moving the sand sucker in and setting it up to take over after Casey rig has gone as far as possible. Installing elevator at Area 10, also the ram for the hydraulic table. The cable tool rig is drilling through the 12" casing and the casing is following the drill down. No undercutting is necessary. Got Casey's rig set up in Water Canyon.

Feb. 18, 1960 - Thurs. TA-49 - Recovery work on 3-A and drilling 3-Y and in Water Canyon. Drilling drifts in Area 2 and also wagon drill holes. Working fitters, tanners, and electricians in Area 10. Reasor rig near 1400' and cable tool rig still drilling and slipping the 12" casing.

Feb. 19, 1960 - Friday TA-49 - Using Casey rig to recover in Area 3. We were originally told that the area would be closed almost all day because of Godiva bursts but this did not materialize, and we worked Area 10, 11, and 2. Swivel connection broke on Kelly of Reasor rig and they are shut down. Casing stuck on the cable tool rig and we are going to drill the rest of the way and set, in 8" casing on the bottom 186'. The 8" casing is swedged out to meet the 12" .

Feb. 20, 1960 - Sat. TA-49 - Checked hole 3-C to make sure we could use it. Tatum scaled the walls. Casey rig recovering again in 3-A and getting out some of the sand but we will finish with the sand

sucker and by mucking. Carpenters framing in Area 11 and making good progress. Top slab poured at Area 10 and electricians setting power panel and fixtures and conduit in underground. Drove 4" pipes in wagon drill holes in Area 2 and 3. Grouted the extra wagon drill hole at 3-C. Casey rig drilling on 3-Y and in Water C nyon. Bill Purtyman called Hale and the U. S. G. S. accepted the 2nd deep well hole that was put in with the cable tool rig. Started slotting the 8" casing for the Reasor rig. They expect to be operating again by midnight. Reasor at 1425' and should make from 30-50 feet per day.

Feb. 21, 1960 - Sun. No work at the site by any craft.

Feb. 22, 1960 - Mon. Holiday - No work at the site.

Feb. 23, 1960 - Tues. TA-49 - Recovery in hole 3-A going on. We are practically to the bottom and have not recovered any metal to speak of. Casey rigs drilling in Water Canyon, Area 3 and Area 4. Loading hole 2-T today and because of a late start and electronic trouble, we didn't finish until about 2200. The weather is bitter cold and snow flurries. Finished the electrical power and lighting in Area 10. Almost all of the structural work is complete below ground and we are waiting on the hydraulic pump unit for the lift table. We were blocked from Area 10 almost all day because of the min. distance for H. E. in Area 2. Area 11 progressing with the carpenters and we worked late and finished the framing. Fitters piping 3-C.

Feb. 24, 1960 - Wed. TA-49 - Fired hole 2-T today. Area 3, 4, and 6

were the only areas open. Recovered from hole 3-A with mucking bucket. The sand sucker is inefficient where the sand, rock, and dust are compacted and chunked. This has occurred near the bottom of the hole. Casey rig finished 108' deep 3-Y and moved to Area 2. Casey rig drilling in Area 4 and another one on the 200' deep hole in Water Canyon. Rig in Water Canyon down to 173' in sand and loam but hit a hard rock or layer at this depth. We will surface their cutting teeth with carbide chips and see if we can penetrate it. Carpenters working on Area 1 gray shack in Area 6. Laborers clearing slash. Fitters shop fabricating on dump hole 2-BZ and new R. C. shack addition.

Feb. 25, 1960 - Thurs. TA-49 - Mucking and using the sand sucker too on 3-A.

We are about 86 feet but we may have to go to about 100'. 24" hole in Water Canyon down to 180' and can't make it any further because of hard digging. U. S. G. S. will buy this and we are moving out to Ancho Canyon to put in another 200' hole. Newman called yesterday and said U. S. G. S. had a camera coming in to photograph the 200' holes. We will have to hold up on the CMP casing for these holes until it gets here. Making a by-pass around Area 2 to Area 10. This will let us work where H. E. is in the area. Road being cleared into new well site. Drilling on 2-S and getting 2-Q ready for tomorrow if it's needed. Got the new design for hardware in hole 3-C and Hill is drawing it. Pouring shield walls at Area 10 and setting hydraulic

pump that just came in. Carpenters and linoleum crew finishing at Area 11 today and fitters hanging heaters and fabricating pipe. All the furniture, hoods, etc., being furnished by J-11 for R. C. shack addition being picked up and hauled to site for installation. Checked with Blossom on coax to Area 10. He told us to terminate them 3' inside of the steel wall in the underground room. As all of the cables have to be spliced, we will splice in a box on the top side.

Feb. 26, 1960 - Fri. Still recovering from hole 3-a and finished in the afternoon. Preparing holes for firing in Area 2. Shops fabricating on inserts and hardware. Got the hydraulic lift operating in Area 10. Electricians, fitters, ironworkers and carpenters all working in Area 10. Carpenters, electricians, and fitters working on the R. C. shack in Area 11 and tinnners fabricating in the shop for the R. C. shack. The cable tool rig is moving in and setting up at the deep well No. 3 location.

Feb. 27, 1960 - Sat. TA-49 - Prepared holes in Area 2 and 4 for firing. Tinnners, carpenters, elect., and fitters working on R. C. shack in Area 11. We fit the cannister lid in Area 10 and poured lead to level it. Set steel beams in Sand cannister for bearing columns for calibration cannister. Electricians running conduit for Area 10, fitters set stoves. Welded hydraulic lift table and scribed and fit the sand cannister to the dome. Installed safety gates on elevator. Cable tool rig spudded in at the deep well number 3 location.

Feb. 28, 1960 - Sun. TA-49 - Set the lid and cannisters as a unit into the steel dome of the calibration room in Area 10. Riggers worked on hole preparation in Area 2 and assisted in Area 10. Tinnners, carpenters, electricians and fitters worked on R. C. shack in Area 11. Also, we set the shielding walls at Area 10 and graded the area for drainage. Tinnners set stove vents.

Feb. 29, 1960 - Mon. TA-49 - Worked Area 10 with electricians on coax and signal cable, laborers grading, ironworkers let the cannister down into the calibration chamber after we seated it in the sand cannister. The positioners work well and we welded in the coax leads to the cannister. We aligned the hardware out of the hole to the calibration room and filled it with sand. Welders working in Area 12. Riggers and electricians working in Area 2 preparing holes. Completed the R. C. shack in Area 11 except for painting.

Mar. 1, 1960 - Tues. TA-49 - Loaded Hole 2-Q and the U of C continued through with their operations with the intentions of firing. Trouble was encountered with one of the pairs in the 51 pair cable and also a contactor burned out on the MG set in the trailer in the C.P. U of C decided about 2300 to wait and fire in the morning and I made arrangements for electricians to come out early in the morning and fix the contactors. Casey rigs working in Area 4, Reasor rig setting casing, and cable tool rig down to 870'. Ironworkers, electricians, laborers, working at Area 10 as we are cleaning up odds and ends. Telephone extension installed in calibration room in Area 10. Geologist, Al La Solle mapped hole 3-Y (108'). We are making a reaming bucket for reaming the 24" dia. 200' deep hole between Areas 2 & 4 in preparation for lowering a special camera into it. Also working on camera holder and winch. Painted the inside of the R. C. shack.

Mar. 2, 1960 - Wed. TA-49 - Cleared areas except 3 and 4 by 0830. Hole 2-Q fired at 1200 and ironworkers started back in Area 10 and 12. Moved cannister from C. P. Area to 2-AE gray shack. Completing hole 3-C for drifts, etc. Electricians working on cabling to Area 10 and 12. Cable tool rig down to 1000' in 3^d deep well. Reasor rig stuck with the 8" casing at about 975'. We will pull the casing loose and stop operations until we have determined the trouble. Bert Weir called from Albuquerque and requested that the 200' deep hole in Water Canyon not be cased except the top 10' or so. We learned about 1500 that the next shot would be in 4-W instead of 2-I as previously planned. We have to wagon drill the hole, drift the bottom, install the sample pipe and box and pipe to the dump hole by tomorrow night. We tried to pull the casing with the red crane and Reasor rig combined but couldn't budge it. I checked with Junge and then shut the rig down until we could get an answer.

Mar. 3, 1960 - Thurs. TA-49 - Prepared Hole 4-W for firing. Notified Junge we would need but two Casey Rigs after Friday or Saturday and he called Los Angeles to notify Geo. Casey Company. Worked welders in Area 12 and cleaned Area 10 with janitors in preparation for painting. Received word from Newman that 4-M would probably be the next hole. We started drifting this hole and wagon drilling it immediately. Junge and I had a meeting with Stanley and decided to try pulling the 8" casing with the red rig and the piling extractor. Sanded on the bottle in Area 12 for strain gauges. Working on the

camera hoist and carrier in the shops and will have it ready for tomorrow.

Mar. 4, 1960 - Friday TA-49- Loaded and fired 4-W today. We got a late start and didn't get the box covered until after 1900. Welders working on Area 12. Electricians and painters working in Area 10. We tried to pull the casing with the extractor, but couldn't. Stanley proposes to put a packer in between the drill stem and the 8" and see if it will start the mud circulating and wash out the loose material that Mr. Stanley thinks is binding it. It may require Halliburton to do this. However, Spencer and Buchanan have agreed to bear all the costs of this. Cabled tool rig down to 1100' but has stopped to case as the earth is soft and caving. They will run 12' to bottom and then drill through the casing. U. S. G. S. has decided not to log this well. We lowered the camera into the 200' hold between areas 2 and 4 and in water canyon. Casy rig started drilling 2-L and 2-B.

Mar. 5, 1960 - Sat. - TA-49- Crews preparing hold² 4M for firing. We poured concrete over box and in hole for a plug and removed the dump line. Setting Gray house, blue and red house and pulling in cables for cannister. Painters and elect. working in Area 10. Ironworkers working in area 12 welding. Installed the head casing of 24" CMP in the 200' hole in water canyon. The stream is rising from melting snows and could pour into the hold and collapse it. Cable tool rig is setting the 12" casing that they have on hand. A shipment is due today of 12" casing. Reasor rig is drilling, out float collar and installing the packer that Halliburton brought in today.

- Mar. 6, 1960 - Sun. - TA-49- A crew of electricians are working making up 200' leads and installing the new realite in Area 10. Riggers worked on hole 4-M getting it ready and changed out the cable on the red rig. The snow and ice is melting fast and flooding the GMP, the coax and signal is in going to areas 12 and 10.
- Mar. 7, 1960 - Mon. - TA-49 - Welded cable holders on cannister for 4-M and made final preparations on hole. Casey drillers finished 2-L and 2-BZ and moved to Area 1. Set the hardware for the dump hole and backfilled with sand and concrete at 2-BZ. Dug interceptor ditches and graded to stop the flooding into Area 2. Completing Area 12 welding and also sanding on the bottle. Hooking up realite controls at Area 10. Finished backfilling around casing in Water Canyon. Weather very warm.
- Mar. 8, 1960 - Tues. - TA-49-Wagon drilled hole for 4-O, drove 4" pipe and set box. Completed preparations on 4-M. Elect. installing control switches in area 10 and 12. Cleaned up area 12 and removed weight from 2" neoprene that was moulded to bottom of hole. Shops working on insert and hole hardware. Weather warm, but windy. Sanded on bottle in Area 12.
- March 9, 1960 - Wedn. - TA-49 - Setting shield wall, houses, etc. in Area 2 for 2-S. Drove pipe (4") for 2-AZ and 2-AT. Set steel box on 2-S and set 3" pipe. Also set steel box on 2-AT. Sanded on bottle in Area 12.
- Mar. 10, 1960 - Thurs. - Met with Bill Junge and representatives from the Silver Steel Company to see if we could find a more suitable

Mar. 11, 1960 - Fri. TA-49 - Loaded hole 2-I and prepared it for firing tomorrow.

Finished drilling the cable tool hole at deep well No. 3 and arrangements have been made for Slumberger to log it tomorrow. Hauled 8" casing to deep well No. 3. Filled pipe disposal dump holes in Area 2 with sand as they were too close to hole 2-I.

Mar. 12, 1960 - Sat. - TA-49 - Fired hole 2-I. Slumberger logged deep well No. 3

and after the logs were examined the U. S. G. S. gave us a slotting schedule for the 8" pipe and we burned the slots in the pipe.

Mar. 13, 1960 - Sun. - TA-49 - No activity by any craft. Cable tool rig setting

8" casing and bailing.

Mar. 14, 1960 - Mon. - TA-49 - Moved 3 cannisters from Shops to CP Area and

set one in the "Shed" and one in the "Barn". Fit a cannister lid to the cannister by hole 2-AE. Put sand in bottom of hole 2-AE, and installed dump line. Worked late on gray house in Area 4 getting cables on doors. Fabricated on Area 1 gray shack. Moved one of the Casey rigs out to the Mesita Del Buey to dig some holes for another project.

Mar. 15, 1960 - Tues. - TA-49 - Loaded and fired hole 4-M. Hole was fired

about 1615. Special steel plate for Area 3 stack hardware is due in tomorrow. We had to switch from a "Jalloy" (Jones and Laughlin) to Republic Steel "T-Plate" because Jalloy not available in 2" thickness. Reasor rig moved off of the job and we will probably move Branches' cable tool rig in and try to pull the casing and underream the casing. Drifted hole 2-L.

Worked on Area 1 gray shack.

Mar. 16, 1960 - Wed. - TA-49 - Loaded hole 2-AE. Shops working on hole

inserts, plastic tent frame for Area 2 and yellow trailer

mounts. Casey rig digging holes for permanent latrines and

carpenters prefabing latrine structures and J-6 office for Area

5. We terminated the contract with Reasor as of the end of this

shift today. Branch will move in with his cable tool rig and try to

pull the casing. Casey rig through drilling on Area 1 holes and

will move to area 4 next. Moved the gray, red and blue shacks

to hole 2-S and turned the camera house in Area 5 to look to Area

2. Inventoried our stock of hole hardware at 49 and in the shops.

Joe Hill and I checked with Hickey in the C. P. area in regards

to some air conditioning for J-13-5 trailer and the J-16-8 trailer.

Mar. 17, 1960 - Thurs. - TA-49 - Fired hole 2-AE. Lost the foil rabbit because

it stuck in the slide and couldn't be recovered. We experimented

in the shop with a duplicate rabbit and slide and found that the

rabbit was easy to stick under certain conditions. Rea Blossom

came over and we worked out some changes on his suggestions.

Newman called this afternoon and said we would load 2-S tomorrow.

We prepared for this but the order was cancelled later and changed

to Monday because the U. of C. couldn't get their charge until then.

Removed the dump line on 2-AE and poured the class E plug. Pre-

fabricated on the latrines and the J-6 office.

Mar. 18, 1960 - Fri. - TA-49 - Prepared holes 2-S, 3-C and 4-O for firing.

Installed casing in 3-Y so we can get some cores from the 90'-108'

levels. Shops fabricating hardware. Branch moved in from deep

well No. 3 and started to set up to pull the 8" casing at Well 5-A.

Poured the latrine slabs and prefabed on J-6 office and the latrines. Graded and shaped the roads in the site. Casey rig started about noon on 2-AJ.

Mar. 19, 1960 - Sat. Worked one crew of electricians in TA-3 shop making up firing leads and a crew of ironworkers in the shop on hardware and inserts. Casey rig worked on hole 2-AJ. Branch drillers pulled the 8" casing loose on hole 5-A and started setting the rest of the casing.

Mar. 20, 1960 - Sun. - Casey rig finished drilling 2-AJ. Branch drillers finished setting 8" casing and bailing mud out of hole.

Mar. 21, 1960 - Mon. - We set up and prepared to load hole 2-S, but the U. of C. changed their minds numerous times and after moving to Area 3 we finally moved into Area 4 and worked late getting the cannister set and dry run. Carpenters and electricians working on J-6 office and the latrines. Poured the plugs around the casings at Wells DT-9 and DT-10. Cable tool rig bailing hole 5-A.

Mar. 22, 1960 - Tues. - TA-49 - Loaded and fired hole 4-O. Moved propane tank from DT-10 to Area 11. Carpenters formed pads around wells and worked on the latrines. Assembled the double stack for the cannister at 3-C. Cleared out a small area for the powder magazine relocation on the road to DP-9 and dug a 4' deep hole. Worked on a smooth wire fence to protect cables behind area 12. Cable tool rig bailing hole 5-A.

Mar. 23, 1960 - Wed. TA-49 - Loaded hole 2-S. When 4-0 was fired we only got a 14" settlement in the sand which means a 12-14 foot void is being bridged in some manner. As a safety measure we laid a 1/2" mat on 8" centers each way with a 1' - 0" overlap of the hole and then poured a concrete plug over it. Carpenters, elect., and fitters working on latrines. Casey rigs working in Area 4. Cable tool rig bailing at hole 5-a. Joe Hill and I met with Blossom and Newman and discussed purchasing a 45 ton crane and a well pump for the project. We were also asked to prepare drawings for constructing toilet facilities at the C. P. Area. This will require a septic tank, disposal field, water source, etc. We will also design a water system to take care of the trailers when we get water. Dug and installed the CMP vent for trailer air conditioning in C. P. Area.

Mar. 24, 1960 - Thurs. TA-49 - Fired hole 2-S and loaded and fired hole 3-C. Carpenters and electricians working on the latrines. Stopper plates from 3-C recovered and the special T-Plate used stood the impact much better than the ordinary structural plate. Newman said to use it in all the 20" diameter sandwich plates. Poured a load of conc. in 2-S. Casey drillers in Area 4 and cable tool rig bailing on hole 5-A. Hole 3-c had a drop in sand level of 53'-3" after it was shot.

Mar. 25, 1960 - TA-49 - Blossom called and wanted 2 railroad type safety gates installed on the Area 10 road. He requested them before the end of next week. Set and painted latrines. Painters poured sealer and cocoon on sand cannister in Area 10 to form a flexible cover

over the moulded sand. Moved a pig from TA-48 to Area 10 and also moved in lead bricks. Safety stop installed on elevator in Area 10 but not tested. La Salla (U. S. G. S.) is satisfied with the cable tool bailing and I contacted John Poole and asked him to bail through to midnight and then stop, and we would end his contract as of that shift.

Mar. 26, 1960 - Sat. TA-49 - No crafts working at the site. Casey rig drilling hole 2-N. One crew of electricians making up cable leads at the shop in TA-3.

Mar. 27, 1960 - Sun. No crews working.

Mar. 28, 1960 - Mon. TA-49 - Checked with Newman and he was unable to give us a firm firing schedule. We are readying 2-L and 4-E. Newman wants us to drill 3-E, 6' dia. - 10' deep, then 8' dia. to 70', then 6' dia. to 80' and then 6'-8" dia. to 88'. We will need to ship in a belling bucket for this, and as our new rig we are buying from Geo. Casey Company will have a 4' table and bucket and will be able to drill the 8' with reaming arms, Newman agreed to wait approximately 2 weeks until our rig comes in. Poured railroad gate support and air cond. pad in CP. Cut hole in house attachment for 2-ton air con. unit. Carpenters built railroad gate in shop.

Mar. 29, 1960 - Tues. Continued readying holes in Area 2 and Area 4. Cleaning up areas of slash and material left over from shots, etc. Carpenters and laborers working on wood cable trenches in C. P. Area. We are extending them to the surface and putting a wood cap on them.

Mar. 30, 1960 - Wed. TA-49 - Continued working on clean-up work at the site and salvaging materials. Bill Junge, Thorne, and I checked on cranes at Albuquerque.

Mar. 31, 1960 - Thurs. TA-49 - Loaded hole 2-L. We got an early start and had everything set and backfilled by about 1500. A terrific windstorm developed during the day with hurricane force winds and gusts to 85 miles per hour. The gray shack in Area 2-B collapsed as we couldn't release the crane to get it tied down. The gray shack in Area 4 was in danger but we got over with the crane after we finished loading 2-L and managed to tie the building down. The roof hatch and doors were damaged however. Casey rig working on hole 4 T. The U of C decided to go ahead and dry run and fire 2-L tonight. Trouble was encountered with the Godiva assembly and it was about 0100 before it was fired. Sam Musser and I spent a couple of hours with Newman and discussed the future needs and activity rate of the site. It will be operated at a rate of not more than one shot a week and probably much less than this. We will be prepared to man the site on a call basis if need be.

4-1-60 - Friday TA-49 - Finished the safety barricade gates on access roads to Area 10. Started repair work on the gray shed in Area 4. Loaded and shipped back the 500 C.F.M. rental compressor. Started the wagon drill on 4-R. Finished clearing and grading the area around Well 5-a. Loaded and delivered two cannisters from the shop to Area 5. Set CMP casing in hole 4-R. Poured plug in 2-L and back-

filled with sand and poured a plug in the pipe disposal hole in Area 4. Installed a section of 5" pipe in cannister at Area 10.

April 2, 1960 - Sat. Secured windows in Area 10 with security mesh and bar stock. Installed crash hardware and new lock on doors in Area 10 and furnished 20 keys. Electricians deactivated the top side hydraulic table controls so it can only be operated from the calibration room.

April 3, 1960 - Sun. No work by any craft.

April 4, 1960 - Mon. TA-49 - Started setting up to drift hole 4-R. Wagon drilled 4-R and 4-U. Set concrete shield in Area 10 that was in Area 4. Wagon drilled holes for 4" pipe and secured the shield in the usual manner. Drove 4" pipe in two wagon drill holes in Area 4. Carpenters repairing wind damage to gray house in Area 4. Geo. Casey drillers working on hole 4-T. Newman called and wanted us to drill hole 3-E with the Casey rig before we sent him back to L. A. as he didn't want to wait until our rig gets here. If we don't have a labor strike this week we will do this. Blossom called and wants a drybox fabricated by Friday. I picked up the prints and work order and U of C is to furnish all material except the angle iron and deliver it to our sheet metal shop this afternoon. The geometry of 3-E is now back to a standard 6' dia., 88' deep hole belled at the bottom

April 5, 1960 - Tues. TA-49 - Drifted hole 4-R and wagon drilled 4-H. Walt is

making a survey of all the open holes as to depth, diameter, drifts, etc. Talked to Al Card and if the crafts do not go out on strike Wednesday we will continue working the Casey drill until we finish 3-E.

April 18, 1960 - Monday - TA-49

Activity at the site from April 5th has been limited to cleaning up old work orders and preparing the hardware for hole 3-E which is to be fired Wed. or Thursday. Labor crew, operator and rigger have been cleaning up the logs and stumps left from the clearing during site construction and hauling them to the S-Site gravel pits. The LACI electricians resigned from the Company Friday. We are in the process of reclassifying the work orders and most of the work now being done by LACI will be Zia work from now on. The Davis-Bacon Committee met and agreed to this.

April 21, 1960 - Thursday - TA-49

Loaded and fired hole 3-E. Slash and clean up crew still working on log and stump loading. Rea Blossom called and outlined a shot for Wednesday the 27th. Joe Hill has details of hardware and will make drawings. Details worked out on airconditioning the yellow trailer. Air conditioners put on order.

April 22, 1960 - Friday - TA-49

Shops started fabricating the new hardware for 3-A. Ironworkers will have to work a small crew in the shop Saturday to make the deadline.

Jay Nielson

9-13-60

Burned slash in preparation for digging burning pit.

9-14-60

Started to dig burning pit. Lifted bottle out of hole at Area 12.

9-15-60

Modified 2-N canister.

9-18-60

Mr. Tuchfarber said to charge drinking water to hole 2-N.

9-19-60

Two electricians waited 2 hours for carpenter to cut hole in MG house, because there wasn't any work order.

9-20-60

W. O. 68726 27 - Hardware for Area 2 came through without prints or print number.

9-23-60

Received prints to cover W. O. 6872 27.

Charge fencing of holes to drilling order by E. T.

Tuchfarber called in at 9:30 , Sept. 28, wants sign painted. No order.

9-16-60

Modify can for hole 2-N.

Jay Nielson

9-19-60

1. Poured concrete in bottom of hole around 3-11 sample pipe.
2. Set shields around hole 2-N.
3. Set red and gray houses.
4. Started drilling hole 2B-A.
5. T-P Pump Co. moved in to pump well DT-10.
6. Moved horse trailer from area 10 to area 2.
7. Cabled up for hole 2-N.
8. Continued modification of cannister for 2-N.

9-20-60

1. Continued cabling in Area 2.
2. Mr. Crosthweight repaired Koring crane.
3. Built test pipe and run in well D-1-10 to make sure the casing was open.

9-21-60

1. Installed sample pipe in bottom of hole 2-N.
2. Leveled sand in 2-N.
3. Moved G from Area 10.
4. Moved cannister from CP to grey house in Area 2.
5. Installed new Area 2 cannister in shed.
6. Completed drilling hole 2B-A and started hole 2B-C at noon.
7. Moved tubebank from Area 10 to Area 2.

9-22-60

1. Completed test pumping of well DT-10, at 7:30 a.m.
2. Run dump line to hole 2-N.
3. Put in CMP in road to burning pit.
4. Bladed perimeter road.
5. Moved equipment out to continue excavation of burning pit.
6. Meeting with Harber, Campbell - schedule (proposed) shot - Sept. 26, Oct. 3, Oct. 10, Oct. 31, Nov. 14., Nov. 28, Dec. 26.

9-23-60

1. Moved two area 2 cannisters from CP to the foundry to be reworked.
2. Delivered lead plug for Area 2 cannister from foundry to CP Area and placed in can in barn.
3. Set up grey house at hole 2B-A.
4. Wagon drilled anchor holes for shields at 2B-A.
5. Completed burning pit.
6. Installed extra 10' in boom on Koring crane.

Jay Nelson

9-21-60

1. Received charge for 2-N in Area 2, placed in cannister and lowered to bottom of hole.
2. Made up cable for cannister.
3. Laborers hauled slash to burning pit.

9-27-60

1. Adjusted cannister stack at backfilled hole, and placed G preparatory to firing Wed.
2. Laborers hauled slash.
3. Electricians made up some cables.

9-28-60

1. Made hole 2-1.
2. Electric work in F-11 counting room.
3. Started patching road for oil.
4. Made up cables for EG & G for shot 2-B-4.

9-29-60

1. Moved the 1000 lb house.
2. Moved cannister to area 2, hole 2E-2.
3. Drove shield supports.
4. Set up slash.
5. Completed electrical work in F-11 counting room.
6. Got new paper board for 2-Div.
7. More troubles with long-4-- seems we can't have any communication.

9-30-60

1. Adjusted lid on cannister.
2. Moved GMP and spiders near hole 2-B-1 so we could reach them.
3. Put sand at bottom of hole.
4. Dry-run dummy can.

10-3-60

1. Completed preparation of hole 2B-A.
2. Continued patching of road.
3. Shops are working on hardware for 2-M.

10-4-60

1. Received charge to area.
2. Installed in cannister and lowered to bottom of hole.

Jay Nielson

10-5-60

1. Aligned stack in hole 2-B-A and backfill.

10-6-60

1. Filled hole 2B-A.
2. Electricians worked on cables for next shot.

10-7-60

1. Capped hole 2F-A with concrete.
2. Started drilling on hole 2-M.
3. Drilled anchor holes for shields at hole 2A-J and set up shields.
4. Unloaded cannister in shed.
5. Enlarged hole for sample pipe.

10-10-60

1. Moved Grey house to hole 2-M.
2. Wagon drilled anchor hole for shields.
3. Enlarged sample drift in bottom of hole 2A-f.

10-11-60

1. Delivered hardware for 2A-F to Area and put spiders on pipes.
2. Tied cables in to dog houses.
3. Finished drilling 2-M - moved to 2B-R. ² 2 V. 61
4. Moved crane to CP and put lead in cannister -- built brackets for detectors.

10-12-60

1. Moved cables to hole 2A-F -- changed their minds about 2-M.
2. Poured pumice concrete around sample pipe in bottom of hole used 1 1/2 sack mix.
3. Leveled sand in bottom of hole.
4. Dry-run dummy can.
5. Installed CMP in road to Area 2B from CP.

October 13th, 1960

1. Moved J-11 equipment into counting room.
2. Firing schedule changed -- will not shoot 2-A-J until October 27.
3. Moved red, green and blue houses to hole 2-A-F.

October 14, 1960

1. Set up shield at hole 2-M.
2. Moved canister from Area 5 to grey house at hole 2-A-J.
3. Put in CMP at main guard house.
4. Moved another can from LASL shops to shed in Area 5.
5. Put sand in bottom of hole 2-M.
6. Dry-run dummy can.

October 17, 1960

1. No work - - tried to pick up can lid -- none ready.

October 18, 1960

1. Blade perimeter road.
2. Worked on hardware in shop.

October 19, 1960

1. Leo Duran picked up electricians' shed to use for welding shed.

October 20, 1960

1. Hauled brush to burning pit.

10-21-60 1. Received notice 2-A-J shot will be postponed until October 31.

2. Hauled brush to burning pit.

October 25, 1960

1. Patched road.
2. Put bottle back in the hole at Area 12.

October 26, 1960

1. Patched road.

October 31, 1960

1. Repair grey house in Area 2. Wind blew the doors off and the lid off.
2. Hauled brush.

Nov. 1, 1960

1. Installed bench in J-10 trailer.
2. Install cubby holes in EGG trailer.

Nov. 2, 1960

1. Level and block up J-10 trailer.
2. Pull two more runs of cable from T & F trailer to Area 10.

Nov. 7, 1960

1. Work on drift in hole 2-A-J.
2. Fired shot in bottle.
3. Installed lead block in can in shed.

Nov. 8, 1960

1. Modify can in shed.
2. Worked on drift in hole 2-A-j.
3. Removed lid from bottle in Area 12.

Nov. 19, 1960

1. Remove bottle from hole in Area 12 -- repair strain gauges and replace bottle in hole.

November 10,, 1960

1. Remove can from grey house at hole 2-A-J and replace with can... this is in shed at Area 5.

2. Pull two more runs of cable from EGG dog house to grey house at hole 2-A-J.

3. Meeting Eng-4 -- set up schedule.

Load hole 2-A-J	Nov. 17
Backfill	Nov. 18
Fire	Nov. 21
Load hole 2-A-T	Nov. 25
Backfill	Nov. 28
Fire	Nov. 29
Load hole 2-A-Z	Dec. 2
Backfill	Dec. 5
Fire	Dec. 6
Load hole 2-B-H	Dec. 9
Backfill	Dec. 12
Fire	Dec. 13

Because of above schedule, an extra crane will be needed next week. Southwestern is sending one up from Albuquerque Monday morning.

Nov. 14, 1960

1. Southwestern crane moved in from Albuquerque.
2. Poured pumice concrete around sample pipe in hole 2-A-T.
3. Enlarged drift hole in 2-A-Z.
4. Moved the drill out to field and got ready to drift 2-B-H.

TA-49

-100-
~~4~~

Nov. 15, 1960

1. Support shot in bottle in Area 12. This includes lowering shot in bottle and putting lid on.

2. Work on drift in hole 2-B-H.

3. Change canisters in shed in Area 2.

4. Move Area 4 canister from hole to rack in shed.

5. Enlarge drift in hole 2-A-Z.

Nov. 16, 1960

1. Completed enlarging drift in hole 2-A-Z.

2. Complete drift in hole 2-B-H.

3. Wagondrill sample hole at 2-B-H and dig hole for steel coffin.

4. Remove lid from bottle in Area 12.

5. Assisted University in taking pictures of bottom of hole at

2-A-J.

Nov. 17, 1960

1. Revise Area 4 can which is in the shed.

2. Received HE for hole 2-A-J, placed charge in can and lowered to bottom of hole.

Nov. 18, 1960

1. Align stack and backfill hole 2-A-J with sand.

2. Primed main entrance road -- ready to surface Monday.

Nov. 21, 1960

1. Worked on road.

2. Shot 2-A-J.

Nov. 22, 1960 (See Page 5)

Nov. 22, 1960

1. Supported shot in bottle in Area 12. This includes placing shot in bottle, putting lid on and removing lid after shot.
2. Moved shields to hole 2-A-T and set up.
3. Wagondrill shield holes at 2-A-T.
4. Changed out sample pot and run dump line at hole 2-A-T.
5. Moved grey house to hole 2-A-T and put canister in.
6. Run new cables for hole 2-A-T.
7. Continued paving of road.
8. Received approval from Mr. Tuchfarber to lay asphalt pad in front of guard house at CP Area.

23 Nov. 1960

1. Moved Red, Blue, & Green houses from hole 2A-J to 2A-T.
2. Completed cabling up.
3. Drilled drift in hole 2-M. S. W. crane.
4. Chopped pumice concrete out of hole 2A-t and poured Class B concrete around sample pipe.

25 Nov. 1960

1. Poured concrete plug in hole and over box at hole 2A-T.
2. Poured concrete around sample pipe in hole 2A-Z.
3. Moved equipment in counting room for J-11.
4. Moved J-8 trailer from Area 3 to CP Area and blocked up.
Southwestern crane was used on this.

28 Nov. 1960, - Monday

1. Moved Area 2 canister from University shops to shed in Area 5.
2. Enlarged drift hole 4-E (S. W. crane), (W. O. 68726-64).
3. Hooked up power to J-8 trailer.
4. Placed HE in canister and lowered in hole 2A-t.
5. Aligned lower stack and dumped 2 loads of sand.

29 Nov. 1960, Tues.

1. Completed alignment and backfilling of 2A-t.
2. Modified 2A-Z canister.
3. Picked up lid without bar at University shops.
4. Dug trench for sink drain in Area 11.
5. By agreement with Ed Tuchfarber, Clifford Strang and Jay Nielson it was agreed uncleared personnel could work at TA-49.

R. H. ...

30 Nov. 1960, Wed.

1. Fired 2A-T.
2. Very poor sample on Rad. Cam.

1 Dec. 1960, Thurs.

1. Moved Grey house to hole 2A-Z.
2. Moved canister from CF Area to Grey house.
3. Roll up old cables and install new cables.
4. Set one shield and moved red and grey houses.
5. Removed CmP from hole 2A-Z.
6. Install sampling cone in hole.
7. Wagon-drill anchor holes for second shield.
8. Drive 4" anchor pipe.
9. Drove 4" retainer pipe at hole 2-M.
10. Broke out contaminated dump line to hole 2A-T.
11. Poured concrete plug at hole 2A-T.
12. Welded 3" sample pipes for 2B-H & 2-M.
13. Cleaned ditches and striped shoulders of road from main gate to Y.
14. Put salt in bottom of bottle in Area 12.
15. Dug hole for metal box at hole 2-M.

2 Dec. 1960 - Friday

1. Put sand in bottom of hole 2A-Z & leveled.
2. Run dummy can in hole and align sampling device.
3. Move lid from Area 2-B to hole 2A-Z, & fit on canister.
4. Let J-11 in hole to take pictures.
5. Set second shield and move green house.

2 Dec. 1960 - Friday - Continued

6. Moved spiders and pipes near the hole.
7. Checked sample pipe to see if it was open.
8. Hook up sample pot and dump line (went back to old sample pot.).
9. Installed salt bulkhead in bottle in Area 12.
10. Put tuff on road from Area 5 well to Area 2.

5 Dec. 1960 - Monday

1. Started W. O. 9025-88. Started shed between trailers J-11-4 and J-16-8.
2. Received HE for hole 2A-Z, placed in canister, wired in hole, installed 2 spiders and dumped 2 loads of sand. (It snowed!)

6 Dec. 1960 - Tues.

1. Completed shed between trailers J-11-4 & J16-8.
2. Completed alignment of pipes. Backfill and set G. ready for shot at hole 2A-Z. (Snowed again)

7 Dec. 1960 - Wed.

1. Fired 2A-Z.

8 Dec. 1960. Thurs.

1. Supported shot in bottle in Area 12. Included placing charge covering with salt, putting lid on and removing lid.
2. Set Grey house at hole 2B-C, put can in house, set shield.
3. Started shed between EG & G & J-10 control trailer.
4. Wagon-drilled holes & drove support pipes for shield at hold 2B-C.

9 Dec. 1960, Friday

1. Cabled up canister.
2. Moved Red, Blue, & Green houses.
3. Leveled sand in bottom of hole 2B-C.
4. Removed salt from top section of bottle in Area 12.
5. Continued work on walkway between EG & G & J-10 trailers.

12 Dec. 1960 - Monday

1. Placed HE in canister, lowered in hole 2B-C, installed 2 spiders on stack, installed CMP, backfilled 5 loads of sand.
2. Continued work on walkways in CP Area.

13 Dec. 1960 - Tues.

1. Installed 10" pipe, aligned, set G and fired hole 2B-C.
2. Removed part of the salt from bottom of bottle in Area 12.
3. Continued work on walkways in CP Area.

14 Dec. 1960 - Wed.

1. Moved yellow trailer from Area 2 to Area 10.
2. Moved Horse trailer to Area 10 & cabled up.
3. Drilled hole 2A-Y.
4. Drift hole 2A-O.
5. Set steel box at hole 2-M.
6. Drop 3" sample pipe at 2-M.
7. Set sample pipe in drift in 2-M. — Hot

15 Dec. 1960 - Thurs.

1. Load 8" well casing for Juan.
2. Pour concrete around sample pipe in hole 2-M.
3. Place sand in 2-M and level.
4. Run dummy can and align sample cone.
5. Complete drilling hole 2A-Y & moved Caldwell drill to hole 2-B-J.
6. Complete drifting hole 2A-O.
7. Rebuild salt bulkhead in bottle in Area 12.
8. Supported shot in Area 12.

16 Dec. 1960 - Friday

1. Moved control cable panel to new location for J-16-6 trailer.
2. Remove salt from bottle in Area 12.
3. Moved Grey, Red, Blue, & Green houses to hole 2-M.
4. Started drift in hole 2A-Y.
5. Started drilling hole 2-B-L.

19 Dec. 1960 - Monday

1. Completed drift in 2A-Y.
2. Completed drilling 2-B-L.
3. Removed salt from bottle in Area 12.
4. Moved 2 trailers in CP Area - exchanged J-16-6 & J-16-1.
5. Began work on walkways at J-16-6.

20 Dec. 1960 - Tuesday

1. Started drift in 2B-L.
2. Started drilling hole 2B-J.

20 Dec. 1960 - Tues. - Continued

3. Moved Area 4 type can from foundry to Grey house in Area 1.
4. Drop 3" sample pipe in hole 2A-O.
5. Drop 3" sample pipe in hole 2E-H & set steel box.
6. Install new bulkhead in bottle in Area 12.
7. Blasted concrete plug out of hole 2A-Z.

21 Dec. 1960 - Wed.

1. Completed drilling hole 2B-J.
2. Started recovery of hole 2A-Z.
3. Completed drift in hole 2B-L & moved 2-B-J.
4. Supported shot in bottle in Area 12.
5. Moved shield away from 2-A-Z.

22 Dec. 1960 - Thurs.

1. Continued recovery of hole 2A-Z - reached a depth of 40' - discovered some radiation on pipes, suspended recovery work for present time.
2. Moved sand screen up from river.
3. Removed salt from bottle in Area 12.

23 Dec. 1960 - Friday

1. Discovered contamination in hole 2-M. Stopped all operations and began clean up.
2. Removed balance of salt from bottle - wire brushed inside of bottle and discovered some cracks in center ring in bottle.

23 Dec. 1960 - Friday - Continued

3. Completed walks & shelter at J-16-6 trailer.

27 Dec. 1960 - Tuesday

1. Continued clean up of Area 2. Area must be abandoned and capped with clay.

28 Dec. 1960 - Wed.

1. Continued clean up of Area 2.
2. Placed new bulkhead in bottle in Area 12.
3. Poured salt in bottom of bottle.

29 Dec. 1960 - Thurs.

1. Continued clean up of Area 2.
2. Supported shot in bottle in Area 12.
3. Poured approx. $2\frac{1}{2}$ yds. of ferrophosphorus concrete in Area 4 can which is in Area 1 Grey house.
4. Hooked up sinks in R. C. house in Area 11.

30 Dec. 1960 - Friday

1. Moved two Area 4 canisters from foundry to TA-49 & placed one of them in Grey house in Area 3 and poured it full of magnetite concrete.
2. Continued clean up of Area 2.
3. Worked on sand screen.
4. Set up shield at 2-B-H.
5. Started stripping clay pit to plate Area 2.
6. Started removal of salt from bottle in Area 12.

3 Jan. 1961 - Tuesday

1. Started plating Area 2 with clay.
2. Placed sample pipe in drift in hole 4-E & poured concrete.
3. Placed sample pipe in drift in hole 2-B-H.
4. Supported H Div. in checking all holes in Area 4 for contamination.
5. Completed removal of salt from bottle.
6. Built platform for sand screen and set up.
7. Welded sample pipes for 2A-Y.
8. Set up shield at 2-A-O.

4 Jan. 1961 - Wed.

1. Moved J-13-3 trailer to new location in CP Area.
2. Augered small drift hole in 4-R.
3. Revised stack for hole 2-B-J - all future shots will have a 3/4" T plate sandwich in addition to the 1 1/2" T plate sandwich.
4. Enlarged drift hole in 2-B-h.
5. Moved area 4 can from hole in shed and set up on stand.
6. Welded cracks in bottle in Area 12.
7. Continued plating of Area 2.

5 Jan. 1961 - Thurs.

1. Started putting metal liner in bottle.
2. Poured concrete around sample pipe in hole 2-B-H.
3. Moved Area 4 type can with ferrophosphorus in from Area 1 to CP Area and turned over.
4. Build brackets and install lead block in can in barn. This can is for hole 2-B-J.

5 Jan. 1961 - Thurs. - Continued

5. Cleaned sand out of hole in shed.
6. Leveled up J-13-3 trailer and started platform & walkway.
7. Pulled W Div. wires to new location of control panel.
8. Set up shield at hole 2B- J.
9. Moved Grey house to hole 2-B-j.

6 Jan. 1961 - Friday

1. Moved Red, Blue, & Green houses to hole 2-B-J.
2. Augered drift hole in 4-T.
3. Leveled sand in hole 4-E.
4. Placed sand in hole 2-B-T & leveled.
5. Placed sand in hole 2-B-H & leveled.
6. Ran dummy can in holes 2-B-J & 2-B-H.
7. Continued installation of metal lines in bottle.
8. Dug ditch for sink drain for J-13-3 trailer.
9. Pulled 4 new runs of cable to Area 4 for W-Div.
10. Welded grill on bottom of yellow trailer.
11. Drilled two waste disposal holes 3' x 30' in Area 2-B.
12. Started drilling on hole 2-B-V.

9 Jan. 1961 - Monday

1. Enlarged drift hole in 2-A-O.
2. Dug box hole at 2-A-Y.
3. Completed metal liner in bottle and poured salt.
4. Moved can from Area 5 to Grey house at hole 2-B-J.
5. Completed drift hole in 4-T.

9 Jan. 1961 - Monday - Continued

6. Moved horse trailer from Area 10 to Area 2.
7. Completed hookup of sinks in Area 11 and covered up drain line.
8. Ran drain line to sink in J-13-3 trailer.
9. Cabled up for hole 2-B-J.
10. Set steel box and dropped 3' sample pipe in hole 2-A-O.
11. Continued drilling on hole 2-B-V.

10 Jan. 1961 - Tuesday

1. Wagon-drill sample hole at 4-T.
2. Poured concrete around sample pipe in hole 2-A-C.
3. Moved yellow trailer cables from Area 10 and laid them out at hole 2-B-J.
4. Enlarged drift hole in 2-A-Y.
5. Installed sample pot in box at hole 2-A-O.

TA-49

January 11, Wed. -- Received HE for hole 2B-J, placed in canister, lowered

in hole, aligned CMP and pipes and dumped 6 loads of sand.

2. Enlarged drift in hole 4-T.
3. Dug box hole for hole 4-T.
4. Installed bell reducer in drift in hole 4-E and leveled sand.
5. Moved yellow trailer from Area 10 to Area 2.
6. Constructed 30 new cable troughs.

Jan. 12, '61, Thursday

1. Complete alignment and preparation for shot at hole 2B-J.
2. Fired 2B-J.
3. Continued enlarging drift in hole 4-T.
4. Closed all areas at 10:15.
5. Constructed 20 new cable troughs.
6. Eng-4 stopped all work except completion of holes 4-R and 4-T and drilling of hole 2-B-B - 2B-X and 2-B-T.

Fri., Jan. 13, 1961

1. Put Area 4 can which is in shed from stand to hole.
2. Completed enlarging drift in hole 4-T.
3. Eng-4 decided we should go ahead with preparation of all holes which we have orders for except fabrication of spiders and pipes.
4. Drove 4" retainer pipe and set steel box in hole 4-T.
5. Replaced some damaged cables at the 4-E hole.

Jan. 16, 1961 - Monday

1. Placed sampling pipes in hole 4-T.
2. Started enlarging drift in hole 4-R.
3. Moved canister from hole in shed to stand.
4. Modified 4-E canister.
5. Completed drilling on hole 2-B-T and moved to 2-B-X.
6. Installed sample pot in hole 2-A-Y.

Jan. 17, 1961 - Tues.

1. Moved can from CP to grey house at hole 4-E.
2. Moved Area 2 can from foundry to barn in CP.
3. Worked on 4-E cables and can.

Jan. 18, 1961 - Wed.

1. Supported shot at 4-E -- fired shot at 10:00 p. m.
2. Fenced Area 2.
3. Complete drilling 2-B-X, moved to 2-B-B.

Jan. 19, 1961 - Thurs.

1. Broke out dump line and rolled up cables at 4-E.
2. Poured concrete plug in hole 4-E.
3. Poured concrete around sample pipe in hole 4-T.
4. Continued drilling on hole 2-B-B.
5. Supported Area 12 shot in bottle.

Jan. 20, 1961 - Fri.

1. Completed drilling hole 2-B-B.

2. Completed pouring concrete around sample pipe in hole 4-T.
3. Moved vacuum pump from Area 1 to Area 12 to suck salt out of bottle.
4. Removed wooden plugs from Area 4 cans which had concrete poured in them.

Jan. 23, 1961 - Monday

1. Installed 440 volt disconnect on panel in Area 12 for vacuum pump.
2. Started to take salt out of bottle. Sand sucker works very good on this salt.
3. Poured concrete around sample pipe in hole 4-T.

Jan. 24, 1961 - Tues.

1. Poured concrete around sample pipe in hole 2-A-Y.
2. Staked down security fence.
3. Complete removal of salt from bottle in Area 12.
4. Put sand in hole 2-A-Y and hole 2-A-0.

Jan. 25, 1961 - Wed.

1. Cleaned and inspected bottle.
2. Welded cracks in bottle.
3. Dumped 32 sacks of salt in bottom of bottle.
4. Installed bulkhead in bottle.
5. Recovered cables and pipe from hole 3-P.

Jan. 25, 1961 - Wed. (Continued)

6. Drifted hole 3-F.
7. Enlarged drift hole in 2-B-L.
8. Insulated walkways in CP Area.
9. Drove retainer pipe and shield supports 2-E-L.

Jan. 26, 1961 - Thurs.

1. Set steel box at hole 2-B-L.
2. Dropped 3" sample pipe in hole 2-B-L.
3. Installed sample pipe in drift at 2-B-L.
4. Put Area 4 can in shed in CP.
5. Modified Area 2 can in barn.
6. Poured concrete in drift in hole 2-B-L.
7. Backfilled hole 3-P with sand.
8. Completed bulkhead in Area 12 bottle.
9. Blasted floor in building at K-Site.

Jan. 27, 1961 - Fri.

1. Cleared snow from walkways, and around buildings.
(Snowed 12")
2. Blasted more of floor at K-Site.

Jan. 30, 1961 - Monday

1. Completed pouring concrete in drift in hole 2-B-L.
2. Supported shot in Area 12.
3. Moved Red house to hole 3-F.
4. Cleaned lead brick out of dummy canister.

Jan. 30, 1961 - Mon. (Continued)

5. Moved Grey house to 2-B-H.

Jan. 31, 1961 - Tues.

1. Removed salt from bottle.
2. Received HE for 3-F shot. Placed in can, lowered in hole, backfilled and fired.
3. Cleared snow, laid cable pads and troughs and started cabling up for hole 2-B-H.

Feb. 1, 1961 - Wed.

1. Worked on Dell claim.

Feb. 2, 1961 - Thurs.

1. Moved Area 2 canister from barn to grey house in Area 2.
2. Started recovery of hole 3-F -- broke shaft in Caldwell drill.
3. Cleaned bottle inside with wire brush for inspection and to seal around bolt heads with glyptol.

Feb. 3, 1961 - Fri.

1. Continued recovery of hole 3-F.
2. Installed bulkhead in bottle and poured salt around it.

Feb. 6, 1961 - Monday

1. Continued recovery of hole 3-F.
2. Completed fence around Area 2.
3. Put permatex on bolt heads in bottle.

Feb. 7, 1961 - Tues.

1. Continued recovery of hole 3-F.
2. Supported shot in bottle and removed lid after shot.
3. Drilled Dell claim again.

Feb. 8, 1961 - Wed.

1. Abandoned recovery in 3-F, hole too rotten.
2. Removed salt from bottle.
3. Worked at Dell claim.

Feb. 9, 1961 - Thurs.

1. Completed removal of salt from bottle; sandblasted bolt heads and painted with glyptol to seal.
2. Installed benches and cabinets in EG & G trailer runway.
3. Installed water tank and wash-bowl in Area 4 warming house.
4. Worked at Dell claim.

Feb. 10, 1961 - Fri.

1. Hauled brush to burning pit.
2. Installed tank and washbowl in Area 2 warming house.
3. Painted bolt heads in bottle with glyptol.

Feb. 13, 1961 - Monday

1. Hauled brush to burning pit.
2. Painted sheds in CP Area and shields in Area 2.

Feb. 14, 1961 - Tues.

1. Cleaned burnt salt out of bolt holes on bottle lid.
2. Fabricated and started to install lower half of liner in bottle.
3. Burned brush in pit.

Feb. 15, 1961 - Wed.

1. Removed instrument from yellow trailer.
2. Welded cracks in bottle.
3. Moved red house from Area 3 to Area 1.
4. Hauled contaminated shields to dump.

Feb. 16, 1961 - Thurs.

1. Installed liner in bottle.
2. Cleaned salt from lid of bottle and from around bolts.

Feb. 17, 1961 - Fri.

1. Completed installation of liner in bottle and poured salt around liner.
2. Lined the shed walkway at EG & G trailer with 1/4" plywood.
3. Ran 220 volt power into shed walkway at T & F trailer.
4. Moved sand screen back to river.

Feb. 20, 1961 - Monday

1. Moved tall grey house to hole 4-T.
2. Moved Red, Blue, & Green houses to hole 4-T.
3. Modified Area 4-T canister.
4. Move cable pads to new location and string cables to hole 4-T.

Feb. 20, 1961 - Monday (Continued)

5. Fit lid on stovepipe and fit stovepipe to canister.
6. Move EG & G rack from SM-30 to Area 4 greyhouse.
7. Install lid on bottle in Area 12 and support shot there.

Feb. 21, 1961 - Tues.

1. Started to remove salt and debris from bottle.
2. Connect dump line for hole 4-T.
3. Modify brackets in Area 4-T canister.
4. Complete cables for hole 4-T.

Feb. 23, 1961 - Thurs.

1. Drilled hole 1-Q, 1-M, and 1-S - 3' in diameter and 31' deep.
2. Completed removal of salt from bottle.

Feb. 24, 1961 - Fri.

1. Moved electricians' office from Administration Area to CP Area for Eng-4 office.
2. Moved 4-T can from rack to hole in shed.
3. Started installing new liner in bottle.

Feb. 27, 1961 - Monday

1. Blocked up Eng-4 office.
2. Built new steps by J-10-1 trailer.
3. Braced up scaffold in shed.
4. Completed installation of liner in bottle.
5. Started drilling hole 2-B-T.
6. Moved electronic rack from basement in CP area to Ten Site.

Feb. 28, 1961 - Tues.

1. Completed drilling hole 2-B-T.

Mar. 1, 1961 - Wed.

1. Supported shot in bottle.
2. Moved can from hole in shed to rack.
3. Put CMP in hole 2-B-T.
4. Modified 4-T canister.

Mar. 2, 1961 - Thurs.

1. Removed salt from bottle.
2. Put sand in hole 4-T and leveled.
3. Drifted 2-B-T.
4. Modified EG & G rack.

Mar. 3, 1961 - Fri.

1. Moved Area 2 canister from University shops to CP Area.
2. Moved canister from shed to hole 4-T.
3. Completed drift in hole 2-B-T and wagon drilled sample hole.
4. Completed removing salt from bottle and started installing new liner.
5. Welded sample pipe for hole 2-B-T.

Mar. 6, 1961 - Monday

1. Completed wagon drilling sample hole and dug box hole at 2-B-T.
2. Continued with installation of liner in bottle.
3. Put photographer in hole 4-T.

Mar. 7, 1961 - Tues.

1. Enlarged drift in hole 2-B-T.
2. Drove retainer pipe and shield anchors at 2-B-T.
3. Set shield at 2-B-B.

Mar. 8, 1961 - Wed.

1. Supported shot in Area 4, hole 4-T.

Mar. 9, 1961 - Thurs.

1. Supported shot in Area 12 bottle.
2. Cleaned up cables at 4-T, broke out dump line and poured concrete cap on hole.
3. --

Mar. 10, 1961 - Fri.

1. Started removing salt from bottle.

Mar. 13, 1961 - Monday

1. Completed removal of salt from bottle.

Mar. 14, 1961 - Tues.

1. Cleaned and welded bottle started installing new liner.
2. Unloaded hardware for hole 1-M assembled and dry-run.
Built sand levels for 3' holes and leveled sand.

Mar. 15, 1961 - Wed.

1. Loaded and fired hole 1-M.
2. Moved grey house in Area 4 to hole 4-R.
3. Continued installing liner in bottle.

Mar. 16, 1961 - Thurs.

1. Recovered hardware from hole 1-M.
2. Moved area 4 can from Area 3 to shed in Area 5.
3. Repartitioned houses in Area 4.
4. Re-partitioned houses in Area 1.
5. Built partition in EG & G annex.
6. Modified Area 2 canister.
7. Completed installing liner in bottle.

Mar. 17, 1961 - Fri.

1. Installed machine in yellow trailer and hooked up.
2. Fired shot in bottle and removed lid.
3. Installed bell reducer in drift in hole 4-R.
4. Let monitor in all holes in Area 4.

Mar. 20, 1961 - Monday

1. Removed salt from bottle.
2. Moved can for hole 2-B-L from University shops to CP Area.
3. Modify can for hole 2-B-H.
4. Moved lid from Zia shops to Area 2 and fitted to can.
5. Hooked up dump line to hole 2-B-H.

Mar. 21, 1961 - Tues.

1. Received HE for hole 2-B-H, lowered can in hole, aligned and started backfill.

Mar. 22, 1961 - Wed.

1. Completed alignment and backfill and fired hole 2-B-H.

Mar. 23, 1961 - Thurs.

1. Moved all houses, shields, cables, and pads from an area 25' x 50' around hole 2-B-H and capped that area with concrete.
2. Welded cracks in bottle, dumped 26 sacks of salt in bottom and started installing new liner.
3. Brought steam cleaner out from hanger and steam-cleaned all houses and shields from hole 2-B-H.

Mar. 24, 1961 - Fri.

1. Continued installation of liner in bottle.
2. Monitored all holes in Area 2.
3. Modified can for hole 2-B-L.
4. Graded perimeter road.

Mar. 27, 1961 - Monday

1. Completed installing liner in bottle.
2. Moved houses to hole 2-B-B.
3. Installed bell reducer in drift in hole 2-B-L.
4. Recovered hardware from hole 1-S.
5. Put new tires on Red house in Area 2.

Mar. 28, 1961 - Tues.

1. Installed lid on bottle, fired and removed lid.
2. Put sand in 2-B-B and leveled.
3. Put sand in hole 2-B-L and leveled.
4. Started cabling up for hole 2-B-B.

Mar. 29, 1961 - Wed.

1. Started removing salt from bottle.
2. Moved can for hole 2-B-T from shops to Area 5.
3. Modified hardware for hole 1-Q.
4. Removed short Area 4 can from shed and placed tall can on stand.
5. Moved building F-M-6 from Administration Area to Area 5.
6. Completed cabling up for hole 2-B-E.

Mar. 30, 1961 - Thurs.

1. Moved can from Area 5 to grey house at hole 2-B-B.
2. Completed removing salt from bottle.
3. Moved Red house in Area 1 from hole 1-S to 1-Q.
4. Modified can for hole 2-B-L.

Mar. 31, 1961 - Friday

1. Lifted bottle out of hole and laid on ground outside.
Bottom plate was blown off.
2. Did some modification on 2-B-E can.
3. Leveled sand in hole 1-Q, assembled hardware, dry-run, received HE at 1:00 p.m. Placed in can, lowered in hole and fired.

Apr. 3, 1961 - Monday

1. Drilled holes 1-N, 1-R, and 1-L.
2. Recovered hardware from hole 1-S.
3. Mounted spiders and arranged hardware preparatory for shot 2-B-B.

Apr. 3, 1961 - Monday (Continued)

4. Moved Red house and camera box to hole 1-R.

Apr. 4, 1961 - Tues.

1. Received HE for hole 2-B-B. Lowered in hole, placed CMP and backfilled to 20' level.
2. Made up new strain gauge shields for Area 12 bottle.

Apr. 5, 1961 - Wed.

1. Completed alignment of pipes in hole 2-B-B, backfilled, set yellow trailer and aligned.
2. Put CMP in hole 4-A.
3. Big crane went to town at 1:00 p. m.

Fired 2B-B⁷

Apr. 6, 1961 - Thurs.

1. Cleaned up cables at hole 2-B-B and capped the hole with concrete.
2. Drilled hole 2-B-X from 58' to 78'.
3. Started belling bottom 8' of hole 4-A to 6'8".
4. Aligned, backfilled and fired hole 1-R.

TA-49

Friday, April 7

Loaded and fired hole 1-R. Started belling hole 4-A.

N
J

April 10 - Monday

Moved red house and camera box to hole 1- N.

Continued belling hole 4-A. Modified can for 2-BX

April 11 - Tuesday

Completed belling hole 4-A. Recovered hardware from hole 1-R. The crane could not pull this. We had to drill down beside with the Caldwell drill. Moved houses and shield to hole 2 B X. Modified can for hole 2-BX.

April 12 - Weds.

Modified can for 2 BX. Drifted hole 4-A. Put sand cushion in hole 2 BX. Cabled up 2-BX. Delivered hardware for hole 1 N to site.

April 13 - Thursday

Loaded and fired hole 1-N. Completed drift in hole 4-A.

April 14 - Friday

Levelled sand in hole 2-BX. Moved can for 2-BX from C. P. to grey house at 2-BX then moved the crane to town.

Enlarged drift in hole 4-A.

April 17 - Monday

Received H E for hole 2-BX, lowered in hole. Installed two spider and backfilled 20 feet of hole.

April 18 - Tuesday

Completed alignment of pipes and backfilling of 2-BX. Ready to fire. Group had trouble and did not get experiment completed.

April 19 - Weds.

Completed experiment hole 2-BX. — Fired?

April 20 - Thursday

Let photographer in hole 4-R to take pictures. Cleaned up cables and capped hole 2-BX with concrete. Assembled, loaded and fired hole 1-L. Made repairs to bottle in area 12.

April 21 - Friday

Continued repairs on bottle. Started cabling up 4-R.

April 24 - Monday

Completed repairs on bottle. Set steel box at 2-BT.
Dropped 3" sample pipe in 2-BT.

April 25 - Tuesday

Installed sample pipes in drift and poured concrete in 2-BT.
Put tie bolt through center of tall grey house in area 4. The wind was spreading building apart.

April 26 - Weds.

Lowered bottle into hole and put blasting mats on house under roof. Moved red house and camera box to hole 1-G.

April 27 - Thursday

Cleaned pipes and assembled. Ready for shot at hole 1-G.
Installed liner in bottle.

April 28 - Friday

Received H E, lowered in hole, completed alignment, backfilled, and fired 1-G. Moved yellow trailer to area 10, poured concrete on 1-G and 1-L.

May 1 - Monday

Put sand in hole 1-R and leveled. Moved canister from stand to hole in shed.

May 2 - Tuesday

Delivered lead bricks, 2 steel boxes, and 1 area and 1 stack to site. Moved can from shed to area 4 and cabled up. Enlarged drift in hole 4-H. Fired bottle in area 12 and removed lid.

May 3 - Weds.

Started removing salt from bottle. Moved green house from area 2 to area 4. Moved E. G. & G. rack from SM-30 to site. Revised detectors in E. G. & G. rack, placed it in stack, set in grey house and closed doors. Dry run dummy can in hole 4-R.

May 4 - Thursday

Completed removing salt from bottle. Completed enlarging drift in hole 4-H.

May 5 - Friday

Cleaned bottle inside and welded cracks. Installed sample pipes in drift. in 4-H.

TA-49

May 8 - Monday

Received HE for 4-R, lowered in hole, backfilled, and fired.

Welded cracks in bottle and started to install liner.

Cleaned up stumps and trash around area 1.

May 9 - Tuesday

Disconnected pipes and cables at 4-R and capped holes with concrete. Monitored all holes in area 4. Poured concrete around sample pipe in hole 4-H. Installed drift liner in hole 4-A. Installed tires on red house in area 2. Installed liner in bottle. Connected dump line to 4-H. Installed bleeder line on bottle. Moved 2 canister lids to area 4 and fit to rack.

May 10 - Weds.

Moved houses from hole 4-R to 4-H. Installed bell reducer and leveled sand in hole 4-H and dry run dummy can.

Loaded, sealed, fired, and removed lid on shot in bottle in area 12.

May 11- Thursday

Cleaned pipes, assembled, placed sand and leveled, dry run stack, received HE, lowered in hole, backfilled, and fired 1-B. Started removing salt from bottle, all salt to be screened through 1/4" screen. Continued clean-up of stumps around area.

TA-49

May 12 - Friday

Poured concrete cap on hole 1-B. Changed cables on crane.

Continued removal of salt from bottle.

May 15 - Monday

Completed removing salt from bottle and started screening.

Cabled up for hole 4-H. Modified can for hole 4-H.

May 16 - Tuesday

Welded cracks in bottle. Cleaned and assembled pipes for area 1. Extended 6' C. M. P. so it would reach the top of

88' hole. Moved C. M. P. from hole 4-H to hole 4-A.

Leveled sand in hole 4-H. Marked liner parts so they can be identified after shot. Konrad called about two 140' holes

in area 3 -- wanted to know how long it would take to drill

them and how much it would cost. Eng-4 cancelled all

area 2 Work Orders.

May 17 - Weds.

Installed sample pipes in drift in hole 4-A and poured concrete

around them. Installed 1/2 of liner in bottle. Moved area 4

can from platform in shed to hole. Modified E. G. G. rack.

May 18 - Thursday

Assembled pipes, dry run, received HE loaded, and backfilled

hole 1-D. Field of view for camera was not clear so could not

fire. Installed bell reducer in hole 4-A. Completed installing

liner in bottle.

TA-49

May 19 - Friday

Leveled sand in hole 4-A. Loaded, sealed, and fired shot in bottle-- could not remove lid too much pressure. Moved area 4 can from hole to platform. Fired hole 1-D.

May 22 - Monday

Removed lid from bottle and started removing salt. Moved canister from foundry to C. P. shed and moved a can from shed to grey house by hole 4-H. Welded cable brackets on can in area 4. Assisted J-11 in taking pictures of sampling devices in hole 4-H and 4-A.

May 23 - Tuesday

Continued removal of salt from bottle. Held security meeting to set up guard orders for construction in C. P. Area. Cleared boardwalks and installed power on A panel to get started on LACI construction order. Assembled canister, stack, and rack, and lowered in hole 4-H and backfilled and fired.

May 24 - Weds.

Leveled area for new building. Moved trailers and re-located. Completed removing salt from bottle. Capped hole 4-H with concrete.

May 25 - Thursday

Moved three more trailers and started digging footers. Moved C. M. P. from hole 4-A to hole 4-K.

TA-49

May 26 - Friday

Continued digging footers for building in C. P. Area.

Drifted hole 4-K. Welded bottle. Fabricated steel for footings in C. P. Area.

May 29 - Monday

Poured footings for building. Enlarged drift hole in 4-K.

Modified can for 4-A.

May 30 - Tuesday

(HOLIDAY)

May 31 - Weds.

Started framing new building in C. P. Started installing liner in bottle. Modified can for hole 4-A. Completed enlarging drift in hole 4-K. Scheduled shots for June.

Hardware to be delivered to field by following:

3-J	68726-78	6- 9	shoot	6-14
3-K	68726-78	6-16	shoot	6-21
4-A	68726-50	complete	shoot	6-7
4-K	68726-77	6-6	shoot	6-28-
4-J	68726-76	6-21	shoot	

June 1 - Thursday

Installed liner in bottle. Dropped 3" sample pipe in hole 4-K.

Started digging ditch for counter poise.

June 2 - Friday

Supported shot in area 12. Made some modifications to can in shed.

Leveled sand in hole 4-A. Poured concrete in 4-K.

Continued framing on floor. Installed stairs in grey house in area 4.

June 5 - Monday

Started stairway in shed. Moved can to area 4 and cabled up. Unloaded lead pig in Chemical Lab. Watered road, dug trenches at hole 3-J and 3-K. Removed lid from bottle and removed salt.

June 6 - Tuesday

Watered and bladed road. Cleaned pipes, taped and set up at 1-I hole. Welded Bottle.

June 7 - Weds.

Loaded and fired 4-A. Started installing liner in bottle and installed steel pyramid. Liner was numbered.

June 8 - Thursday

Capped hole 4-A with concrete including small area which was spilled on by J-11. Moved 2 trailers up to new building in C. P. area. Moved shacks to 4-K. Poured concrete in area 3 for sample pipe. Moved area 4 short can from LASL shops to C. P. area.

June 9 - Friday

Moved balance of trailers to new locations in C. P. area. Completed shed stairs. Completed walls on new building. Moved red house from area 2 to area 3 & set up for hole 3-K. Put new can in shed.

June 12 - Monday

Moved trailer to C. P. area by shed and installed E. G. G. rack in trailer. Tried to put C. M. P. in hole 4-J. The hole was too small so had to bring in the Caldwell drill and ream hole. Fired shot in area 12 bottle and removed lid. Moved grey house in area 4 to hole 4-K and started laying new cables. Poured concrete around sample pipe and cap around holes 3-J and 3-K.

TA-49

June 13 - Tuesday

Cleaned up area 3 and area 4. Completed reaming hole 4-J.
Started removing salt from bottle. Modified E. G. G. rack in
trailer in C. P. area.

June 14 - Weds.

Dry run in hole 3-K. Placed sand and adjusted depth of hole,
installed head shielding in rack in trailer. Installed C. M. P. in
hole 4-J. Continued removing salt from bottle. Completed
digging counter poise ditch. Completed framing and started
to lay dry sheeting on new building in C. P.

June 15 - Thursday

Completed removing salt from bottle in area 12. Cleaned up
area 3. Loaded, back filled, and fired hole 1-I. Completed
dry sheet, ready for roof on new building. Put 90' of stick
in crane ready for area 3.

June 16 - Friday

Drifted hole 4-J. Roofed new building in C. P. area.
Dry run hole 3-K required 3 hours overtime all went well.

June 19 - Monday

Stopped all operations except the loading of hole 3-K.
Received H E at 9:30. Loaded, sealed, and fired at 6:30.

June 20 - Tuesday

Chopped concrete plug out of hole 3-K. Completed drift in
hole 4- J. Welded cracks in bottle in area 12. Moved box
from TA-48 to area 11.

TA-49

June 21 - Weds.

Recovered hardware from hole 3-K and backfilled hole.
Moved houses to hole 3- J. Started installing new liner
in bottle. Wagon drilled sample hole at 4-J. Moved two
aluminum racks from LASL shops to area 1 grey house.

June 22 - Thursday

Dry run canister in hole 3- J. Assembled rack and installed
wiring. Completed installing liner in bottle. Enlarged drift
in hole 4- J and dug box hole. Started wiring new building.

June 23 - Friday

Put steel box in 4-J, drove retainer pipe and installed 3"
sample pipe. Installed cables, dummy detectors and lead
brick in rack for hole 3-J.

June 26 - Monday

Loaded, sealed, and fired 3-J. ✓

June 27 - Tuesday

Poured concrete around sample pipe in hole 4-J. Removed
sample pots and lines from 3-J.

June 28 - Weds.

Fit lid on can and bolted to rack for 4-K shot. Loaded, sealed,
and fired bottle and removed lid.

June 29 - Thursday

Installed air conditioners in Chemical lab. Completed sample
lines and pots in hole 4-J. Removed salt from bottle. Started
laying counter poise wire.

TA-49

June 30 - Friday

Continued removing salt from bottle. Continued laying counter poise wire.

July 3 - Monday

Started painting new building. Hooked up air conditioner in area 12. Covered counter poise ditches.

July 4 - Tuesday

(HOLIDAY)

July 5 - Weds.

Repaired cables on area 4 grey house. Started grounding trailers and building to counter poise. Completed removing salt from bottle.

July 6 - Thursday

Modified can in barn. Welded bottle.

July 7 - Friday

Removed 20' of stick from crane and did some clean up in area 10.

July 10 - Monday

Welded ladder for penthouse. Cabled up for 4-K.

Fabricated on hardware for 3-G.

July 11 - Tuesday

Continued preparations for 4-K. Fitted EG&G canister and pulled in balance of cables. Murl Rose injured two fingers while aligning EG&G canister.

July 12 - Weds.

Fired hole 4-K. Started drilling 3-G - 143' deep, 3' 0" diameter. Shop working on 3-G hardware. ✓

July 13 - Thursday

Continued drilling on hole 3-G. Received word to get 4-U ready. Removed dump line from 4-K and poured concrete plug. Fabricated sample pipe for 4-U. Changed canister in C. P. area.

July 14 - Friday

Completed drilling 3-G. Installed water tank in area 11. Electricians working on LACI job in CP. Drifted 4-U. Decided to fire 4-F instead of 4-U.

July 17 - Monday

Started drilling 4-F - 78' deep 6' in diameter. Hole 4-F ready to fire Friday. No drift or sample pipe required. 4-U had to be belled by hand, started this. Completed area 11 air conditioning. Excavated and set forms around hole 3-G. Working on 3-G hardware.

July 18 - Tuesday

Continued drilling 4-F. Belling 4-U by hand. Modified plates in EG&G rack. Installed shelves and tables in new scope house. Installed heater and balance of duct work in new scope house. Received canister for 3-G. Poured concrete pad around hole 3-G.

July 19 - Weds.

Continued scaling for bell in 4-U. Shops fabricating hardware for 3-G. Carpenters still building shelves and tables in scope building.

July 20 - Thursday

Enlarged drift in 4-U. Completed wagon drilling sample hole at 4-U. Fabricating hardware for 3-G.

July 21 - Friday

Loaded, sealed, and fired hole 4-F.

July 24 - Monday

Continued preparation of 4-U. Cleaned up cables and removed some sand from 4-F so it can be capped with concrete. Dropped 3" sample pipe in 4-U and installed bell reducers in drift.

July 25 - Tuesday

Poured concrete around sample pipe in hole 4-U. Started moving scope racks to new building. Moved 7 1/2 ton air conditioner to new pad and started hooking up.

July 26 - Weds.

Completed moving scope racks to new building and started installing equipment. Continued hooking up air conditioner in scope building. Moved 6 ton air conditioner from area 12 to new scope building and hooked up. Enlarged manhole in counting room so new stairs can be installed. Dry run can in hole 3-U. Started to recover hole 3-J, blasted concrete plug out of hole. Started removing muck from hole 4-U.

July 27 - Thursday

Removed air conditioner from EG & G scope trailer to Eng-4 office. Recovered part of pipe and one muffler from hole 3-J. The remainder of the pipe was covered with sand 120' down so no attempt was made to recover the balance. Started backfilling 3-J with sand, dumped 3 truck loads. Fired 6 small shots in area 4. Carpenters constructed cable troughs in new scope building and cut holes in wall for cable panels. Held safety meeting at 12:30. Tony Montoya explained radiation hazards to men.

July 28 - Friday

Installed dummy wires, detectors, etc. in 3-G rack. Completed backfilling hole 3-J. Eleven more loads of sand required, 14 loads in all. Installed 20' more of stick in crane. Unloaded another area 3 canister and rack. Poured concrete cap on hole 4-F. Continued hookup of equipment in new scope room. Fired three small shots in area 4. These were surface shots and did not require any support from Zia.

August 1, 1961 - Tuesday

Fired hole 3-G at 2:30. Electricians worked on scope racks in C. P. No other activity in the area.

August 2, 1961 - Weds.

Continued belling hole 4-U. Continued hook up of detectors in new scope building.

August 3, 1961 - Thurs.

Cut off power at 11:00 to hook up 440 V. heater line. Power back on at 2:30. Installed bell reducers in hole 4-U and continued cleaning out hole. Moved houses out of way and started drilling hole 4-B. Completed installing air conditioner in new scope house. Started modifications on area 4 canister.

August 4, 1961 - Friday

Continued modifications on area 4 canister. Continued hook up of scope racks. Started pulling cables into building.

August 7, 1961 - Monday

Continued hook up of scope racks. Completed modifications of area 4 canister.

August 8, 1961 - Tuesday

Started drilling hole 4-B. Moved equipment for J-11 in counting room. Installed hand rails on new stairway in counting room. Constructed work table & camera shelves in new building.

1.1...

August 9, 1961 - Weds.

Moved houses to hole 4-J. Continued making jumpers and hooking up scope racks. Completed cleaning up all scrap. Constructed cable trough at new scope building. Installed louvers in grey house in C. P. area.

August 10, 1961 - Thursday

Worked on box lid openers for area 11. Caldwell drill still drilling on hole 4-B. Electricians building jumpers for scope racks. Started work on grey house for area 12.

August 11, 1961 - Friday

Modified can for hole 4-J. Continued hookup of cables to racks. Worked on new building for area 12. Tied in ground wire to area 11 houses. Continued drilling on hole 4-B.

August 12, 1961 - Saturday

Worked 8 electricians to get cables and racks ready for shot at 4-J.

August 14, 1961 - Monday

Cleaned inside of bottle. Started to cable up for hole 4-J. Continued wiring scope racks. Installed fans in red houses in area 4. Continued drilling on hole 4-B. Built shelves in yellow trailer.

August 15, 1961 - Tuesday

Moved can for 4-J from shops to shed in C. P. and completed modifications. Cleaned out hole 4-J and put in sand cushion. Cleaned bottle walls and put bottom salt in bottle. Installed door in new annex at area 12.

August 16, 1961 - Weds.

Moved can for 4-J to grey house in area 4 and cabled up. Had some small test shots in area 12 in morning. Started installing liner in bottle in afternoon. Put can for 4-U in shed.

August 17, 1961 - Thursday

Modified can for 4-U. Rewired area 12 annex so we could cut door to new building. Completed installing liner in bottle. Worked on modification of 4-U can.

August 18, 1961 - Friday

Dry run EGG rack and installed in smoke stack and placed in shed. Worked one hour overtime to complete this. Dug box hole for second box at 4-U. Worked on area 12 annex. Completed drilling hole 4-B, 100' 11" deep. Started work on perimeter road.

August 21, 1961 - Monday

Loaded, sealed and fired hole 4-J. Carpenters worked on area 12 annex.

August 22, 1961 - Tuesday

Cleaned up cables around hole 4-J. Moved houses to hole 4-U and capped and sealed hole 4-J with concrete. Enlarged bell in 4-U and delivered hardware from shops to area 4.

August 23, 1961 - Weds.

Loaded, sealed, and fired shot in area 12 bottle. Then removed the lid. Cleaned out hole 4-U and put in sand cushion. Electricians are working on cables for 4-U. Drilled new waste hold for hot pipe in area 4. Started hooking up dump lines to 4-U.

August 24, 1961 - Thursday

Modified EG&G rack for hole 4-U. Put can in hole in shed. Drilled 2 more hot pipe dump holes. Started removing salt from bottle. Moved dog houses in area 4 and started to cable up for hole 4-U. Carpenters built shelves in area 12 annex.

August 25, 1961 - Friday

Moved can from C. P. to area 4. Layed out cables and cabled up can for 4-U. Electricians worked 2 hours overtime to get through. Started drilling hole 2-BY.

Sept. 28, 1959 - Mon. Frank Brown notified by Dr. Bradbury of the impending operation. Wendell Miller was out of town.

Sept. 29, 1959 - Tues. Miller, Brown, Junge, and Musser met. Junge and Musser met with Bob Newman and Mr. Blossom at 3:30 p. m. to obtain general scope of project. Determined that someone would have to be detached from regular duties to engineer and supervise this job.

Sept. 30, 1959 - Wed.

October 1, 1959 - Thurs. Miller, Junge, Francis and Musser met in Mr. Wilson's office with Campbell, Newman, Ogle, Graves, Bolton and Wherritt of LASL, Dunning, Ranttila, Burke and Wilson to discuss general scope, rush target dates, and availability of funds. Decided that LASL Engineering Dept. would issue blanket work order for funds when such funds were made available by AEC.

Site of project not definitely decided upon, but preference seems to be for an area north of Route 4 and somewhat southeast of TA-37. Primary needs for electric power and roads was briefly discussed.

Oct. 2, 1959 - Fri. Musser received word at 5:45 p. m. from Newman that the site of Route 4 was selected and that we were authorized to start preliminary work. Musser arranged with Leon Ross for a crew for the

power lines and instructed Francis to make layouts of the exterior security fencing and locate administrative area of new project.

Oct. 3, 1959 - Sat. Surveying and layout work started. Zia Engineering surveyed and staked the power line. Zia Tech Division surveyed and staked on fence line and entry roads, and availability of pit run roads materials.

Oct. 5, 1959 - Mon. J. Nielson set up to start the construction crews at the site. Clearing right-of-way for power line started and drilling holes for the power poles started. Four laborers, operator, and driver working. LACI security orders for entrance to K-Site, PMA Area, requested and set up to be effective 10-6-59. Blossom, St. Clair, Aldrich, and Corn taken to the site and shown the proposed security fence. The route was walked over in the field and O. K. 'd for the fence, guard station, and site entrance illumination.

Work Order system was further discussed by Newman, Francis, and Cook and categories and work order numbers agreed upon. Printing of buckslip type work order requests was started by Supply and Transportation .

Mr. Perry and Mr. Franklin of the Lain-Franklin Drilling Co. were taken to the site. Mr. Perry and Mr. Franklin are to give Junge a bid on drilling 3 uncased 36" diameter holes 50' deep and one 36" cased hole 50' deep, and core drilling 4 each 100' deep holes and 3 ea. holes to water table or basalt.

October 6, 1959 - Tues. Checked with Zia Engineering and re-routed the power line on the PMA side of Water Canyon to take advantage of existing clearing on a fire break across the canyon. Zia Engineering to survey and stake the new pole locations in the afternoon.

Word received from Newman that the casing to be 3/8" minimum for the full length instead of different sizes as the drawing we had indicated.

Went over the fencing location with Nielson and Thorne at the site. Thorne to check existing surplus fencing in TA-1 and order any fencing, posts, or hardware he needs. Approximately 4,000 lin. ft. of fencing required and two 15' gates at the entry way.

Work orders were written by Newman to cover our work. Checked these orders and started them through Tom Cook and our W. O. Section. Completed drilling pole holes in TA-49 site and continued clearing and disposing of slash for pole line and fence line -- 5 lab. -- Operator -- Driver.

Oct. 7, 1959 - Wed. Met with Cook and Dick Kennedy on proposed method of sending through W. O.'s to Communications. It was decided that Zia would send through a regular W. O. with Communications listed as a craft and costs would be reported on this W. O. No. John Sizer called and released the guard station at the Press Building, TA-53, so it could be moved to TA-49.

Scheduled road and clearing work with Lindstrom for TA-49.

Oct. 8, 1959 - Thurs. Met with Junge & Mr. Journegan from Los Angeles who is with the Geo. Casy drilling company. Visited the site and showed the rock strata, etc., to Mr. Journegan. Checked the site with Bill Strickfadden, Harry Standering, and _____ of AEC Communications and M.S. Tel. Co. Fred Young, Zia Engineer, also present. Showed them the proposed areas and gave them estimated footage for 26 pair cable to Area 5. Set up a meeting with Bob Newman for Monday, Oct. 12, at 9 a.m. to discuss power and communication needs. Standering, Strickfadden and Young to be present.

Checked the surplus building list that might be available for construction shacks at TA-49.

Results as follows:

TA-6-9 - Boiler House - Bldg. in bad shape. No floor, no insulation, and sheet rock construction that wouldn't stand moving.

TA-16-35 - No roof, no floor, high cart which only leaves a 3' high wall.

TA-16-47 - No floor and set on a high curb. Only about 6'-0" head room available. Building in fair shape but in a hard place to get to. Building not insulated and triple-seal construction.

TA-16-87 - Machine Shop Trailer. Could be used as tool storage but no running gear.

TA-16-94 - Equipment and control room - Good condition but too big for our use and because of construction and location behind barricades it couldn't be moved but would have to be wrecked and rebuilt. Check the construction of the scalping grizzly at old Jack Adams pit. The following costs or estimates received from Mr. Journeygan verbally:

1. Cost to move in rig from California and move back - \$1,000.00.
2. Rig and two man crew \$30.00 per hour or \$240.00/8 hr. day.
3. Per Diem - \$7.00/man.
4. Casey will furnish one set of teeth per day. Any costs on teeth above this to be borne by The Zia Co. Teeth are \$24.00/set.
5. Geo. Casey, a Union Company with L. A. _____.

Checked surplus truck-mounted water tank with Nielson.

Decided we could use it by making a few alterations as suggested by Nielson.

Linemen setting poles -- Sub-grade of road aligned and worked by blade -- right-of-way for road and power line to guard station cleared by laborers. Post hole digger working on post holes at TA-37.

Oct. 19, 1959 - Fri. Checked guard station TA-3-53 and wrote order to move it. Received W. O. from Blossom to drill 5 special holes with two 45° holes intersecting 10" vert. hole. This work wanted by 10-14. Informed by Newman that J-6 is interested in a shaft 20' long by 7'

high by 5' wide. Vanner contacted and started working on estimate and construction details. Informed Junge of above and also that Nov. 2 is the completion date on Area 1 work requested by Newman. Junge will try to have contractors started by 10-15 or 10-16. Installation of the scalping grizzly started at old Jack Adams pit. Crafts setting power poles, drilling power pole holes, and clearing site. W. O. also issued by Blossom to clear a 100' x 200' area adjacent and to the east of the administration area.

Oct. 10, 1959 - Sat. Survey for fence completed and line dozed through canyon for fence. Special hole area surveyed. Big Indian Mound staked for protective fence. 1000' of fence required. Extension skirts put on grizzly and trucks started hauling rock for road. Hauled pit run until grizzly was fixed. Road crew and trucks worked 10 hours. Post hole digger broke down. Lineman worked salvaging cable from a span over Los Alamos Canyon.

Oct. 11, 1959 - Sun. Checked drilling of special holes. Only 3⁺ holes drilled as post hole digger gave trouble all day long. Hauled rock 8 hours. Checked grizzly and decided the opening should be much smaller and that we could use one less laborer. Contacted Swede by radio and made arrangements to pull one laborer and extend and made smaller the grizzly opening.

Determined the pole line to the guard shack was too close to road and decided to move it to the west side of the road.

Oct. 12, 1959-Mon.

Arranged meeting with Bob Newman and AEC Communications and Zia Engineering. Present were Standring, Strickfadden, Fred Reinier, Fred Young and myself. Information was obtained concerning the location of the telephone services and power lines. It was decided later in the day to run 13.2 primary to the C.P. Install 3 ea. 100 KVA transformers for the C.P. - Install transformers to step down to 440 and feed underground with D.B. cable ^{DIRECT BURIAL} to areas 1, 2, 3, 4. The telephone company will use our ditch. Install 3 10 KVA at each point 1, 2, 3, & 4 and step down from 440 to 115 - 208.

Attended a meeting in Frank Hauser's office at S-Site with Communications & MT & T people, GMX people and Zia Tech and Eng. people. Procedures were established to work in the S-Site, K-Site, and PMA areas. This mainly effected MT & T people. Nielson went to Albuquerque to get drill stem, couplings, bits, etc., to fit our jackhammer so we could drill the special holes between areas 1 & 2. We devised a feed and mount on back of pickup for drilling the angle holes and the crafts started installing it on Nielson's pickup. Also, got a radio installed in Neilson's pickup. Took Mr. Tucker of Longyear Co. to the site so he could make a bid for the core drilling. Crafts working on power line, hauling gravel, clearing slash and clearing administration area and Area No. 1. Junge notified Casey Co. to send drilling rig.

Oct. 13, 1959-Tues. Finished assembly for drilling from pickup. Got set up in the field and started drilling about 1330. Finished holes about 1830. Taxi took the two laborers home.

Crafts working on power line, hauling rock, and clearing areas and slash.

Oct. 14, 1959-Wed. Completed all the set up for taking pictures and ground deflections for J-6 by noon. J-6, J-8, and GMX personnel fired test shots in holes. Antonio Martinez and Joe Salazar worked 3 hours in the afternoon backfilling the holes with sand on call from the group.

Oct. 15, 1959-Thurs. Finished blading Area 1 and U of C survey crew laid out holes 1-a, 1-c, 1-e, and 1-f. Drilling crew from Geo. Casey Co. arrived and started drilling hole 1-f about 1030. They finished hole 1-f and got about 40' of hole 1-a by 1630. Sam and I checked with Newman about 1630 and he had a special project lined up for 7 more holes in the special hole area between areas 1 and 2. We took verbal instructions and pencil sketches back to office. Working drawings were made and Ironworker superintendent alerted to start on job in the morning. Took Mr. Basye of -Texas to the site so he could bid on core drilling.

Oct. 16, 1959-Fri. Processed a multitude of work orders. Attended a meeting with U of C, USGS, AEC, and Zia. Bill Junge was present. The meeting was to determine where, and how the core drilling was to be done and what laboratory information would be required from

the cores. It was decided to core 120' deep at Area 1, 2, 3, & 4 and to get a NX core. The deep hole in the C. P. area is not to be cored but to be drilled with cable tools to the water table and then go several hundred feet into the water table. The geologists estimate of depth to the water table was 1500' and the hole is to be cased with 8" casing. Zia was also requested to contact some private testing labs to make certain chemical and physical tests on the cores. See sheet listing tests wanted. Mr. Basye and Mr. Tucker were contacted by Junge after the meeting and given this latest information. A Dec. 1 deadline on core and cable tool drilling and lab tests was requested by Newman. Zia was also requested to drill a 24"-200' deep hole by our drilling contractor (Casey) near the C. P. Area. This hole would then be used by the cable tool driller and deepened to 1500-1800 ft. Junge called Casey Co. in Los Angeles and they are going to make up and send out more drill stem so they can do the job.

Rented a post hole digger from Reynolds Electric.

Oct. 17, 1959- Sat. Spent most of the day in the office ordering material and making drawings of work to be done. Nielson was in the field. Worked the power line, road, post hole digger on the special holes, dozer and blade clearing and support laborers. Trucks hauled fine topping material most of the day as the grizzley had to be reinforced. Line crew worked.

- Oct. 18, 1959- Sun. Continued clearing with dozer and blade. Hauling rock from grizzley and spreading and compacting fines. Post hole digger working on fence post holes so it can be spared from this job for a few days for work other places.
- Oct. 19, 1959- Mon. To take advantage of the good weather, started the rock haul for the roads, etc., on a 10 hr. day, Monday through Friday and 8 hours on Saturday and Sunday. J-6 fired three of the test holes (6, 7, & 8). Two laborers assisted with the sand. Joe Salazar and _____ poured fence posts on perimeter fence. Hauling rock for roads, clearing, welding on 10" casings, fabricating earth retainers for holes at Area 1.
- Oct. 20, 1959- Tues. Excavated for guard station foundation and because of the ground being low in front, we dropped the front landing or slab 6". Staked area lighting poles for Reynolds post hole digger.
- Oct. 21, 1959 - Wed. Junge brought Mr. Burkhart to the office to meet with Newman, Tatum, Musser, and me. Mr. Burkhart represents a soil laboratory in Bryan, Texas and is interested in bidding not only on the soil testing but on the core drilling and deep hole drilling, too.
- We resolved that all the core and cable drilling was to be done dry. This was contrary to my previous understanding as I thought that the cable drilling was to be done with mud. Newman called back after the meeting and said he had talked to Bill Hale, U. S. G. S. and that a rotary drill would be acceptable on the deep hole and to start the hole 16 inches in diameter so we could reduce
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casing several times as all perched water encountered must be cased. Also, a 3" pilot hole is desirable if drilled dry down to the water table or the first perched zone. Perched zones must also be bailed when encountered so their level could be definitely established. Grouted the three steel casings in holes 10, 11, 12. Bill Brown, our new clerk, helped Nielson in the field all day.

Moved field office in place, hauling gravel, clearing, poured fence posts, hauled fencing, drillers working, working on special tubes for test holes. Welded on casing from Nevada for hole 1-f. Poured slab for guard station.

Oct. 22, 1959 - Thurs. Dug new hole in special test area, No. 13. Finished the metal tubes with flanges/ Newman's sketch that go into the test holes. Halliburton's people from Farmington, a Mr. Williams, and a Mr. Taylor, were here to discuss grouting the casing in hole 1-f. Methods were discussed and Junge will deliver the necessary cement, water, pipe, etc., to the site Monday. Made arrangements with Cook to get a man to help the USGS geologists at TA-49. He gave us J. Hammonds. Started the Parsons ditcher ditching from the C. P. to Area No. 1. Line crew working on power and M. T. & T. working on telephone. It appears as if we will be holding the telephone company up if we don't get the pole line set to the C. P. Area very soon. Because of our shortage of man power, suggested that the telephone company set the poles to the

C. P. This is opposed by our line crew but it may be necessary, nevertheless, to do so. Crafts working on roads, welding casing, building shacks, building steel tube gadgets for test holes and clearing.

Oct. 23, 1959 - Fri.

Received word that one of the cased holes at the area between No. 1 and No. 2 had to have a 1" thick plywood disk fastened to the bottom of the $1\frac{1}{4}$ " blind flange. Nielson brought flange into the cabinet shop. J-6 fired holes 9, 4 (reused), and 13. Due to an error on our part, the three bottom flanges weren't built to specs. The flanges had been cut out in the center for a 4" dia. hole. I had had the piece welded back in but hadn't specified a full weld the thickness of the plate and these pieces failed when tested. One piece was made wrong but I think was due to the sketch not being clear.

Linemen working on PMA outage - Hauling and spreading gravel for road. Cutting material in shop for hole stopper. Clearing areas at site and drilling on hole "1-0". In meeting in Goodson's office with Crook, Kirby, Badsgard, and Roy Hopwood (elect. steward), and agreed we would set poles to C. P. by noon Monday and that because of man power shortage with the linemen, we would haul poles to site and load and unload them with riggers. Set the 34" casing in hole 1-f with the crane. We had to work until 6:30 or 7:00 p. m. to finish. Joe Salazar and _____ helped the U of C fill the holes, etc.

- Oct. 24, 1959 - Sat. Road crews working on hauling rock, clearing on perimeter road and spreading and compacting rock. Ironworkers welding in shop on hole stopper to make Wed. night deadline and carpenters working in shop on finishing construction shacks (so men can report to site Monday) and also on bottom part of hole stopper. Surveyed and laid out road ahead of crews, ordered material up to date on work orders on hand, culled completed orders to be turned in. Decided to abandon grizzly and haul straight pit run as it will cost too much to rebuild grizzly and we have found a good vein of material. Also, the extra time rolling the bigger rocks will be offset many times by the extra trucks we can put on the run. Linemen working on PMA outage and coming across Water Canyon.
- Oct. 25, 1959 - Sun. Hauled and spread rock. 9 trucks on the run compared to 5 or 6 previously used. Clearing of perimeter road completed and a complete list of culvert required compiled.
- Oct. 26, 1959 - Mon. Resolved the question of access to areas 1, 2, 3 & 4 from the perimeter road with Blossom. We can gain access to any of the areas from any side except the side the power, telephone, and control wiring is coming to. Ordered culvert and office supplies. Junge had cement, water, pipe and misc. supplies on site at 8:00 a.m. for Haliburton to grout the casing in hole 1-f. Haliburton poured the plug using accelerated cement & water. Waited about 30 min. for it to set and we started filling the casing with water to equalize the pressure caused by grouting on the exterior.

Casing was filled with water and then suddenly it started leaking at a terrific rate. Casing completely voided of water in 20 or 30 minutes and a Haliburton man lowered in a bosun chair with a crane to see what caused leak. Discovered the casing had conformed to a true round shape. This caused a void between casing and cement plug and water leaked out and was absorbed in the tuff. Another 3' of neat cement was pumped inside and out of casing and casing left until tomorrow. Top of plug is now about 47'-4" below ground instead of the 52' asked.

Checked with Newman about 1400 and he had a sketch of a hole insert that had to be made by noon tomorrow. Checked back with the crafts and got them started. Mr. Musser and I checked back with Newman about 1615 and were briefed on next Thursday's operation. Made arrangements for post hole digger back at site. Linemen setting poles to C. P. Shaping roads and hauling rocks, working on shacks, hole stopper & cage. Set 30 KV and 7.5 KV generators at Area 1 for J-1 trailer.

Oct. 27, 1959 - Tues. Briefed Thorne and Pete White on next Thurs. operation. Holes 10, 11, and 12 were tested. Joe Salazar and Smiley Trujillo helped the U of C in the afternoon. When hole 12 was fired, the heavy flange and the casing ruptured and scattered metal fragments around the area for several hundred feet. No one was hit but several near misses. Drillers moved to area two. Electricians and mechanics got the 30 KV generator operating and the J-1

trailer supplied with power. Halliburton continued grouting the casing but it started to lift out of the hole and Nielson stopped them. We will grout the remaining 10 or 12 feet. Riggers unloaded fencing material and unloaded ^{C.} ~~6.~~ m. p. at proper location on perimeter road. Moved one of the U of C head houses to an area adjacent to Area 1. Staked out transformer pads in all areas. Riggers measured crane boom and planned for Thursdays operation. Continued hauling rock, clearing, welding on hole stopper, setting power poles to C. P., etc.

Oct. 28, 1959 - Wed. Never did get to the site today. Spent a good part of the morning in Newman's office getting work orders written and discussing the new safety regulations and procedures. Met with Mr. Walling of Santa Fe who is going to do our blasting for the drift in hole 1-c. He visited the site with Nielson and went down in the hole in a bosun chair. He and Nielson worked out a shot pattern and believe they can do the job in three or four days. Also, talked to him about a new project Blossom wanted me to check involving an underground chamber, steel casing, access shaft, etc. We estimated 3 weeks at regular time. Blossom was informed and said if they wanted to go ahead he would let us know but that they would probably want to work 3 shifts around the clock so they could complete in a week or ten days. Discussed hazardous pay for setting shots, etc., and decided we would pay it to personnel who were required to work within the safety perimeter or line of sight recommended by the U of C Safety Dept.

Oct. 29, 1959 - Thurs. Lowered Jerry Tatum and the geologist into hole 1-k in the new cage. Made a test run of lowering a chunk of lead into the bottom of the hole and made a test run on lowering the hole stopper into the hole. Cleaned the 18" ledge of loose rock and dirt and we were ready for U of C test personnel by 1300. Lowered the charge into the hole, set the plug, and back-filled with sand without incident. Rea Blossom took me to Beta Site where we have a new project starting that is part of the project 8726. Arranged with Ed Harrison to drop a cat at Beta to clear the area. Ordered 72" CMP for casing from Junge and also steel pipe casing 24" max - 16 " min. Junge arranged for the 72" CMP to be rolled in Albuquerque and we will pick it up with our trucks Saturday morning. Junge also found 18' of 18" diameter, 3/8" wall thickness casing which will be delivered the first of next week. We concentrated on hauling fines for the TA-49 road as we are held up because our culverts aren't in place for the perimeter road altho most of it was just received. Linemen and telephone crews working near CP area. Elect. starting to lay cable in trenches.

Oct. 30, 1959 - Fri. It has rained and snowed all night and the road to Beta Site and the areas in TA-49 that haven't been rocked are impassible to anything except four-wheel drive and tracked vehicles. Met at Beta Site with Kenneth Corn and Willie Ortiz and discussed LACI clearance and security. It was agreed that we could work LACI

personnel without a clearance list and that uncleared personnel would be admitted to the site without escort if they had a construction badge. Dozer cleared the area and we moved the Geo. Casey Co. drillers in and they were set up by noon. We had to drag all the equipment in with a D-8 cat and it continued to rain and snow all day. TA-49 is such a soggy mess that the line and telephone crews couldn't operate. Dozers and laborers working to install culverts and burn slash on the fire breaks. A permit was obtained from the fire dept. Labor crew and ironworker crew worked on fencing. J-6 conducted a small test shot in the 10" hole area between areas 1 & 2.

Oct. 31, 1959 - Sat.

Driver sent to Albuquerque to pick up 40 lin. ft. of 72" CMP. Ironworkers worked in shop fabricating mining buckets and associated track and carts. When culvert was delivered they welded it together so we can set it in the 6' - 6" hole at Beta Site tomorrow. The driver was several hours late getting back from Albuquerque as he ran out of gasoline. Dozers worked at TA-49 backfilling and compacting over the CMP so we could continue plating with rock the first of the week. Drillers worked all day and completed the 6' - 6" x 35' deep hole and the 2' - 0" dia. x 35' deep hole. We didn't lay out the 2'-0" dia. hole in advance for the drillers as their rig was on line with it. We told them it was to be 15'-6" center to center from the big hole and if we didn't get back when they finished the big hole to measure it out themselves. They did this but got the holes centered about 15'-0" apart instead of 15'-6" and had about 20' drilled before we could get

15'-0" center to center

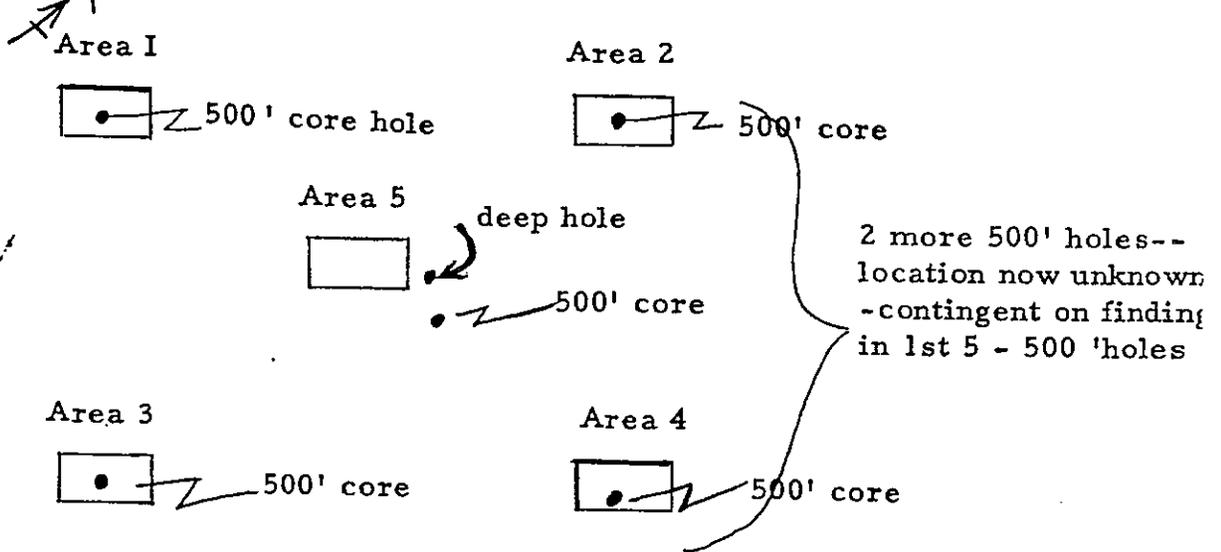
back to check them. I called Blossom at his home and told him we could correct the casing alignment if we drilled a 36" hole and crowded the far side. He said to continue as we were as he could redesign the connecting tunnel to fit the shorter dimension.

Nov. 1, 1959 - Sun. Braced the inside bottom of the 72" CMP in the shop and hauled it out to Beta Site. Set CMP in the hole and grouted it. Fabricated ladder so we could get down into the hole and hauled out the working hoist platform, mining bucket, and bucket cart.

Nov. 2, 1959 - Mon. Finished the ladder in the casing at Beta Site and removed the casing wall where the drift started. Drilled a round of holes and shot the holes. A heavy rain occurred at night while we were working. Mr. Walling of Santa Fe was the powder man. The shots pot holed in the back and we quit about 8:00 or 9:00 p.m. TA-49 is still so muddy you can't get around. Attended a meeting in Bill Junge's office. Present were Mr. Hale and Mr. Baltz (U. S. G. S.), Mr. Newman (J-6), Bill Junge and myself. Original notes are filed but condensed the decisions were as follows:

1. U. S. G. S. to have overall supervision.
2. Information priority - Shot areas first. This to include logging and core drilling.
3. George Casey drillers to put down a 200' deep by 24" diameter hole in Water Canyon. The top 20 or 30 feet to be cased.

4. Final agreement on core holes to be as sketched:



5. Pilot hole may be drilled on deep hole to 700'. Wet drilling permissible below 700'.

Nov. 3, 1959 - Tues. Continued shooting and mucking tuff at Beta Site. We had to quit drilling and mucking about 5:00 p. m. because the ceiling was scaling off and unsafe. Called "Shot" Anderson about 6:00 p. m. and had him get some carpenters and frame some square sets of 6" x 6" and cut logging for use first thing in the morning. Went down in the cage to the bottom of hole 1-0 with Bill Purtyman. We checked pack set radios for communications and they seemed to be satisfactory. We found a layer of water layed tuff at about the 75' level. A dry run was made on loading the hole. George Casey Co. drillers removed the sand from hole 1-k and we recovered the hole stopper by using his rig and our riggers. We had to work the driller a few hours overtime to do this. Linemen setting transformers at the Administration Area. Laborers cutting

slash and burning. Elect. hooked up camera control and extension cord and stringing D. B. cable from the C. P. area to area No. 1. Equip. operators installing culverts on perimeter road. Ironworkers building fence.

Nov. 4, 1959 - Wed. Beta Site - We set 2 square sets and 3' of lagging in the tunnel, blasted and mucked all day. It was apparent we weren't going to meet Monday's deadline because of equipment trouble and having to crib the ceiling and walls as we go along. Therefore, we worked carpenters and laborers all night and completed as far as the end of the tunnel - $9\frac{1}{2}$ feet. Carpenter Supt. Anderson and one of our area engineers, Walt Humphrey, worked with them.

TA-49 - We got ready for the shot in hole 10 during the morning. The drillers, Geo. Casey Co., moved to area 3. In the afternoon, we gave support to the University in setting the shot, lowering and placing the hole stopper, and backfilling the hole. Everything went OK except we delayed them about 20 minutes because we had to send two of our trucks back for sand.

Linemen finished transformers in Administration Area. Ironworkers building fence. Laborers cutting and burning slash. Road crews installing culverts and compacting perimeter road. Telephones were installed in construction office.

Nov. 5, 1959 - Thurs. Beta Site - Continued mucking and shooting all day and all night. Nielson and I stayed with it until 4:30 a. m. Friday morning

until all the drilling and shooting was finished. Mr. Walling stayed with us until about 5 a. m. Carpenter crew came in at midnight and stayed until morning setting timbers and mucking out for the timbers and lagging. Anderson worked from midnight through until morning. Elipio Maestas assigned to us to take overall charge of all laborers on this project. Elipio worked through until about 12:30 and then took the laborers home.

TA-49 - Went through the work orders with Elipio and showed him all the jobs in progress and outlined the future work with him for the balance of the week and week end. Checked through with preparations for test firing the 10" holes to see that everything was ready.

Linemen installing transformers at the C. P. - Laborers clearing slash and two men assisting with the test firing. Ironworkers working on fence and lowering the geologists into the holes in area one that hadn't been mapped. Electricians installing radio antennas and splicing D. B. cable to Area 1.

Nov. 6, 1959 - Fri. TA-49 - Casey drillers set to recovering sand from hole 1-0. Asked Sam yesterday to get us some more help along the engineering and administrative line. Today he secured the services of Joe Hill from Zia Engineering. Joe is to follow through on special assignments and detail pertaining to shot preparations, drawings for the crafts, etc. This will relieve me of a tremendous amount of time consuming details as details are of the utmost

importance on this project and nothing can be taken for granted. Linemen pulling wire into C. P. area. Laborers clearing and assisting the University in test shots in 10" holes. Electricians pulling and splicing cable from C. P. Area to Area 1. Iron-workers assisting geologist mapping holes and working on fence by Route 4.

Beta Site - Interior room finally completely scaled and laborers set up to continue mucking until area is cleared. This took until about 10:00 p. m. Relief operator failed to show at 7:00 p. m. and another operator had to be sent out.

Nov. 7, 1959 - Sat. Geo. Casey drillers continued to remove sand from hole 1-0 and an attempt was made to recover the hole stopper. The hole at the 40-50 ft. level was so badly shattered that we were afraid to send men down to shovel sand from plug. Loraine crane attempted to pull hole stopper but the 1/2" cable parted. It was decided to leave the stopper in the hole for the time being. Geologists mapped holes in Area 1. One operator compacting roads. Buchanan and Associates drillers with small rotary rig arrived and were shown the site of operations.

Joe Hill worked with us today and was shown the operations at TA-49 and Beta Site. Musser, Hill, and I met with Blossom & Newman and were briefed on the next two shot operations in hole 1-y and 1-c. Joe will make detailed drawings on inserts needed. One shape will have to be made by ACF Industries in Albuquerque

and Musser made arrangements for Hill to go to ACF Monday.

Beta Site - Carpenters completed the square sets and lagging. Electricians worked.

Nov. 8, 1959 - Sun. TA-49 - Casey driller worked on hole 1-y so it would be ready for geologists and our operations. This was necessary because of work Monday and Tuesday they have to do at DP Site and the holiday Wednesday.

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W.L.F.
4/17/91

Beta Site - Tinnners completed the exhaust system and the metal canopy in the ceiling of the underground room. Fitters set the cased water compartments and we grouted it in place. Electricians continued running conduit and fixtures in shaft, tunnel, and room.

Nov. 9, 1959 - Mon. TA-49 - Equipment moved from B-Site so mining operations could start on hole 1-c. Drilling and shooting started Monday afternoon. Laborers working on fencing and clearing. Linemen getting power to C.P. area, ironworkers assisting geologists and working on inserts for hole 1-y. Casey drillers at D.P. Site. Electricians splicing cables from CP to Areas 1 and 2. Heavy equipment compacting perimeter road. Tinnners working on hole inserts.

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W.L.F.
4/17/91

B-Site - Electricians finished and site cleaned up. Inspection by the University and Security at 2:00 p.m. Job was accepted and a few small items added.

Meeting in Musser's office with Musser, Junge, Newman, and Herring and Burkhardt of Buchanan and Associates.

1. It was decided to drill a 700' pilot hole at the deep well location. Hole to be drilled dry, 4½" dia. with rock bits. No cores.
2. 500' holes - 5 holes to be drilled with 100% core recovery attempted. 2 more 500' holes a future possibility.
3. Zia will supply aluminum foil and paraffin. Only the cores from 40' to 120' depth need to be packaged and dipped from holes in Areas 1, 2, 3, & 4.
4. The time schedule of Dec. 1st is still desirable but not sacred. Drill for one week and see if a second rig is necessary.

Joe Hill reported back from Albuquerque and has a promised delivery of Friday 13th on the 1" plate core. He also found a 2" thick plate already cut to a 48" diameter. We will get this also Friday.

Nov. 10, 1959 - Tues. TA-49 - Casey drillers finished at D. P. Site and returned to TA-49 before noon. They set in and continued to drill hole 1-y. Continued drilling, shooting, and mucking from hole 1-c. Grading and compacting perimeter road. Set separator logs for storage area in Area 6. Post hole digger drilling holes for perimeter lights at different areas. Dug holes

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safety fence around C. P. trans. station. Linemen stringing wire into C. P. area. Laborers cleaning ditches that run from C. P. to Areas 1, 2, & 3. Ditching machine digging in C. P. area for power, coax., and communication line. Carpenters setting mounting boards for electric disconnects, etc., at areas 1, 2, and 5.

Beta Site - Poured the top of the 16" casing according to instructions received from Blossom over the phone at home Monday night. 8" high and 24" square form centered on casing. Change received on the 3" opening into 16" casing about 1400. Fitters were notified. Thorne briefed on 4" I beam supports in underground chamber. Received a W. O. about 1400 instructing us to make a cover for hole 1-k with a hatch in it by 900, 11-12-59. Contacted Jerry Tatum and got an extension until 1300.

Newman called about 1700 and talked to me at TA-49. Wants us to make a mock up of hole 1-c in the 10" hole test area. We will try drilling on a 45° angle and intercept bottom of hole with a 2" hole. Then dynamite the 2" hole for a distance of 2'-6".

Buchanan and Associates driller made 120' on the pilot hole.

Nov. 11, 1959 - Wed. Holiday and job shut down with the exception of Buchanan and Associates. They drilled to 160' and hit sand, pumice, or a similar soft layer. They lost their air and couldn't proceed further.

Nov. 12, 1959 - Thurs. Buchanan and Associates worked til noon trying to go through the loose formation. Evidently there is quite a void. They poured mud and calcium and cement grout to fill the void and hope to drill

through it tomorrow.

Casey drillers finished hole 1-y and moved to C. P. Area to drill 2- 24" sumps 40' deep.

Continued to drive drift in hole 1-c. Fabricating hole stopper and charge carrier for hole 1-y setting mounting board for elect. switches, etc., in areas 5, 1, & 2. Poured posts for C. P. transformer fence. Ditching machine continued work in C. P. for underground power and communications. Drilled special 45° angle 2" diameter hole to intercept 10" test hole #15. Dynamite charges set at intersection of two holes but powder man Walling broke the detonator wires about 4' from the charge when he was tamping a plug in the 2" hole. The dynamite has a cap in it and I told Nielson to abandon it and dig another until we could figure out some way to recover the charge or detonate it. Laborers trimming ditches in C. P. for carpenters who are making up wood troughs for signal cable. Electricians splicing wires and laying cables in trench.

B-Site - 4" I beams were installed in underground chamber by ironworker and fitters made necessary modifications to casing with water chambers.

Nov. 13, -Friday. TA-49 - Geo. Casey drillers finished the sump holes in C. P. Area and started hole 1-u. Buchanan and Associates are drilling through their plug and the loose material but making slow progress. They aren't getting a return on their air. Showed Ned Herring the location of the four 500' holes in areas 1, 2, 3, and 4 and the proposed

location of the deep hole in Water Canyon. The mining operations are continuing in hole 1-c and the geologists were let down into hole 1-y for mapping purposes. We also ran a test on hole 1-y to dry run Monday's operations. Drilled all of the holes for fence posts in the C. P. Area and poured all of the posts there and most of the remaining posts on the highway. Electricians working to beat Monday's deadline on power at area 1 and they have the panels connected and a temporary transformer set. We checked with Blossom about 1530 and discovered we weren't pushing the signal cable hard enough or the terminal boards either. Ironworkers fencing trans. station and along highway. Laborers digging in C. P. trenches, setting drive posts and helping the carpenters and ironworkers. Linemen setting poles to Area 7.

We also drilled another special hole in the test hole area and exploded a dynamite charge at the bottom to make a small chamber.

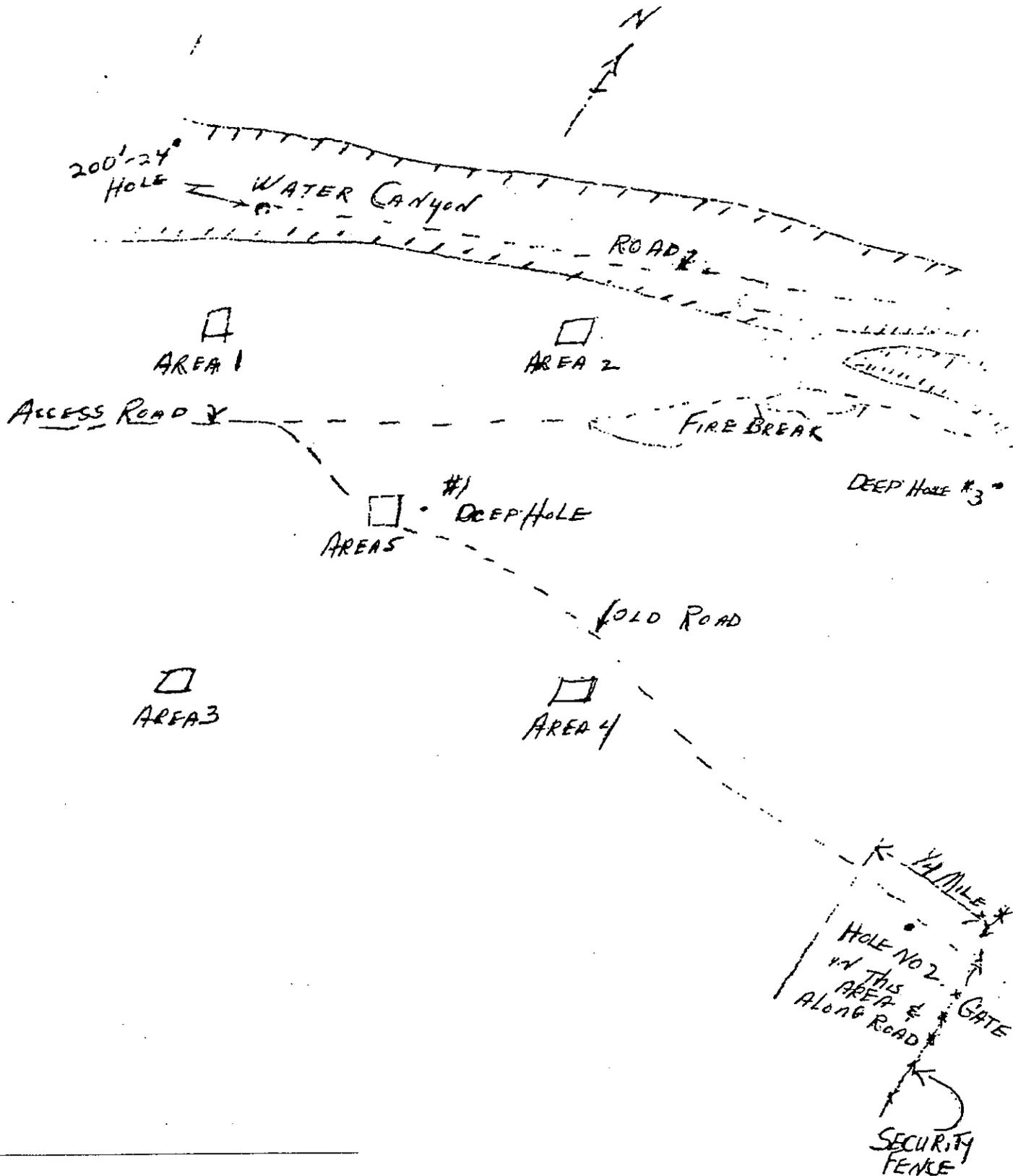
Beta Site - Ironworkers set lead brick in back chamber.

Nov. 14, 1959 - Sat. TA-49 - Continued mining operations in hole 1-c because we have to pull one of the cranes out Monday and Tues. and we won't be able to hoist from the shaft Monday. Shot our last charges late in the afternoon and mucking is all that is left. Ironworkers worked in shop on the firing inserts for hole 1-c, safety railing for 6'-0" holes, ladder safety enclosure for Beta Site, and transformer and C. P. area fencing. This fencing has to be up so transformer can be energized and in C. P.

Area because of impending security requirements.

Mr. Hale, of U. S. G. S., showed me where he wants to locate the deep holes. He decided not to go into the canyon bottoms.

See sketch.



Buchanan & Associates drillers reached 312 feet after they mudded off the loose zone. Bill Junge called and asked to buy 400' of 4" smooth wall casing. This is needed to case off the zones of loose material encountered when drilling so the air can be sent back up the drill hole. This casing can be reused in all the core holes and is equipped with a drilling shoe so it drills its own way down and doesn't have to be pulled and the hole reamed. Carpenters and laborers working to get wood trough and man holes finished in C. P. Area as we need them Tuesday. Electricians installing power cable and setting breakers and controls on mounting boards. Also, set in a temporary warning siren.

Nov. 15, 1959 - Sun. TA-49 - We worked on the wood trough in the C. P. Area getting them ready for cable to terminal boxes in Area 1 and 2 and the C. P. Area. Carp. setting back boards for terminal boxes. Electricians working on signal cables and tying into terminals. Blossom wants the signal cables checked for continuity and shorts. Laborers ditching in C. P. Area and installing smooth wire protective fence between C. P. Area and Areas 1 and 2. Ironworker (one) working with laborers on fencing. Mr. Walling used a sewer "rat" to drill out the 2" hole to the buried dynamite charge. He finally reached the dynamite and pulled out paper and powder. He set another stick and cap in next to the unexploded charge and detonated it. We feel confident the entire amount of dynamite exploded.

Nov. 16, 1959 - Mon. TA-49 - Dry run on hole inserts made on hole 1-y in preparation for firing in the afternoon. We used the permanent power connections for the first time and everything worked OK. Everything seemed to go all right preparing for the shot except the backfilling with sand with the Fordson loader and a D-8-Dozer is slower than dumping with trucks.

Electricians are installing power cables in C. P. Area trenches and mounting controls on terminal boards. Laborers working on smooth wire fence and digging in C. P. Area. Carpenters building wood trough and making man holes. Ironworkers building fence in C. P. and rigging for shot. Telephone crews have installed phone outlets in C. P. Area and the linemen are bringing in power from the transformer station. Because of the shot Buchanan and Assoc. quit working about 1430.

B-Site - Riggers and carpenters installed a "Godiva" in the underground chamber.

Nov. 17, 1959 - Tues. TA-49 - Series of small shots in test area fired in the afternoon. We continued checking out the signal cables in the C. P. Area. Working on ~~primary power~~, and fencing. Continued mining in hole 1-c and finished removing all the rock. Buchanan and Associates quit drilling, because of the shots, about 1430. Set the T & F trailer in the C. P. Area and tied it into the power panel.

Nov. 18, 1959 - Wed. TA-49 - Jerry Tatum notified me that they wanted a hole drilled down to the drift in hole 1-c and a pipe put in with a drive fit.

He then wanted the pipe run over the casing at hole 1-f and a top welded on the casing, a gauge installed and the casing seams re-welded where they are above ground. They want all of this complete by Friday noon. We ordered 12 more pieces of drill stem from Albuquerque and they were flown up and here by 1400. Nielson set up our hammer on its cross-bar and started drilling. They finished the hole by 1730 but our 55# hammer just barely drilled down to 44 feet and we couldn't pull the drill steel and had to disassemble it in the drift. At hole 1-y we drove through the sand backfill to a depth of about 46 feet a 4" OD steel casing. We did this with a crane, headache ball, and a homemade pile driving guide that worked very well. U of C personnel logged the casing. Geologists mapped hole 1-u. Checked with Sam and Tom Cook on our October cost report for this project.

Nov. 19, 1959 - Thursday TA-49 - Fitters came out to put the pipe from hole 1-c to 1-f and we tried driving the 2" pipe in the 2" drill hole down into the drift. We drove about 12 feet of it into the ground and then ran a 1 $\frac{1}{4}$ " pipe down through the 2" into the drift and welded it to the 2" above the ground. Fitters installed the line and welded the casing, Electricians installing signal cable to Areas 1 and 2 and installing the ends in terminal boxes. Geologists are mapping holes in Area 2. We settled questions the core driller had asked with Rea Blossom and Junge will be able to settle on a contract with them. Set the I beam cage to the bottom of hole 1-c after pulling the casing. Chocked in solid with wood wedges between the wall of the hole and the 1" thick top ring of the cage so sand couldn't filter through to the bottom of the hole.

Nov. 20, 1959 - Fri. TA-49 - We prepared all morning for the scheduled firing of hole 1-c in the afternoon. We never were able to make a dry run complete because it was decided by LASL to install the firing cables down the side of the hole in a conduit. After the conduit was installed it was discovered that the wood and steel plug wouldn't go in the hole because of the conduit and we had to scale the side of the hole and recess the conduit. Because of this delay we had to dry run part of the loading operations after 1230. The actual loading operation was very complex and time consuming and we were $1\frac{1}{2}$ hours later than was scheduled. A dozer is awkward to use with this type of loading and the Fordson is too small and slow. I believe a Michigan loader may be the answer. Electricians were given a short course in making coax connectors by E. G. & G. personnel. They are also installing the power cables to Areas 3 and 4 and we backfilled the trenches. Also, continued installing signal cables and connections. The linemen have finished the power line to Area 7 and set the transformer. They are also setting perimeter light poles in Area 2, 3, and 4. Laborers working on smooth wire fence.

Talked to Blossom in the afternoon as we were testing and he set 12-2-59 as a completion date in Area 1 for all signal and coax cable including the connectors and terminal panels. 12-7-59 was set for completion of the same work in Area 2.

Nov. 21, 1959 - Sat. TA-49 - Electricians stringing coax and making terminal plates and coax splices in the shop. Carpenters making assembly needed for the 1-u shot and terminal boxes for Areas 1 & 2. Also, started fabrication of 10 x 10 floorless shack for electricians to use in field to make coax

connections. Ironworkers working in the shop on assembly for hole 1-u. Also fabricating a personnel cage and a portable safety railing for the holes. Changed the line out on the Loraine crane to new 5/8 cable. We have enough line now to drop the hook with 4 parts of line down 50' below the ground. Buchanan & Assoc. finished pilot hole to 690' plus and had a hard time pulling their drill stem as they were in an extensive sand bed and the sand worked in above the bit. They finally mudded the hole and drilled out. No perched water was encountered.

Nov. 22, 1959 - Sun. Buchanan & Assoc. were the only people working. They were core drilling in area 2 and had cored to about 100' in the late afternoon. Core recovery is good considering the fractures in the formation and the ease with which the soft tuff breaks.

Nov. 23, 1959 - Mon. TA-49 - Buchanan & Associates core drilling in Area 2. They are below the 100' level but have their drill bit stuck. The 4" smooth wall casing that they need is in Santa Fe and should be up tomorrow. They are getting badly fractured cores in spite of using a 5' core barrel. Geo. Casey drillers pulled back to Area 1 to drill a hole beside hole 1-c so we can get rid of the sand in 1-c and recover the inserts and plugs. Hole is being drilled adjacent and north of the original hole and will be deep enough to penetrate the drift at the bottom of hole 1-c. Electricians are stringing coax cable on the ground from the C.P. to Area 1 and installing connectors on the ends for inserting in the terminal boxes. I learned for the first time when I talked to Rea Blossom today that a wood platform is to be built outside the Sandia trailer that has the Sandia

terminal box outside of it and that the terminal box sets on the platform. We may have cut the coax too short to this terminal box because of the platform height. However, there is a good chance that we will have enough. Notified E. G. & G. personnel (Tom Nelson) and Blossom and Newman that we would have an electric outage next Friday from 8 a. m. to 2 p. m. Laborers clearing slash, installing smooth wire fence, and digging for man hole in C. P. area. Linemen working on perimeter lighting. Newman and Blossom called about 1630 and I went over to their offices to discuss work schedules and job deadlines. It was firmed that we would fire hole 1-u Wednesday the 25th and hole 2-a the following Wednesday, 12-2-59. We also have a 14' x 24' x 18' high house to build in the C. P. Area with a concrete reinforced slab and a 6' dia. hole 8' deep in the floor. This has to be ready by 12-2-59. I called Bob House to see if the U of C shops could roll a cylinder of 1/2" plate 6'-0" O.D. x 7' high and was told they couldn't any time in the near future unless priority was established. Junge was advised of this and he got delivery Friday morning from a firm in Albuquerque of the cylinder. Notified Thorne to work some welders in the shop tonight as we couldn't make the deadlines otherwise. Contacted Joe Hill at home and gave him dimensions of a few items we needed tomorrow for hole 1-u and 2-a so he could have sketches ready in the morning.

B-Site - Elect. - started connecting old wiring to existing bunker, TA-5-16 at B-Site. Carp. to shore J16 trailer at B and blade graded around two trailers at end of mesa to correct drainage.

Nov. 24, 1959 - Tues. TA-49 - Prepared sketches for the frame structure in Area 5. Nielson laid out the floor slab and 6' dia. hole 8' deep that the slab pours around and had Casey's drillers drill the hole. Laborers, carpenters and ironworkers worked on the slab getting it ready to pour. Concrete is scheduled for 0800 in the morning. We finished working on the slab about 1800. Casey's drillers went back to hole 1-u to deepen the 6'-0" diameter part to 58' from 50'. This turned into quite a chore as the bucket is only 3'-0" diameter and it would not ream true in a 4'-0" hole and drifted to one side leaving about an 8" lip. We had to send hammer operators down to chop it out true by hand then alternately drill and chop for the entire 8'-0". Electricians were then lowered into the hole to rout out a groove in the side wall for the 3/4" conduit and then installed the conduit and firing cables. The steel cage was finished by this time and it was lowered into the bottom of the hole and chocked in place with wood wedges. Ironworkers fabricated in the shop on the hole inserts, charge carriers, etc., for the 1-u shot tomorrow. The crews in the field and shop both worked until 0230 on the fabrication and setting the cage in the hole. We also have a 8'-0" x 10'-0" pad prepared to pour in the C.P. Area, tomorrow. This is for a guard station and should be ready by 12-2-59 along with the many other things. Electricians working on the coax to Area 1 and making connectors. Rea Blossom added two more trailers in the C.P. Area and power and phone plugs must be ditched over from the main panel. Also a run of 80' and a run of 40' of 12" CMP must be

installed from the new structure in the C. P. to trailers "S-K" and J-15-5. The CMP is to be used as conduit and buried with wood man holes at each end. This also is needed by 12-2-59. This is very short notice for all of this work but I believe we can make it. Casey Co. drillers helped us until about 2130. Checked the site about 1830 for Buchanan and Associates drillers but they were not working.

Nov. 25, 1959 - Wed. TA-49 - Poured the slab for the guard station and for the building in the northwest corner of Area 5. Opened the ditches for the 12" CMP and the power and telephone to the new panel for J-16-8. The telephone company brought a man up from Santa Fe to put cable in the ditch and the electricians installed 4" conduit as we were out of direct burial cable. One run of 12" CMP to "S-K" trailer was laid and backfilled. Bob Newman called and said we had to run a 16 pair cable to Areas 1 and 2 from trailer J-16-8 and install new terminal boxes at each area. This also to be finished by 12-2-59. Linemen working on perimeter lighting. A dry run made on hole 1-u and at 1300 U of C personnel arrived at the site and hole 1-u was fired about 1530. Buchanan & Associates pulled their drill stem from the hole in Area #2 before the shot and didn't work any more the balance of the day. Joe Hill drew details on the steel cannister and inserts for hole 2-a and checked them with Newman.

Nov. 26, 1959 - Thurs. TA-49 - None of Zia's or LACI or sub-contractors worked.
(Thanksgiving Day)

Nov. 27, 1959 - Fri. TA-49 - Backfilled ditch to J-16-8 trailer and the CMP installed and backfilled to J-10-1 trailer. We ran out of 12" CMP and used 15" instead. Finished pulling the stopper and inserts from hole 1-C. Carpenters worked prefabing the walls for the building in northwest corner of the area and also worked on terminal boxes in the shop. Electricians making coax connectors, laying cable, and installing disconnects, plugs, etc., on power panels in C. P. Area.

We set 5 trailers in place. Namely: J-15-2 (in space marked for J-8), S-"Y", S-"K", S-"O", & S-"R". Security guards set up for S-"Y" trailer only. This way we can work uncleared men in the area. Trailer S-"K" had to be set in place with a crane and dozer. Bob Newman called about 1600 and asked for Joe Hill to check with him as they wanted to completely revise the cannister for hole 2-A. Joe made a new set of drawings and stopped the ironworkers in time to get the changes. However, all the carpenter and sheet metal work can't be used. Buchanan and Associates didn't work because of parts for their core barrel not coming in when expected. Casey Co. drillers didn't work because we released them until Monday so they could visit their families in Los Angeles over the holiday. Unloaded 27,000# of drill stem from a truck at the deep hole location east of Area 5. The stem is for the Reasor Drilling Co., a sub of Buchanan and Associates. Power outage for the complete site has been scheduled for today. A pole must be changed out in the PMA Area. However, instead of appearing at 0830 as scheduled, the telephone crews didn't get to the job until 1130. Because of this, we didn't get power back at TA-49 until about 1700 instead of 1400 as scheduled.

Nov. 28, 1959 - Sat. TA-49 - Carpenters erected walls of building in northwest corner of CP Area. Laborers backfilled ditches. Ironworkers fabricated in the shop for hole 2-a and installed gates on transformer station & C. P. Area. Also, they set the steel roof supports for the building in C. P. Area. We leveled all five trailers and received an order and made plans

for a continuous platform inside the Sandia trailer cluster. Holes 1-c, 1-k, and 1-o were backfilled with native excavated material. It was necessary to remove the overhead lines in the northwest corner on the lighting poles as they were directly above the new building and we can't operate the motor crane over the building. We decided to run conduit underground and the trench was dug from one pole to the other. Buchanan and Assoc. core drillers were unable to core as the bit that had been sent to them was not set right and it cut too big a core. This big core wouldn't go into the core barrel. I loaned them our 5'-0" core barrel which is the right size (NX) and fits their drill stem. The electricians had connectors for the RG-10 coax given to them by the U of C and they weren't listed in the instruction manual nor had we been instructed by E. G. & G. how to make them up. We checked with the Sandia personnel here at TA-49 and a Mr. Peterson and a Mr. Greenwald worked out a method of installing the RG-10 connectors and instructed our men and foremen. The telephone cable that runs overhead through the C. P. Area is in the way of our crane operations over the new building. We are going to have to reroute it and I think it should be underground. We must check this out Monday.

Nov. 29, 1959 - Sun. TA-49- Continued laying coax to Area 2 and making coax connections for cables to Area 1. Carpenters continuing to frame the building in northwest corner of C. P. and also making the guard station in the shop along with coax terminal boxes. Laborers completing smooth wire fence and backfilling. Also, scaling out wall of 6'-0"

diameter hole drilled through slab of house in northwest area of C. P. to 73" as it was drilled slightly undersized. Buchanan & Assoc. drillers are operating and have used some parts from our core barrel to modify their 20'-0" core barrel and they are drilling again. They were down to 235' when they started this morning.

Nov. 30, 1959 - Mon. TA-49 - Reasor Drilling company personnel got their construction badges and showed up at the site about noon. They unloaded equipment at the deep hole site and set up for drilling. Core drilling rig started in Area 1. Geo. Casey drillers worked on recovering sand and inserts from hole 1-u. Ironworkers completed fabricating the cannister and associated parts for hole 2-a and delivered them to the site in the afternoon. Lined out the painting work with Hugh Hancock. Carpenters continued building the wood deck between the Sandia Trailers and completing work on the building in the northwest corner. Electricians splicing coax and working on panels in Area 5. AEC Communications and M. S. T. & T. personnel were advised we were going to have to take the power and telephone lines underground in the C. P. Area. Trailer J-16-8 was set. Jerry Tatum came out in the afternoon and gave us a revised drawing for the 2-a shot. It involved digging hole 2-b to a depth of 35' for 3'-0" diameter and the top 10' 4'-0" diameter. Running a 3" line from the cannister in bottom of hole 2-a to hole 2-b, installing flanges, check valves, etc.

Dec. 1, 1959 - Tues. TA-49 - Reasor Drillers set up and started the deep hole. Core drillers working in Area 1. Geo. Casey drillers working on recovering sand, etc., from hole 1-u and they were moved to drill hole 2-b before they finished at 1-u and had to come back. Electricians wiring in "The Shed" (Bldg. in northwest corner of C. P.), splicing coax and terminal boxes. Carpenters set the guard station and finished trimming it. Also leveled trailer J-16-8 and completed the platform for the

Sandia trailers. Ironworkers completed fencing and dropped a plug in hole 2-a to check it for size. The hole was too small in some places and had to be scaled. Meeting in the afternoon in TA-3 conference room regarding the core drilling. U. S. G. S., Buchanan & Associates, J-6, and Zia were represented. Saw films of the holes 1-k and 1-o after they had been fired. See drilling file for notes on meeting in TA-3 conference room.

Dec. 2, 1959 - Wed. TA-49 - We set trailers J10-1, J-10-2, J-13-5, and J-13-2 in the C. P. Area. Carpenters worked on leveling trailers. Fitters completed setting and welding the 3" pipe between holes 2-a and 2-b, and the firing procedure was dry run. Electricians continuing on coax and panel boards, wiring "The Shed", and wiring the guard station. Laborers ditching and backfilling in C. P. and working on slash. We had to set a casing down in hole 1-u and muck the sand from the protection of the casing as the hole was badly shattered and the new hole Geo. Casey Drillers sank beside the old one caved in near the bottom. Reasor drillers had to stop drilling and start casing the first 200 feet. Core drillers working in Area 1 but they had troubles about 2000 and I sent a welder out to help them. Everything is ready for the shot in hole 2-a tomorrow.

Dec. 3, 1959 - Thurs. TA-49 - Everything recovered from hole 1-u and the hole was backfilled. Trench was opened part way across the C. P. for the power and telephone burial. 12 ton cannister was set into The Shed and trouble was encountered as the terrain is such that the crane

must swing up-hill. We may have to build an earth ramp. Reasor drillers still setting 8" casing, core drillers had more trouble with their rig and didn't core. Geo. Casey drillers finished at hole 1-u but couldn't start in Area 2 as we were preparing for a shot in hole 2-a. We set cannister, inserts, etc., for shot in 2-a and everything worked out OK. We cleared the area about 1520. Bob Newman briefed me on the geometry of some future holes and I will check tomorrow with the Geo. Casey drillers to see if we can drill them. We will need a belling bucket.

Friday, December 4, 1959 Carpenters are working on a connecting platform for J-10-1, J-10-2, and J-13-5 trailers. Electricians working on coax and power panel to the "Shed" and guard station. Laborers and ditcher opened ditches in CP Area for underground power and telephone. Telephone company installed their underground cable. Met with Bill Junge and checked out our anticipated needs for materials and equipment. Armand Kelly, Ty Aldrich, Willie Ortiz, Roy St. Clair, and Kenneth Corn met with us and discussed our future security problems and policies. It was decided to have a meeting at the site Monday and set up definite procedures.

Dec. 5, 1959 -Sat. TA-49 - Electricians stringing coax, making connectors, and stringing out the underground conduit in the CP Area. Two loads of 8" well casing came in and were unloaded. The carpenters built a catwalk around the cannister in the shed and installed a new panelboard in the transformer station. Security was put into effect on the site and the front gate and the CP gate were manned. Trestle for coax across arroyo between areas 5 and 3 was staked.

Dec. 6, 1959 - Sun. TA-49 - Electricians finished the underground conduit in the CP Area and the trenches were backfilled. Laborers and electricians and one carpenter were the only crafts working.

Dec. 7, 1959 Monday TA-49 - Meeting to determine security policy was held at the site. Aldrich, Ortiz, Blossom, Corn, Musser, and I were present. It was decided that any C. B. badge holder or cleared badge

holder with a numeral 1 could get through the front station. To get into area 5, any "Q" cleared LACI badge would be exchanged for an exchange badge, "Q" cleared Zia personnel would be admitted if they were on a list, and "Q" cleared Zia personnel not listed could be cleared verbally by Musser, Hill, Nielson, and me. After a person was admitted to the compound, he could be admitted to the special sensitive areas such as "The Shed" or S-"Y" trailer by the operating personnel or in their absence by Musser, Hill, Nielson, or me. Joe Hill and I were given a tentative shot schedule for the next two weeks with the kind of cannisters, inserts, etc., that would be required. This is a great aid in our planning and we will be able to work things concurrently in the shop and save a lot of time.

Dec. 8, 1959 - Tues. Attended a meeting with Blossom and Newman at which I was briefed on future schedules, shape and size of hole inserts, and drifts with sample piping from them. We will need a wagon drill and big air compressors to bore for the drifts and sample pipes. We will also need a bigger crane to handle the cannisters. Bill Junge and Sam were informed of the schedules and Nielson sent to Albuquerque to get a big drill and drifter. He found the equipment and the transportation shops started mounting it on an old wrecker chassis. Because of the scope of the work and the close deadlines I called a meeting in the evening of all the superintendents involved and management such as Musser, Junge, Brown, and Miller. We need their ideas and engineering and construction experience to get this rolling. Discussed at the

meeting was the general layout for hole 2-Y, design of the "Gray" house, design of sample collection systems, design of hole inserts and shot schedules and electrical needs. This is a good way to get a lot of information to a lot of people in a hurry. All concerned took notes, made sketches, did preliminary design work, and material needs were noted and estimated and prepared for ordering the next morning.

Dec. 9, 1959 - Wed. TA-49 - We prepared hole 2-E for firing and had it ready approximately on schedule. We set a Headhouse for the first time by 2-E and ran signal cables to it. We finished mounting the wagon drill and set in place for drilling a sample hole into 2-U. Drift at bottom of 2-U was drilled for shooting. Joe Hill has completed a tentative design for the "Gray" house and also is working on hole insert design. Geo. Casey drillers were put on a 12 hour shift to get ahead of us on the large hole drilling. Also, poured a 10' x 10' concrete slab under the cannister table location where the Gray house is to set.

Dec. 10, 1959 - Thurs. TA-49 - We continued working on hole 2-U for the test shot tomorrow. Ironworkers are laying out the skids for the "Gray" house and carpenters are fabricating the floor, walls, and roof on the ground. We will erect them with cranes. Electricians are working on coax runs and the underground power in the CP. We shot and mucked out the drift in 2-U and started the wagon drill sinking a 2" shaft to intercept the drift. We had a lot of trouble with the 2" hole as our 315 CFM compressor didn't give us enough air to clean the hole and

we stuck the bit repeatedly. It was 2:30 a. m. when we finally got the hole through and 5 a. m. before we got the sampling tube in place. Also, went with Bert Weir and Bill Purtyman of the USGS to locate a second 24" diameter hole to be drilled 200' deep, if possible. We will have to doze a road into the canyon from the Mesa top by route 4. The location is south of Area 4 and in the floor of the canyon.

Dec. 11, 1959 - Friday. Hole 2-U was fired on schedule. Carpenters continue to form the Gray house on the ground. Electricians stringing coax and making connectors. Ironworkers, tinnerns, and carpenters working in the shop on hole inserts. Drift into hole 2-K was drilled and shot.

Dec. 12, 1959 - Sat. TA-49 - Erected the walls of the Gray house. Wagon drill working on the sample tube hole to hole 2-K and electricians working on underground power in CP area and coax. Casey Company drillers working on hole 2-U recovering the inserts, etc. We had a laborer overcome in the hole and sent him to the hospital. He was overcome by CO, lack of oxygen, or nitrous compounds... we don't know which.

Dec. 13, 1959 - Sun. TA-49 - Electricians working on underground in the CP. Carpenters working on the "Gray" house. Laborers drilling and mucking drifts in the bottom of the holes.

Dec. 14, 1959 - Mon. TA-49 - Continued working on hole 2-K so it can be fired tomorrow. We had trouble getting the sample pipe down and it was quite late when we finished. Carpenters working on the "Gray" house. Laborers drilling and mucking in the drifts. Electricians working on power in CP area and coax runs and connectors.

Dec. 15, 1959 - Tuesday TA-49- Hole 2-K was fired on schedule.

Carpenters working on the Gray house. Electricians working on coax. Laborers working on drifts.

Dec. 16, 1959 - Wed. TA-49 - Electricians finished wiring in the Gray

house. Also working on coax runs and connectors. Spencer-Buchanan drillers preparing the 500' core holes in areas 1 and 2 for logging. They are reaming to 4" and filling the holes with mud. We ordered the horizontal boring equipment for boring drifts in the bottom of the holes. We had a meeting with the U. S. G. S., J-6, and Spencer-Buchanan drillers. We discussed methods of drilling and logging concerning the 500' core holes, the test holes in Ancho and Water Canyon, and the deep holes. (See drilling file for notes of meeting.)

Dec. 17, 1959 - Thurs. TA-49 - We are preparing for the shot in 2-Y to-

morrow. The big 45 ton rig is still snowbound south of Vaughn and we will have to handle it with our Lorain. Slumberger came in to log the 500' core holes in areas 1 and 2. They set up at area 2 and were unable to get their smallest sonde past 195 feet. We had the driller run his tools down to the bottom of the hole to ream the mud loose. When this was done we immediately lost our mud. Before the driller started we had Slumberger run all the logs they could down to 200'. It was ^{of} 1000 1100 when we started logging again due to the drilling and also because of time lost when the driller was hit on the side of the head by a piece of drill stem and had to be taken to the hospital and get cuts, mainly on the ear, dressed. We were able to

get the electric log sonde down to 370 ft. altho it didn't want to go by the 190-195 foot level. The Gamma-Neutron log would only go to 195' so we logged what we could get. The temperature log had been run to 195' earlier and wasn't run again. This log may not be 100% accurate because water had been induced at the top of the hole prior to logging. We couldn't get a sonic log because of the hole being dry and when we tried inducing water, we couldn't get a log because of the air bubbles. We were able to fill the hole with water once but the next time we couldn't pour water into the hole fast enough to gain on the level. The Slumberger people hadn't been able to get a sonic log earlier in the day when we had mud in the hole and altho the sonde would calibrate when above the surface of the ground it wouldn't record below the ground. They called and had another sonde brought in from Farmington. When this sonde came in it was checked and calibrated above ground but would not log in the hole. The bubble explanation may be OK for the last runs but it doesn't quite explain why the sonde wouldn't work in the mud the first time unless that sonde was faulty.

Dec. 18, 1959 - Friday TA-49 - Slumberger tried to log the 4" hole in Area 2 and none of their sondes will go through the thick mud. We told Herring to drill it out to 6½" and try and have it ready Monday to log. The first hole that Reasor drilled and abandoned east of Area 5 was logged to 900' because of no mud being retained in the hole we couldn't get a sonic log. The sondes coming up from the bottom of

the hole show about 20 feet of clean water and the geologists think there might be a chance the hole is making water. We learned today that the bottom 8' - 0" of hole 2-Y must be belled out to 6' - 8" diameter. All holes in the future will be belled to this diameter by the Geo. Casey rig. Spencer-Buchanan put 2" pipe to —CH-2 the bottom of the Area 2 hole. The bottom 10' is slotted and the top is capped and poured in a concrete block flush with the ground.

Dec. 19, 1959 - Sat. TA-49 - Electricians are cutting over the power in the CP area to the underground lines. Laborers are mucking out the bottom of hole 2-Y and enlarging the diameter of the bottom 8' of the hole. The 45 ton crane arrived and we changed out the boom and got it ready for Monday. Fitters set the sample pipe in 2-Y and also the 6" entry pipe and dust plate in the bottom of the hole. Ironworkers dismantled, moved, and re-erected the water tower from old TA-29-3. We will add 8' to 10' on this and use it for a camera stand.

Dec. 20, 1959 - Sun. Electricians working on the underground power in the CP area. Laborers still working on enlarging the bottom of hole 2-Y.

Dec. 21, 1959 - Mon. TA-49 - Cannisters and inserts prepared by both the U of C shops and ours were assembled and set into the Gray house. Drift in hole 2-W was shot and the wagon drill hole drilled to intercept it. We had to cancel Slumberger as Herring couldn't get the Area 1 core hole ready for logging. Nothing seems to seal the formation so we can fill the hole with mud. I don't understand what happens to all the cuttings. For instance, we have drilled a 13 3/4" hole down

better than 500' with Reasor's rig and have never established circulation or gotten back one handful of cuttings. They evidently are going into a void along with our mud, water, and lost circulation material. Herring is knocking off his crews tomorrow and will be back Monday, January 4.

Dec. 22, 1959 - Tues. Hole 2-Y was fired today. This was an elaborate process as we had the cannisters to set and the U of C had to dry run their processes several times. Coax used for the first time on this shot and the Gray house had to be moved. Geo. Casey Co. finished drilling hole 2-F and moved to 4-U. Electricians handled coax during the setting of the cannister and worked on fittings and changing the firing areas to underground service for the overhead lights. Drift blown in hole 4-C to intercept the wagon drill hole. Cannister for hole 4-C mocked up. Carpenters finished decking the camera tower in Area 5. Received word through Joe Hill that we are to construct a building in Area 5, 13 ft. x 17 ft. x 8 ft. high. Building is to be known as "The Barn" and is to have a concrete slab. Excavation for the slab started and concrete ordered for 1100 tomorrow. 35,000 gal. tank was set by Reasor's rig and the remaining 12" casing was unloaded. Spider, slips, and elevator for the 12" casing arrived about 1900. We will start the 12" casing in the morning. Geo. Casey drillers will double up on their shift and work until 0600. They are going to Los Angeles and will be back Monday. We received word on a new building to be built in the CP Area. Concrete base and frame construction. We started excavating for the slab today and

will pour it in the morning.

Dec. 23, 1959 - Wed. TA-49 - We made final preparations for the shot in 4-C tomorrow. We had our drift in the wrong place in 2-Y and the test results were not good. Met with Newman and Blossom for several hours. Newman gave me the standard location for the centerline of 24" diameter drifts in relation to the two size cannisters we now use. As we can't tell too far in advance what size cannister we will use, we will dig two drifts in each hole and use the correct one when the cannister size is determined. We were given an order to build a second "gray" house. This one is for Area 4 and is modified in design and bigger than the one we built for Area 2. Also, we were advised of a new calibration area to be known as Area Zero. It is located approximately 1000' east of Area 2 on the existing firebreak. This is a rush job and will involve two deep holes with a shaft between them. A personnel elevator will be required. We started the road to the Zero area. Met with Miller, Musser, Junge, Harrison, Lindstrom, & the steward for the operating engineers. The question was the procedure for calling out operators. This is a question of Company and not Union policy and the steward was informed of this. Reasor drillers were knocked off until Monday. Because of the mud loss circulation material the 12" casing will not go into the 13 3/4" hole. We must ream to 16". Trailer J-16-6 was set in the N-2 position and Trailer J-16-1 was set in the HQ position.

Dec. 24, 1959 - Thurs. TA-49 - Hole 4-C was fired. Road equipment was ditching and shaping the access road to area Zero, the new calibration area. Laborers mucking out hole 2-W. Electricians are making coax connections and stringing three special coax cables to area 2 from the N-2 trailer. The Godiva trailer was hauled to the site and tested. We intended to work both Zia and LACI crews all day but the LACI crews wanted off at noon and because of this, we knocked off the Zia crews at noon. All Zia and LACI personnel were out of the site by 1400. Checked with the crafts on material for the new "gray" house and Area Zero. We were able to order much of it before 1000 because it will be Monday before it can be ordered due to the holidays. Carpenters working on new building in C. P. (The Barn.)

Dec. 25, 1959 - Fri. Christmas -- No work by any craft.

Dec. 26, 1959 - Sat. TA-49 - Worked four electricians wiring the "Horse" trailer and the Godiva trailer. Also installed separate disconnects at Area 2 and a Russel Stoll trailer outfit. Ironworkers were working on modifying the Godiva base that goes in the "yellow" trailer. A heavy snow fell during the night and it is hard to get to the site as the roads arent plowed.

Dec. 27, 1959 - Sun. No work by any craft.

Dec. 28, 1959 - Mon. Hole 1-A is to be drilled to 58' and 6' diameter. We will experiment with it in respect to alignment of the Godiva set up. Geo. Casey drillers brought back a second rig with them

from California. They started recovery at hole 4-C. Reasor drillers started reaming the deep hole with a 16" bit so we can case to 500-550 feet. Met with Newman and Blossom and got lined up on the hole 2-W assembly. It is the most complicated yet and has to be ready before Jan. 5. Worked out the details of the new underground chamber in the new calibration area and started the sketches. Besides the 2-W hole assembly we were given a new area to make west of area 1. It is to be 100' x 50' with an access road from the perimeter road and has to have a 20 x 20 building with a propane unit heater, propane tank, 100 gal. pressurized water tank, instrument power, lights, two hoods with 2500 cfm blowers on each hood. Building is to be insulated and have outside yard lights. A new underground electric service will be necessary for an anticipated 25-30 KVA power requirements. Also, tracks and leveling devices must be built for the yellow trailer and a 12" thick pad poured in the bottom of hole 2-W. This means our drift will have to be redrilled and raised.

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Dec. 29, 1959 - Tues. TA-49 - Reasor drillers reaming with 16" bit. Geo.

Casey drillers recovering from 4-C and drilling 4-U to 108'. 4-C caved in and trapped the drilling tools. We are going to have to use protective casing in all the holes from now on. Carpenters started on the 20' x 20' building in the new area #11 that is west of Area 1 and the road crews are hauling rock to plate it. We renamed Area Zero, Area 10, and changed our work order numbers. Reshot the drift in 2-W and started the sample pipe hole. Started working on Godiva trailer tracks and the inserts and centering devices for 2-W. Made sketches for the crafts of the new Area 11 installation and got most of the material ordered. Blossom called and wanted a 10' x 10' x 1' thick heavily reinforced shielding wall poured and in place at the site by Saturday. We started fabricating steel and forms immediately.

Dec. 30, 1959 - Wed. TA-49 - Worked on ditching the power line to Area 11.

Carpenters, fitters, working on the R. C. Building, setting the portable boiler and propane tank. Carpenters working in C. P. Area on a new structure called the "Barn". Fabricating in the shops on inserts for 2-W. Poured the shielding wall and covered it from freezing.

Dec. 31, 1959 - Thurs. Continued working on 2-W and Area 11 with all crafts.

Tinners fabricating hood and setting blowers. Fitters working on piping for gas, air, water, etc., inside building. Electricians putting in underground power and setting disconnects. Had a meeting with J-6 and H-Division in Dean Meyer's Office (Sam and I). We were told that all personnel would have to wear a film badge from now on and the safety regulations were explained to us. The original issue of film badges will be made from our TA-49 field office. Personnel missed here and people entering the site will be issued a film badge at the guard station. Radiation records of our personnel will be routed to our field clerk, Bill Brown, and he will compile the records. All of our personnel at the site, the contractors working for LACI, and as many other of our employees that are concerned with the site that we could get were assembled in the administrative area and the safety regulations and use of the film badge were explained to them by Mr. Musser.

Jan. 1, 1960 - Fri. TA-49 - Worked a small crew of electricians and riggers.

We had to get the mounts in the yellow trailer.

Jan. 2, 1960 - Sat. TA-49 - We were held out of the site most of the day because of test bursts.

- Jan. 3, 1960 - Sun. Finished setting up facilities for 2-W and working on the inserts in the shop. Area 11 worked by all crafts and the hatch of one of the original cannisters shacks enlarged and moved to 2-W.
- Jan. 4, 1960 - Mon. TA-49 - Started loading hole 2-W. This took all day and until late at night to get the inserts in the tracks set and the yellow trailer set.
- Jan. 5, 1960 - Tues. TA-49 - We were unable to get in the area because of bursts. Trouble was encountered getting the sighting device out and we broke the lifting cable.
- Jan. 6, 1960 - Wed. Met with Newman and Blossom. They had many ideas for improving and speeding up the loading process. We discussed these and made sketches. One of the major points was to change our method of positioning the inserts and a new type of positioner is to be used. I called Thorne and had him hold men over and draw material from the warehouse. We worked until midnight in the shop. We also are working on a new type of sighting device to be inserted in the top section of the 4" stack. We also fabricated a fishing tool to get the light sight out. Trouble was still being had at the site and the area was closed to our operations.
- Jan. 7, 1960 - Thurs. TA-49 - Fished out the sighting device and reset the yellow trailer by hanging it in an angular position with 2 cranes. The hole was finally fired.

- Jan. 8, 1960 - TA-49 - Fri. Work was continued at Area 11 and Area 2 in preparation of hole 2-F. Started setting 12" casing at Reasor's rig.
- Jan. 9, 1960 - Sat. TA-49 - Worked in the field preparing for hole 2-F. Set the last of the 12" casing (down to 525') for the Reasor rig. They will grout the casing late today and resume drilling tomorrow. Worked on the Area 4 - Gray House.
- Jan. 10, 1960 - Sun. TA-49 - We started aligning the cannister and inserts in hole 2-F. Blossom was in the field for J-6 and we worked straight through until midnight. Casey Drillers worked, also Reasor and Buchanan and Associates. Carpenters worked in the shop. The new positioners worked very well and seem to give good support. Reasor lost circulation again and grouted again. We also revised the mount in the yellow trailer so it could be set in its new position on 2-F.
- Jan. 11, 1960 - Mon. We worked in the areas until we were cleared. Most of the crafts have work saved in Area 6 but some had to be sent into the shop. Worked late in the shop designing the foil rabbit slide and trap door.
- Jan. 12, 1960 - Tues. Crafts working on the hardware for 2-D in the shops. Moved houses, barricades, etc., in the field for preparation for 2-D. Carpenters working on RC shack in Area 11 and in the C.P. on walkways. Reasor drillers have finally got circulation and are drilling at a good rate. Worked late in the shops on aligning the stack from the cannister so it is perfectly straight

and at right angles from the lid.

Jan. 13, 1960 - Wed. TA-49 - Crafts completed the inserts for 2-D and delivered them to the site. Carpenters working on R. C. shack expansion in Area 11, walkways in CP, and the Area 4 Gray house. Joe Hill and I met with Newman and Blossom. A complete cable schedule for Area 4 was outlined and a push by our electricians will be necessary. We also were given details for installing sample collectors inside the steel plate box and a dump line from the box to hole 2-B. Crews worked late in the field preparing for hole 2-D. We made sketches and worked fitters, tinnerns and ironworkers in the shop to get the material and charges ready for hole 2-D tomorrow. Fitters worked late in the field installing the dump line.

Jan. 14, 1960 - Thurs. TA-49 - Started loading and assembling for hole 2-D. We worked continuously until about 3:30 a. m. Electricians working on cables to 2-D and Area 4. Equipment working on parking lots by each area. Ironworkers fabricating hardware for 2-O in the shops. Tinnerns and painters also working on hardware inserts. Reasor drillers below 900' with circulation. Carpenters working on walkways and shelters in CP Area; expanding R. C. Bldg. in Area 11, and working on the "Gray" house in Area 4. Used the new horizontal boring machine for the first time on hole 4-A. It seems to work real well. Casey drillers working in Area 4. Informed by Newman to pour a weak low shrinkage concrete in the void at the top of all holes and to pour a 25' by 25' concrete cap over each hole.

- Jan. 15, 1960 - Fri. TA-49 - Crafts working to prepare hole 2-O. We are trying to get it ready for loading for Monday. Sheet metal , ironworker, fitter, and painter shops working on inserts for 2-O. Picked up prints from Newman for a cannister mockup. We will try to set the mockup and position it in the hole ahead of time as a trial run.
- Jan. 16, 1960 - Sat. TA-49 - Designed and started fabricating a transit platform to slip over the shielding wall. We found that we could align with a transit from this position better than any way we have tried. Final preparations for setting shields, houses, etc. , for hole 2-O is being done.
- Jan. 17, 1960 - Sun. TA-49 - Electricians and drillers are the only crafts working.
- Jan. 18, 1960 - Mon. TA-49 - Loaded hole 2-O. The new transit platform seems to work OK. The shop and field crews are working to get hole 2-U ready.
- Jan. 19, 1960 - Tues. We learned today that we will have to keep our time down to 64 man hours per week. We are working on plans to set up auxiliary crews and relieve the men and still man the job satisfactorily. The ironworkers, operators, laborers, and electricians are mainly concerned.
- Jan. 20, 1960 - Wed. Work is progressing satisfactorily in the field. Saw Newman and Blossom for several hours. We have 2 more Gray shacks to build for Areas 1 and 3. Received hole schedules and priority for Area 2 and 3. Also, we will open another area, Area 12, for

test shots. The sample piping inside the steel box was revised. Crafts worked late at the site getting everything set for hole 2-V. It is obvious we will have to revise our work order system as it is not flexible enough.

Jan. 21, 1960, - Thurs. TA-49 - Loaded hole 2-V. This went the smoothest and fastest of any hole yet. We are getting more experienced and the many small improvements that are made in techniques and design are paying off. We finished setting everything on 2-V by 1930 hours. We had to make some last minute changes in the steel box.

Jan. 22, 1960 - Fri. The finishing touches were put on 2-V and hole 2-X was worked on as long as possible. The area was cleared about 1200 or 1300. We are assembling the vacuum system and Hill is designing skids for it. This system will suck sand up from 100' depth at a rate of 100^{cf}/min. We are also designing the hardware for holes in Area 3. Outlined a revised work order system with Tom Cook and Sam. We can change it without much confusion.

Jan. 23, 1960 - Sat. Shops are working on hardware for 2-X and a dry box for Area 11 that must be completed Monday. The field crews are setting up everything for 2-X. The cable tool rig at the 2-D deep hole location is set up and they spudded in about 1000. Reasor is down to about 1400' and expects to be to 1750' by Monday morning. We have scheduled Slumberger in to log the hole Monday morning. Poured the concrete plugs in 2-D, 2-0, and 2-V. Bert Weir wants to induce some salt into the drilling mud as he believes it will give

us a little better log in the water zones. Slumberger said it wouldn't affect their logs.

Jan. 24, 1960 - Sun. Prepared hole 2-X. Set shield, mucked and leveled the bottom of the hole, made trial run with dummy cannister and completely assembled all the hardware. Reasor rig is down to 1750' with a 6 3/4" hole and preparing for Slumberger. They may drill out the shift and approach 1800'. Cable tool rig is down to 163' with a 20" hole; at 1230, 15 sacks of rock salt were induced into the mud.

Jan. 25, 1960 - Mon. TA-49 - Slumberger arrived at the site and logged the deep hole behind the CP Area. Electric, lateral, micron, sonic, temperature and Gamma-Neutron logs were taken. Notified by Newman to proceed with the Area 10 development. Elevator, lift table, tank section, etc., were put on order and construction methods studied and prints detailed. The cannister for 2-X was loaded and set into the hole. Reasor drillers started reaming to set the 8" casing. The cable tool drillers are down to about 400' and it was decided to go to a smaller bit and try to drill to 900' before setting casing and then to set 12" casing. The sample piping was revised for this (2-X) shot and then revised again for 2-H. Asked Bill Junge to order another Geo. Casey rig and a 3 - piece Kelly bar.

Jan. 26, 1960 - Tues. TA-49 - Worked on the drawings and specifications for Area 10 with Joe Hill. Blossom called and wanted a steel box of the same construction we use for filter areas made and set in the ground

in back of the RC Building in Area 11. We started on this as they want it tomorrow. Nielson worked with our crews setting and aligning the inserts in hole 2-X. Geo. Casey rig drilling on hole 3-C and also started in Area 10 on elevator shaft. Reasor drillers drilling with 11 3/4" bit for the 8" casing. Cable tool rig between 5 and 6 hundred feet. 2 -D core drill rig started in Area 4.

Jan. 27, 1960 - Wed. TA-49 - The entire area was cleared back to the administrative area from 0800 to about 1945. We worked on cables, gray sheds, and the sand sucker in the administrative area. None of the drillers worked until 2000. Cable rig down to 837 ft. and they think they have a dog leg in the hole at this point. We dumped a load of 1 1/2" rock in the hole and they will try to straighten it. Both coring rigs and the rotary working. Laid the Casey drillers off during the day and had them back at 1900 to work 4 hours. Only one Casey rig worked (Card's). Joe Hill met with Newman and got the preliminary information on Area 12. It is really a lot of work and they want it done by 2-3-60. Bill Junge is sending trucks out for special steel. We will have to work on a 24 hr. basis for the next 2 weeks to finish Area 10 and 12 when the University wants them. Worked late getting skids and a house built for a MG set that is to be set in Area 2. Checked with Blossom on cables running to Area 3 and Areas 10 and 12. It was decided by Blossom to continue the cables to Area 3 and

gamble we would have enough for Areas 10 and 12 as none was due in the next few days. Newman also advised us to take the best delivery on the hydraulic table for Area 10 as the area was needed complete in 2 weeks.

Jan. 28, 1960 - Thurs. Set the red and gray shacks shield wall, etc., by 2-H. Moved in the cannister and connected the cables. Cannister was lowered into the hole late in the evening but no alignment was attempted. Casey drillers drilling in Area 10 and the 6'-0" casing came in. We worked until 8:00 welding on it. Steel box was set by the R. C. Building at Area 11. Ditcher started ditching for power line to Areas 12 and 10. Joe Hill completed drawings on Area 12 and we ordered the balance of the material. Deadline set for Area 12 now is 2-6-60. Cable tool rig down to almost 900'. Reasor rig reaming to set 8" casing, and Spencer-Buchanan core drillers working in Areas 4 and 1. We ordered in another crew of Casey Co. drillers. This will make 3 rigs and 4 crews of drillers. The third rig is due tomorrow. We are working on the Area 10 prints and nearly have them finished.

Jan. 29, 1960 - Fri. Third Casey rig came in and we started him on the hole in Area 12. Both Casey rigs working in Area 10. Newman called & said we would have to prepare another hole in Area 2. Hole 2-P and maybe hole 2-R. Riggers loading hole 2-J and getting it ready to fire. Newman looked at our sketches on Area 10 and OK'd them all except the ventilation location. We will move it to

a position west of the steel chamber. The drilling samples coming up from 55 ft. in Area 10 show the rock to be very rotten. We may have trouble with the drifts and using explosives. Ironworkers working on welding the casing.

Newman added a wood work shed to the concrete structure in Area 12. Cable tool rig down to 900', Reasor reaming 6 3/4" pilot hole, core drill rigs working in Area 3 and 4.

We will only core to 300' now instead of 500 ft.

Jan. 30, 1960 - Sat. TA-49 - Poured concrete over 2 or 3 hundred square — ?

feet to cover a spill in Area 2. Moved the gray and red houses into position for 2-H. Set the shield and metal box. Called out tinnners to modify a dry box and make a stand for it for J-11.

2-H prepared except for the sample piping. Hole finished in — ?

Area 12 and carpenters set forms for the slab around it.

Round form going in the hole prepared in the shop. Ironworkers set all the rebor in slab and hole so it will be ready to pour

tomorrow. Ditching done for power, signal, and coax cables

to Areas 10 and 12. We are burying conduit and 2 runs of CMP for the signal and coax from Area 2 across the road to Area 12.

Casing set and partially grouted at Area 10. Geo. Casey drillers working on other hole at Area 10 and are belling out for the underground room. Cable tool rig approaching 1000' and have encountered a basalt or lava intrusion. Reasor rig has a broken gear on the rotary table and have cancelled their shifts. Electricians working

on Areas 3, 10 and 12 wiring and making up 200' heads in the shop. Set control panels at Area 10 and 12.

Jan. 31, 1960 - Sun. TA-49 - Poured bottom and top slab in Area 12.

Finished grouting casing Area 10. Set up the horizontal boring equipment in the hole at Area 10 and finished the bottom drift from the elevator shaft to the cannister room. Raised and reset the machine to bore the top drift tomorrow. We are working in a sand vein at Area 10 and excavation will be dangerous and a problem. Ironworkers fabricating for the steel walls for Area 12 and have completed one and delivered it to the site. Cable tool rig lost their bit and are fishing for it. We evidently have hit water between 1000 and 1100 feet as the bailing showed we have water flowing in at about 70 gal. per minute. The fourth Casey crew showed up and we will double shift one rig to try and get ahead. I think we can in about a week.

Feb. 1, 1960 - Mon. TA-49 - Joe Hill and I checked over the drawings for Area 10. We discovered a discrepancy in the amount of cover over the cannister lid at Area 10 and in the firing area holes. Newman was contacted and we will have to lower the floor level in the elevator shaft and the cannister or calibrating room 4'-3". We worked late mucking and drilling to make up for the time lost in lowering the floor level. Loaded and aligned hole 2-J. Nielson stayed with this operation and didn't finish until 12 or 1 o'clock in the morning. Ironworkers fabricating on Area 12 walls and delivered another completed form to the site about 2100 hours. We are going to have a struggle getting the work done this week to meet deadlines as we can't make it with some crafts on 64 hours. Ironworkers are especially in trouble along this line and are trying to hire more men. Cable tool rig still fishing for tools and Reasor rig still down.

Feb. 2, 1960 - Tues. TA-49- We had a hard snow storm during the night and it was still snowing hard this morning. The site was paralyzed until about 0930. We finally got the plows operating and J-Division proceeded with firing hole 2-J. Nielson stayed home during the day but came out about 2000 and stayed until 0200 as we worked hole 2-T after the U of C would let us back into the area which was about 2130. We worked the rigging crew until 0300 setting the casing in Area 10 and setting the protective casing in hole 2-P. We worked straight

through until 0630 driving the 12" diameter drift in the bottom of the hole and running the wagon drill to intercept it from the surface. We missed the drift but it is close enough it can be blasted. We are going to put Area 10 on a 12 hour shift.

Wed.; Feb. 3, 1960 TA-49 - We worked Area 10 all day with the laborers mucking in the calibration room and the elevator shaft. We will get another engineer to help us at the site. Walt Humphrey is to be transferred from the TA-3 office next Monday. I will let him take our Areas 10 and 12, let Benavidez watch the rest of the site and keep Nielson on the hole preparation. We worked all day getting hole 2-P ready and setting the houses and cannisters. Trouble was encountered getting the sampling pipe down and connecting the sample pipe hole with the drift. Nielson finally blew it through but worked until 0200. University of California shop department worked until midnight trying to fix the broken jars on the cable tool rig. They didn't finish and will have to work again tomorrow.

Feb. 4, 1960 - Thurs. TA-49 - Hole 2-P was loaded and the yellow trailer set. Area 10 worked through mucking tunnel and calibration room. The small coring rig finished in Area 3 and was shipped out, coring rig is still working in Area 4. We were told to prepare hole 4-Y next with a drift and sample pipe arrangement. No alignment hardware will be necessary. Benavidez started getting the Gray

shed and red shed set. All concerned crafts were alerted to 4-Y being ready for firing for next Tuesday. Bob Campbell and Bill Ogle checked on film badge readings, etc., and the distances involved and told us we could work Areas 3 and 4 tomorrow while they were bursting in Area 2. We will have to clear the area only for the firing. We were also alerted to have a dump hole (4-Z) ready for the Tuesday shot. Casey rigs being double-shifted on this hole as we have a lot of piping and plates to go in and pour a concrete cap.

Feb. 5, 1960 - Friday. TA-49 - We were allowed to work Areas 3 and 4 all day long even though the University was bursting in Area 2. A radio car was set in at the cable tool rig and Bill Purtyman (U. S. G. S.) went in just before shot time and stayed with the rig until the all-clear was given. Finished the dump hole in Area 4 and the shops are working on the hardware. Drilled on the drift in 4-Y and set the gray house and moved in the cannister. Joe Hill met with Newman and came back with orders to develop Areas 2-A and 2-B. 2-A is to have 6 holes and is adjacent and west of Area 2 and 2B is to have 25 holes and perimeter lights and is to be south of Area 2 and almost adjacent to it. Cable tool rig is still bailing and unable to lower the water level. We were asked to give Newman an estimate on paving the site roads and parking lots, and CP area. Sam worked up an estimate and gave it to Newman. Zia Engineering is to prepare a more comprehensive estimate by Monday. Knocked off all the men working in Area 10.

Feb. 6, 1960 - Sat. TA-49 - Finished the drift in 4-Y and started the one in 2-T. Set the red shack at 4-Y, dug out for the sample box, and drove the 4" pipe. Poured the plug in 2-P. Area 10 worked 2 - 8 hour shifts. We are mucking and setting timbers as we go. Finished the 2'-0" diameter hole 200' deep between Areas 2 and 4. We got to 189' and stopped because it was caving in and we couldn't make progress. Cable tool rig is at 1150' and the hole is starting to cave in. We started welding the lugs on the 12" casing and will probably start running casing tomorrow. Hardware for dump hole 4-Z was delivered to the site this afternoon late and we will set and pour it tomorrow.

Feb. 7, 1960 - Sun. TA-49 - Cleaned out hole 4-Y, put in sand cushion, and set steel box. Set inserts in the dump hole, hole 4-Z, and filled it with sand and concrete. Drilled drift in 2-T and set up to drill in 2-I. Assembled walls in Area 12. Welded CMP protective casing. Finished mucking in Area 10. Electricians pulled in the 6 RG 18 to Area 2 for E. G. & G. and terminated them. Started plating new Area 2-B with tuff.

Feb. 8, 1960 - Mon. TA-49 - Drilled drift in hole 2-I and put sample pipe hole into 2-I. Set gray and red shacks at 2-T and dug out for filter box. Poured 5 concrete capping slabs in Area 2 and cleared the area so we could get the Casey drillers into 2-Q. Area 10 - finished fine grading in bottom, installed reinforcing steel and

forms and poured the bottom slabs. 4-Y put in final shape and readied for shooting. Electricians and linemen pulling power lines. Finished plating new Area 2-B with tuff and University of California survey crew laid out the area.

Feb. 9, 1960 - Tues. TA-49 - Set shield and readied hole 2-T. Started excavating and leveling for wood house in Area 12. Received word to drill hole 3-U to 88', install drift and sample pipe by Monday. Hole 2-C must be ready by Monday also. Reasor drillers to 960 feet reaming. Cable tool rig hit 1300 ft. and the hole started caving. We will stop and case to this depth and then undercut the casing and drill to 1400. We can use 12" casing all the way down this way, and save on a double string of pipe. Slumberger notified to come in tomorrow as we must log before setting the casing. Slumberger will also log the first deep hole with an induction log and the 189' 24" dia. hole Casey drillers put down if we get results in the other holes with an induction log. Met with Herring, Stanley, Wier, and Junge in Junge's office. We discussed logging the existing holes and the probable size and location of 3-d hole. We probably will drill a 12" hole and try and set 8" casing all the way without any secondary casing. Wier can't definitely locate the 3-d hole until holes 1 and 2 have been bailed and sampled.

Feb. 10, 1960 , Wed. Area 10 - TA-49 - Welding on dome in calibration room. Poured top slab for elevator house and set bolts.

Drilling holes in Area 2 and 3 and installing perimeter lights in Area 2-b. Working on wood house in Area 12. Drifting holes in Area 2 and drilling with wagon drill. Readied everthing for shot at 4-Y tomorrow.

Feb. 11, 1960 - Thurs. TA-49 - Loaded and fired hole 4-Y. We were able to work the cable tool rig all the time by furnishing an escort during firing time. Drilling with Casey rigs in Area 3 and 2. We were able to operate normally in all areas except Area 4 all day. Welding on dome proceeding in Area 10. Blossom checked with us late in the day and asked us to come up with a method of doing 1/4 scale work in the firing areas. This specifically would mean a method of drilling a 6" dia. hole 24^{ft}" deep at the bottom and at right angles to an 18" diameter hole 15' deep. Started slotting casing for the cable tool rig. Reasor around 900'. Welding in Area 10 and ditching for power to panel and lights. Poured equipment room slab. Working on wood house in Area 12.

Feb. 12, 1960 - Fri. TA-49 - Casey drilling in Area 3 and we have double shifted the rig on hole 3-U. The last Casey rig we got in has a smaller bucket on it than the others and the bottom 30' of hole 3-C is too small, all of 3-a, and the top 50' of 3-Y. Nielson and I de- signed a reaming shell to use with the Casey rig and ream the hole out larger. Area 10 - Welding and assembling dome. Slotting pipe for

August 25, 1961, - Friday Continued

Cut up new sample pipes and cleaned insides with acid. Must have it welded back by Monday night.

August 28, 1961 - Monday

Continued removing salt from bottle. Started work on road grade. Fitters worked two welders all day welding sample line back together. Completed preparations for hole 4-U.

August 29, 1961 - Tuesday

Completed welding on sample line. Installed rack in lid. Received HE at 1:20 p.m. Started installing in hole. Continued removing salt from bottle. Continued work on road. Electricians started to rewire area 12 annex.

August 30, 1961 - Weds.

Completed loading, sealing, and firing hole 4-U. Completed removing salt from bottle. Staked out road grade to area 10. Ready to start basecourse. Completed changing wire in area 12 annex.

August 31, 1961 - Thursday

Moved houses away from hole 4-U and cleaned up all old cables. Started basecourse on road from area 10. Recovered R. C. hardware from hole 2-AO. Welded cracks in bottle.

Sept. 1, 1961 - Friday

Moved houses to hole 2-AO. Received word to start work on W. O. 8100-99.

Sept. 2, 1961 - Saturday

Worked fitters and electricians on W. O. 8100-99.
Moved trailer EG&G 2 out of C. P.

Sept. 3, 1961 - Sunday

Electricians complete cables on W. O. 8100-99 and loaded out.

Sept. 5, 1961 - Tuesday

Moved trailer J-16-3 out. Loaded area 3 canister to go to Albuquerque. Continued work on hardware for W. O. 8100-99.

Sept. 6, 1961 - Weds.

Poured concrete in sample drift in hole 2-AO. Moved camera transportainer from camera tower to SM-30 and loaded on truck. Completed sample pots and crated ready to load out. Completed eight cables for slings and started testing for 25 tons. Modified aluminum rack in grey house in C. P. area. Ordered some of the material for W. O. 8100-98.

Sept. 7, 1961 - Thursday

Continued work on road. Started installing liner in bottle. Started making cables for W. O. 8100-98. Completed all down hole hardware for W. O. 8100-99.

Sept. 8, 1961 - Friday

Completed drilling hole 4-P. LM&R worked on road placing basecourse. Continued work on bottle liner. Completed all slings and hardware for W. O. 8100-99 and loaded out. Completed loading at 9:30. Made trip to Albuquerque for canisters.

Sept. 9, 1961 - Saturday

Started to fabricate hardware for W. O. 8100-98. Worked ironworkers and machinist.

Sept. 10 1961 - Sunday

Worked ironworkers and machinists on W. O. 8100-98

Sept. 11, 1961 - Monday

Continued work on road. Completed installing liner in bottle. Electricians working on cables for W. O. 8100-98. All shops working on hardware for W. O. 8100-98.

Sept. 12, 1961 - Tuesday

Iron workers and fitters working on hardware for W. O. 8100-98. Carpenters completed repairing house where we moved EG&G trailer out. Electricians working on coax cables for 8100-98, had to roll up all R. G. 10 from areas 1 & 3 and two cables from area 4 to get enough for this order. Continued work on road.

Sept. 13, 1961 - Weds.

Moved area 2 canister from LASL shops to barn in C. P. area. Charged to 2AO. Moved construction house # FM 2 from S-Site to area 11. Continued work on road. Bladed and leveled area 2 and dug out U. S. G. S. moisture sample hole. Picked up lead bricks at LASL shops and delivered to C. P. area. Charged to 2AO.

Sept. 14, 1961 - Thursday

Moved yellow trailer from area 10 to C. P. area. Delivered dry box from TA-48 to area 11. Removed bench and stove from new building in area 11 and installed R. S. connector on building and connected to power in Chemical Lab. Turned area 4 canister over for Joe Johnson so he can pour lead. Charged to 2 AO by order of Tuchfarber. Shops still working on hardware and cables for W. O. 8100-98. Started picketing pipe for W. O. 8100-98. Completed rack ready to pour concrete.

Sept. 15, 1961 - Friday

Poured cal-seal and ferrophosphorus in rack and delivered rack to grey house in area 4, TA-49. Started basecourse on area 2. Electricians making up cables for W. O. 8100-98.

Sept. 16, 1961 - Saturday

Ironworkers making up 1 1/8 inch harnesses. Electricians working on cables for 8100-98.

Sept. 17, 1961 - Sunday

Riggers testing harnesses to 100,000 pounds, some trouble in holding this pressure.

Sept. 18, 1961 - Monday

Riggers testing harnesses. Electricians continued pulling R. G. 10 cables out of area 1 and area 3. Two runs were taken out of area 4. Ironworkers made some modifications on rack in field. Fitters modified all sample pots and lines. This will require considerable effort from fitters shop to meet Sept. 21st deadline.

Sept. 19, 1961 - Tuesday

Drilled one 3' 0" X 38' 0" test hole and one 3' 10" X 12' 0" test hole near grey house in area 4. Ordered casing for 3' 10" hole. Dropped canister in 3' 0" hole and dry run rack in canister.

Sept. 20, 1961 - Weds.

Grouted casing in 3' 10" X 12' test hole. Cabled up rack ready for dry run. Fitters worked until 2:00 am to complete changes in sample line and pots. Shipment will be ready by noon Thursday.

Sept. 20, 1961 - Weds. Continued

Ironworkers starting on rack for W. O. 8100-97.

Built rack and mounted lead pig under rack and lowered
in hole for test.

Sept. 21, 1961 - Thursday

Continued calibrations on rack, all day. Shipped all hardware and
most of the coax cables for W. O. 8100-98. Will complete
balance of cables by 2:00 pm tomorrow. Continued
preparations of road for oiling.

Sept. 22, 1961 - Friday

Completed calibration of rack and completed all cabling and
shipped rack and can. Worked plating area 2.

Sept. 23, 1961 - Sat.

Ironworkers and fitters worked on hardware for W. O. 8100-97
in shops.

Sept. 25, 1961 - Monday

Loaded, sealed, and fired shot in bottle. Shops working
on 8100-97.

Sept. 26, 1961 - Tuesday

Loaded all scopes and racks back in EG&G A-trailer and
shipped out. Completed loading at 10:00 pm. Oiled road from
Y to C. P. area and from Y by area 4 approximately to area 2.
Continued drilling on hole 4-D. Shops working on W. O. 8100-97.

Sept. 27, 1961 - Weds.

Completed oiling road. Repaired house where moved EG&G trailer out. Continued drilling on hole 4-D. Shops working on W. O. 8100-97. Started removing salt from bottle.

Sept. 28, 1961 - Thursday

Caldwell drill working on 4-D. Reamed calibration hole in area 4 and poured concrete plug.

Sept. 29, 1961 - Friday

Removed J-13-3 trailer from location by new scope building, road serviced and started repairing opening in building. Continued removing salt from bottle. Cased and grouted casing in calibration hole in area 4. Shops working on 8100-97.

Sept. 30, 1961 - Sat.

Completed rack and wired ready to move to TA-49 for calibration. Started cutting out materials for W. O. 8100-96. Tested, measured, marked, and rolled up ready to ship; all cables for W. O. 8100-97, 15 harnesses 60' long and one 10' set.

October 2, 1961 - Monday

Moved rack to TA-49. Welded bottle in area 12. Moved area 2 canister from LASL shops to C. P. area. Ironworkers working on 8100-96. Made some revisions on rack and connector lid.

October 3, 1961 - Tuesday

Started to calibrate N rack. Moved new bottle from area 12 to area 4 and dropped in 100' hole to test down hole harnesses. We found by connecting right lay cable to right lay there was no twist while connecting left lay to right lay there was a bad twisting action. Completed welding in bottle in area 12 and poured bottom salt in.

October 4, 1961 - Weds.

Continued calibration of N rack. Unloaded two more 40' canisters in area 4. Installed liner in bottle. Moved bottle back to area 4. L M & R plating area 2. Shipped part of hardware and cables for W. O. 8100-97.

October 5, 1961 - Thursday

Continued calibration of N rack. Made some modifications to W rack. Completed installing liner in bottle and filled with salt. Shipped balance of hardware on W. O. 8100-97. The rack and can will ship Saturday. Shops working on 8100-96.

October 6, 1961 - Friday

Shops working W. O. 8100-96. Loaded, sealed, and fired shot in bottle. Continued calibrations on N rack.

Oct. 7, 1961 - Sat.

Worked on calibration of N rack until noon. Worked on W rack revisions and N- rack revisions until 4:30 then loaded racks and shipped to Nevada. Shops working on 8100 96 (hole A-H).

Oct. 9, 1961 - Monday

Removed sand from calibration hole and installed can #4 in hole. Made some repairs to Area 12 ; replaced broken windows, repaired doors, started temporary roof and cleaned up dirt and debris in annex. This work to be charged to 6-8726-17 support order. Ironworkers started assembling N rack for hole 4-H, W. O. 8100-96.

Oct. 10, 1961 - Tues.

Moved Area 4 can from foundry to CP Area. Put new roof on Area 12. Shops working on W. O. 8100-96. Ironworkers working on cable stretcher.

Oct. 11, 1961 - Wed.

Shops working on W. O. 8100-96. Cables ready to test. Ironworkers still working on hydraulic tester.

Oct. 12, 1961 - Thurs.

La Nina for A-H ready to go to TA-49 for calibration.

Oct. 13, 1961 - Friday

Delivered La Nina to TA-49 and put W rack in calibration hole. Did some calibrations on W rack. Ironworkers started 8100-95. Shipped all sample pipes and part of strong-backs to Nevada for A-H.

Oct. 14, 1961 - Sat.

Shipped N rack, cables and balance of strong-backs to Nevada for A-H.

Oct. 16, 1961 - Mon.

Completed calibration of W rack for A-H. Shops working on hardware for A-I.

Oct. 17, 1961 - Tues.

Shops working on hardware for A-I.

Oct. 18, 1961 - Wed.

Started clean-up and repairs of Area 12. Shops working on 8100-95.

Oct. 19, 1961 - Thurs.

Shops working on hardware for A-I. Continued clean and repairs of Area 12.

Oct. 20, 1961 - Fri.

Shipped all pies and sample line hardware for A-I; also shipped extra lead shielding and wax shielding for A-E. Fitters started working on 8100-92, hole A-K. Eng-4 stopped all work on Area 12 until they get the paper work done. Ironworkers working on N rack for A-I.

Oct. 23, 1961 - Monday

Shops working on hardware and strong-backs for A-I.

Oct. 24, 1961 - Tues.

Electricians working on Area 12. Ironworkers still working on hardware for A-I. Fitters working on hardware for A-K. Eng-4 requested hole at Area 12 be cleaned out and CMP liner installed.

Oct. 25, 1961 - Wed.

Pulled the bottle out of the hole in Area 12 and started to clean out.
Moved N rack from shops to calibration hole at TA-49, Area 4.
Ironworkers started on aluminum wax pot for A-I w-rack. Fitters working on piping for A-K.

Oct. 26, 1961 - Thurs.

Removed old lid from broken part of bottle, continued cleaning out hole. Electricians continued with rewiring of building. Electricians wired N rack for A-I. Shops working on A-K.

Oct. 27, 1961 - Fri.

Cleaned out hole in Area 12 to install new CMP. Cleaned out all salt and debris from bottle. Fitters working on 8100-92.

Oct. 30, 1961 - Monday ↗

Fired A-E Saturday. Having trouble with casing in A-H -- received word we must cut down size of can to 21". All shops waiting on new prints.

Oct. 31, 1961 - Tues.

Received revised prints for down-hole hardware for revised A-H hole and fitters working on this. Details not complete on racks.
Set CMP in hole at Area 12 and started to backfill.

Nov. 1, 1961 - Wed.

Received 50' canister for revised A-H and worked all night to complete bottom and lid. Ready to ship at 8:00 am. Thursday.
Carpenters working on Area 12 building.

Nov. 2, 1961 - Thurs.

Completed canister for A-H and shipped to Nevada. Completed all sample pipes for A-H and delivered to SM-30. Received part of the prints for 19" N rack, also W rack. We would like to ship this Monday, Nov. 6.

Nov. 3, 1961 - Fri.

Moved Caldwell drill to TA-49 to drill new calibration hole. Continued fabrication on 19" N rack.

Nov. 4, 1961 - Sat.

Ironworkers worked on 19" N rack.

Nov. 5, 1961 - Sunday

Ironworkers working on 19" N and W racks.

Nov. 6, 1961 - Monday

Completed 19" N rack at 9:00 a.m. Poured concrete and loaded on truck at 12:00 noon. All pipe racks and cables shipped today. Electricians completed Area 12 wiring. Continued drilling on calibration holes at Area 4. Started another 19" N rack.

Nov. 7, 1961 - Tues.

Completed drilling calibration holes in Area 4. Continued work on 19" N rack for hole A-P.

Nov. 8, 1961 - Wed.

Quit work on 19" N rack and started a 24 $\frac{1}{2}$ " rack for hole A-K.

Nov. 9, 1961 - Thurs.

Ironworkers working on rack for A-K. Shipped 26" can and lid to Nevada.

Nov. 13, 1961 - Monday

Ironworkers working on 24 $\frac{1}{2}$ " N rack for hole A-K. Fitters working on sample piping for A. K. Picked up 3 each aluminum W racks from LASL shops.

Nov. 14, 1961 - Tues.

Assembled 24 $\frac{1}{2}$ " N rack -- ready to pour pharo . Fitters working on down-hole sample pipes. Electricians completed all coax cables and installed in rack.

Nov. 15, 1961 - Wed.

Moved N rack for hole A-K out of shop and poured pharo. Ironworkers completed W rack; fitters completed all down-hole sample pipes and everything was shipped to Nevada.

Nov. 16, 1961 - Thurs.

Ironworkers resumed work on 19" rack for A-P. Moved the La Cuna back in shop and completed all cut-out work ready to start assembling. Fitters working on sample pipes for 8100-12, hole A-D. Packed sand around 24" x 50' calibration hole in Area 4.

Nov. 17, 1961 - Fri.

Ironworkers working on 19" rack for A-P. Fitters working on piping for A-D.

Nov. 18, 1961 - Sat.

Ironworkers working on a rack for A-P. Ironworkers tested all cables harnesses for A-P.

Nov. 20, 1961 - Mon.

Ironworkers completed the can top and bottom and working on rack for A-P. Fitters completed piping for A-D.

Nov. 21, 1961 - Tues.

Loaded all piping for A-D and delivered to SM-30. Delivered all harnesses for A-P to SM-30. Fitters started work on pipe for A-P.

Nov. 22, 1961 - Wed.

Ironworkers completed N rack and W rack for A-P. Fitters working on sample pipe for A-P.

Nov. 24, 1961 - Fri.

Delivered N & W racks for A-P to TA-49 and placed in calibration holes. Ironworkers started on N rack for A-O. Fitters working on sample pipes for A-P.

Nov. 27, 1961 - Mon.

Fitters working on sample pipes for A-P. Ironworkers working on racks for A-O.

Nov. 28, 1961 - Tues.

Fitters working on sample pipes for A-P. Completed, ready to ship. Ironworkers building new La Cuna for A-O.

Nov. 29, 1961 - Wed.

Piping for A-P delivered to SM-30. Fitters started on A-O. Ironworkers completed La Cuna. #6 cutting out rack for A-O.

Nov. 30, Thurs.

Fitters working on sample pipes for A-O. Ironworkers working on racks for A-O. Riggers turned W-Div. trailer around so the truck could pull it out and moved the crane in to be shipped to Albuquerque.

Dec. 1, 1961 - Fri.

Fitters working on pipes for A-O. Ironworkers working on racks for A-O. Moved Caldwell drill to TA-49 to drill 2 new calibration holes 24" rack.

Dec. 4, 1961 - Monday

Completed drilling calibration holes for 24" rack. Moved Area 4 can - from LASL shops to CP Area, TA-49. Delivered 2 10' liners for short calibration hole to TA-49 and set outside can in hole and poured grout in bottom to seal can.

Dec. 5, 1961 - Tues.

Grouted 10' calibration can in hole. Picked N and W racks for A-P out of calibration holes and bolted them together to check for fit and T & F cable runway. Made necessary alterations to W rack. Shops working on A-O hardware.

Dec. 6, 1961 - Wed.

Shops working on hardware for A-O.

Dec. 7, 1961 - Thurs.

Shops still working on A-O hardware. Sample pipes completed but word received to delete pit #3 and the air actuated valves. Electricians changed cables in A-P rack to isolate Archias cables.

Dec. 8, 1961 - Fri.

Shops working on A-O hardware -- received word to put pit #3 back in the line but to straddle pit No. 1 with pit No. 3. Shipped racks and canister for A-P.

Dec. 11, 1961 - Mon.

Shops working on hardware for A-O.

Dec. 12, 1961 - Tues.

Ironworkers completed N rack for A-O and started to put bottom in canister and drill lid. Electricians installing wires in N rack. Fitters revising piping for A-O. Made up estimate for LRL.

Dec. 13, 1961 - Wed.

Moved N rack outside, ready to pour Calseal. Fitters working on hardware for A-O.

Dec. 14, 1961 - Thurs.

Fitters revising A-O piping. Ironworkers cleaning shop, ready to start on A-O.

Dec. 15, 1961 - Fri.

Received word from J-Div. must have 8 sets of hardware ready by March 30. This will require 14 ironworkers at all times. Changed hardware up-hole to straddle mount pit 3 around pit 1. Must revise A-1, A-D, A-P, which have been shipped. New parts will be made up for these and shipped to Mercury.

Dec. 18, 1961 - Mon.

There will be no more mufflers used in down-hole hardware. Ironworkers assembling W rack for U & B. Also working on cables

Dec. 18, 1961 - Monday - Continued

for U & B. These are $1\frac{1}{2}$ " cables. Fired A-K Sunday,

December 17th.

Dec. 19, 1961 - Tuesday

Fitters completed revisions on pipes for AO. Ironworkers cutting materials for three (3) 24" racks, AT, AL, AO. Cleaned snow off roads at TA-49.

Dec. 20, 1961 - Wednesday

Moved all equipment from out of J-11 counting room and delivered to TA-48. Shipped cables and piping for AO.

Dec. 21, 1961 - Thursday

Started hardware for AO. Working on 1 1/2" cables for U4B. Ordered materials to make up cable connector supports.

Dec. 22, 1961 - Friday

Made up stretching device to test coax and styroflex cables. Working on AI hardware.

Dec. 26, 1961 - Tuesday

Fitters working on piping for AI. Ironworkers started another La Cuna for 24" rack - working on cutout work for AT, AL, AI.

Dec. 27, 1961 - Wednesday

Fitters working on AI. Ironworkers building La Cuna #7. Ready to start assembling rack for AI.

Dec. 28, 1961 - Thursday

Shipped N rack, W rack and canister for AO. Stress tested three L. C. coax connectors. One connector without any support pulled out at 800#, one supported by wooden clamp held 1200#, and one poured in scotch cast held 1700#. The one with the scotch cast pulled the outside shield on the cable in two.

Dec. 29, 1961 - Friday

Ironworkers assembling N rack for AI. Fitters completed piping for AI, ready to ship. Decided to use the wooden clamps for cable connector protectors.

We will build 50 each for RG 18, 50 each for RG 10 and 12 each for Styroflex cable.

Jan. 2, 1962 - Tuesday

Completed harnesses for AI and delivered harnesses and piping to SM-30 for shipment. Ironworkers assembling N rack for AI. Started moving J-10-1, J-10-2 and J-13-5 trailers from around scope building in CP area at TA-49. Carpenters cut overhang off from building so we could get them out.

Jan. 3, 1962 - Wednesday

Moved three trailers away from scope building and started to board up the holes where they came out. Received word to change all down hole piping to 3" I.D. There will be 60' of 3" I.D., 5" O.D. heavy wall on the bottom instead of the 120'. There will be the same amount of slip joint except the inside slip will be 3" pipe instead of 2". All the other 2" will change to 3" and we will add enough extra to replace the heavy wall which was eliminated. We will change AO and AI which have already been shipped. Fitters have ordered materials and started work on changes on AO. Ironworkers working on AI, N rack. Completed and shipped air freight two (2) bottoms indicating switches for AP. Started installing new outside monorail at Ironworkers shop.

Jan. 4, 1962 - Thursday

Ironworkers completed AI rack, still working on N rack. Fitters working on revised hardware for AO.

Jan. 5, 1962 - Friday

Moved out trailer J-16-1. Started to paint scope house where we repaired it. Received order to move J-16-5 also. Ironworkers completed AI, N rack and laborers poured Pharo., complete ready to ship. Fitters working on AO revision.

Jan. 8, 1962 - Monday

Moved J-16-6 and J-16-5 from TA-49 to Zia Shops for road service.

Shipped N and W racks for AI. Fitters still working on revised down hole sample pipes for AO. Started to build a set of spreader type strong backs to tie off the sample pipe and the coax cables to the 3/4" cables.

Jan. 9, 1962 - Tuesday

Ironworkers assembling N rack for AT. Fitters working on revisions to down hole pipe for AO. Fired AP.

Jan. 10, 1962 - Wednesday

Ironworkers assembling N rack for AT. Fitters working on revised down hole for AO and AI. Shipped set of coax cable connector protectors by air freight. Started testing harnesses for U4B.

Jan. 11, 1962 - Thursday

Ironworkers started work on "La Cuna" #8. N and W racks for AT are complete except to top pipe which was changed from 4" tubing to 5" and the shipment of 5" tubing is lost in shipment. Fitters working on down hole revised piping for AO and AI also held up for 5" tubing. We got the press all ready to start with the swedged sockets. Will have a trial run on these Monday.

Jan. 12, 1962 - Friday

Completed revised down hole for AO and shipped to Nevada. Finished loading out at 8:30. Ironworkers doing cutout work on U4B, AR and AX. Completed La Cuna #8. Moved out set of cables and sockets to press building ready to start swedging Monday.

Jan. 15, 1962 - Monday

Ironworkers cutting out U4B, AR and AX and started assembling AL.

Fitters working on revised down hole pipe for AL.

Jan. 16, 1962 - Tuesday

We pressed the swedge sockets on two sets of slings and stress tested them. Then we tried to pull one of the 1 1/4" cables to destruction. We pulled 140,000# but did not break the cable. We will change our rigging so we can get more stroke and complete the test. Mr. Lowery of National Tool & Die Company was here to instruct us. Received WO to move J-11-4 and J-16-8 trailers from their present location at TA-49. The carpenters started cutting the roof off the house which is built around them and the electricians striped all the wires out. They will be ready to move tomorrow. The fitters are working on revised down hole piping for AL. Hope to ship this Friday. Ironworkers are assembling N rack for AL. Some revised prints came through so we will incorporate them in the AL rack.

Jan. 17, 1962 - Wednesday

Fitters working on down hole pipe and pipe holders for AL. Riggers moved J-11-4 and J-16-8 trailers out in parking lot where truck can pick them up. Pulled one 1 1/4" cable to destruction, it broke at 155,000#. It broke near the middle. The swedge sockets held more than the cables. Ironworkers cutting out U4B, AR and AX and assembling AL. AT will be shipped Friday.

Jan. 18, 1962 - Thursday

Completed N rack for AT. Ready to ship Friday morning. Revised down hole pipe for AL. Complete, ready to ship Friday morning. Received revised schedule from J Division. We will start on AG pipe and rack today.

Jan. 19, 1962 - Friday

Shipped AT rack. Shipped AI revised down hole pipe. Moved U4B harnesses to SM-30 ready to ship.

Jan. 22, 1962 - Monday

Ironworkers assembling AL rack. Fitters working on AG pipes. Machinists working on Phonex Camera Holder parts.

Jan. 23, 1962 - Tuesday

Machinists working on Phonex Sample Holders. Ironworkers assembling AL racks. Fitters working on AG pipe.

Jan. 24, 1962 - Wednesday

Poured Pharro in N rack AL. Electricians started to cable up AL N rack. Fitters working on AG pipe.

Jan. 25, 1962 - Thursday

Poured extra shielding for racks already in field to be shipped Friday. Fitters to pour lead shield around reducer joint in pipe.

Jan. 26, 1962 - Friday

Shipped racks for AT. Shipped piping for AG, also harness and pipe supports. Crafts started building and assembling AR.

Jan. 27, 1962 - Friday

Shipped racks for AT. Ironworkers working on AR. Fitters working on AR pipe. Phonex columators ready for tubes, IASL to furnish tubes. Machinists working on Phonex Camera sample holders.

Jan 29, 1962 - Monday

Ironworkers completed AR racks. Electricians worked six (6) hours over to get cabled up. Fitters completed pipe except for 5" heavy wall, which we haven't received yet. Some changes made in OS W racks waiting for new prints. Fired AI.

Jan. 30, 1962 - Tuesday

Ironworkers started assembling U4B rack and started building #9 La Cuna. Also received prints for overseas W racks and started work on them. Fitters working on down hole hardware for hole AD. Shipped can and rack for AR. Moved pipe and harnesses to SM-30, ready to ship tomorrow.

Jan. 31, 1962 - Wednesday

Shipped AR pipe and harness, didn't receive 5" heavy wall pipe until 1:30. Had to work 1 1/2 hours overtime to complete. Mr. Newman called and asked us to discontinue all sample pipes. Ironworkers assembling U4B rack and working on overseas hardware.

Feb. 1, 1962 - Thursday

Fitters stopped all work on sample piping until further notice. Ironworkers assembling N rack for U4B, tested harness for AB. Machinists working on Phonex Camera equipment. Laborers hauled away contaminated salt from Area 12 to TA-49. Guards will be pulled off TA-49 gates Monday and gate locked.

Feb. 2, 1962 - Friday

Shipped harnesses for AL-20 sets, AB-5 sets 1 1/8", AT-17 sets and spare 6 sets. Machinists working on Phonex Camera sample holders. Wrote WO to move T & F trailer from TA-49 to N.T.S., must be out by February 7.

Feb. 5, 1962 - Monday

Ironworkers assembling racks for U4B, Machinists & Ironworkers working on camera equipment for overseas work.

Feb. 6, 1962 - Tuesday

Assembling U4B racks. Working on Phonex Camera equipment.

Feb. 7, 1962 - Wednesday

Machinists completed Phonex Camera sample holders. Working on Crypt #2. Ironworkers completed U4B rack and Electricians started to wire it. Sheet-metal working on gas bottle holders. Columators tubes here but we had to order end mills to work them.

Feb. 8, 1962 - Thursday

Shipped U4B racks. Ironworkers assembling N racks for AB. Ironworkers started assembling racks for Crypt #2. Shipped Phonex Camera sample holders. Sheetmetal completed gas bottle holders, ready to ship. Poured slab under cable stretcher in salvage yard west of building.

Feb. 9, 1962 - Friday

Ironworkers assembling AB N rack. This is a 31" rack. Ironworkers and machinists working on crypt for overseas.

Feb. 10, 1962 - Saturday

Ironworkers and machinists working on #2 crypt. Machinists completed camera holders.

Feb. 11, 1962 - Sunday

Machinists working on crypt #2.

Feb. 12, 1962 - Monday

Wrote WO to build two (2) complete crypts for Nevada, ordered material and started to cut out. Received prints on camera alignment jig and ordered material for this. Still working on other 40 crypts. Assembling AB rack and cutting out AV.

Feb. 13, 1962 - Tuesday

Ironworkers assembling 31" rack for AB. They completed cut out for 31" rack for AV but we were instructed not to assemble this because there would be some changes made on it. Instead we will start on ALA. Ironworkers completed columators for Phonex Cameras but were instructed not to pour concrete in them now. Completed most of the machine work on Crypt #2 and started to weld them up. Started Humphrey, Alvarez and Thomas on NTS work so they will become acquainted with it in case we go to Nevada.

Feb. 14, 1962 - Wednesday

Mr. Newman requested we stop all work on N racks until we get some new designs out. We will probably have to lay off some Ironworkers. The Ironworkers are assembling the N rack for AB. We will stamp this (AI revised). J-7 stopped the work on Phonex Camera equipment for overseas, as this shot is unsettled. We are still working on aluminum crypt liners.

Thursday - August 31, 1961

0745 -- Called by Newman to come to his office. Sam and I responded and were being briefed by 0800. Sam called Wendell to get Joe Hill's services as J-Division was shorthanded here at Los Alamos. About 10:00 a.m., immediately involved superintendents were briefed and given a tentative schedule. Production was started immediately on some standard items. Canister was loaded on low-boy to take to Alpha Engineering for modification. Preliminary take-offs were made and material ordered. A work order system was set up. Preliminary arrangements were made to send the 555 Koehring to NTS.

Friday - Sept. 1, 1961

Preliminary design was coordinated between J-Division and Joe Hill. Standard design was underway by crafts on hole hardware and harness; pending details. Basic design settled and material ordered. Plans proceeding to move crane to NTS pending decision on using existing 75-ton Lorain at site. Called Frank Haines and got a run-down on all cranes available in the area. Existing outer can and lid fitted at TA-49 prior to shipment. Warehouse buyers worked until 9 or 10 p.m. lining up materials. Canister sent to Alpha Engineering for modifications.

Saturday - Sept. 2, 1961

Fitters and electricians worked on Coax and down hole hardware. Cable requirements were finally settled and Ivan advised. See notes dated 9/2/61. Down hole hardware was devised and sketches given to fitters. Refrigeration men checked out trailer and mechanics checked running gear. Electricians put standard Russell - Stall plug on cord and corrected a broken neutral in wiring system. Men called in on standby to move crane to N. T. S. but word received from AEC that Lorain would be made available.

Sunday - Sept. 3, 1961

Fitters worked fabricating down hole hardware. Electricians on coax cable requirements. Electricians finished all connectors and cable work and spooled cable on reels and tagged reels.

Monday - Sept. 4, 1961

No work done by Zia, altho coax cables, canister, and rack loaded out by U of C for N. T. S. 1 1/8" cable and sockets delivered from Denver by M. L. Foss Company.

Tuesday - Sept. 5, 1961

Work on harness and down hole hardware continued by fitters and ironworkers. Newman advised that project may come to a screeching halt but work was to continue. Newman called late in the evening and said to proceed and that deadlines had

Tuesday - Sept. 5, 1961 Continued

been moved forward. Also, he alerted us that considerable manpower may be expected from us at N. T. S. Sam and Wendall advised and consolidation steps to be taken tomorrow.

Wednesday - Sept. 6, 1961

Work on harness on down hole hardware for shot no. 1 continued. Key men approached to see if they would be willing to leave temporarily to assist effort. Rigger boss to be sent but nothing else firmed.

Thursday - Sept. 7, 1961

Finished all down hole hardware and harness. Trucks were loaded and final one loaded about 2100 at SM-30. Prints were sent over for rack fabrication for shot no. 2. We made take offs for material and three day delivery is going to be essential. Word sent back from N. T. S. that blade operator had destroyed almost all of the coax sent out. Emergency measures taken here to ship out more cable although connectors were not installed here.

Friday - Sept. 8, 1961

Checked with Newman to see if we could determine how far we would be involved in N. T. S. support work. Newman called back in P. M. and said we would be expected to give support for 5 shots. Junge filled in on material requirements and material orders were placed immediately. Junge advised

Friday - Sept. 8, 1961 Continued

as to canister requirements and he placed additional orders immediately with Alpha Engineering in Albuquerque.

Nielson and Bob Kee of J-7 went to Albuquerque to get with Alpha Engineering on rolling some 1" cylindrical plates needed in the rack fabrication. A 15' deep 2' diameter hole was dug in our salvage yard and filled with reinforced type 3 concrete. A wide flange beam was set in the concrete and we will use this as a dead man to test harnesses.

Saturday - Sept. 9, 1961

Ironworkers and machinists working on componet parts for the no. 2 shot rack. Joe Hill completed the drawing on the top and down hole hardware and we started making material take-offs. Joe and I talked with Newman to try and determine future material requirements. Some basic design criteria was discussed and sketches made. With this information we will get critical material on order. Truck picked up zinc and 3/4" cable from Denver in Santa Fe but the air shipment didn't come in with the sockets and turnbuckles. I called Joe Salazar, the buyer, and got him tracing the shipment by telephone. Shipment was found on Continental's dock in Denver where it had been since Friday afternoon. M. L. Foss, Inc. of Denver was contacted and they will send one of their company trucks to pick it up and drive through tonight to Los Alamos. Electricians

Saturday - Sept. 9, 1961

called to make up a shipment of coax connectors to be shipped to N. T. S. Orba Booth called when shipment was ready about 1000. Pickup got cylindrical sections to Los Alamos from Alpha Engineering late at night.

Sunday - September 10, 1961

Mr. Sherratt and Mr. Foss arrived from Denver with the sockets and turnbuckles about 0700 and I met them downtown and took them out to the shop. We explained our need for the left lay cable and as they were affiliated with the wire rope company, they promised to see that it was on a carrier Friday, 9/15/61, so it wouldn't be stuck on a dock over the week end. These people have a great sense of urgency and really go out of their way to give service. Ironworkers started fabricating the lifting harnesses and continued working on the cannister rack. Two machinists working to keep ahead of the ironworkers. We traced the wedge sockets from Portland to Albuquerque and we contacted a Zia taxi driver there at Albuquerque and after several hours searching, he found them and brought them up to Los Alamos. The truck from California came in about 1900 and we unloaded it. The aluminum plate, shelby tubing and right lay 1-1/8" cable were on it. This takes care of the material for No. 2 shot, except the left lay cable. All material take offs made for the remainder of the shots and Wayne Gore, Fitter Superintendent, briefed on the entire scope of work as we know it, and the job outlined and planned with him .

Monday - Sept. 11, 1961

Machinist turning inside fitted parts of rack. Ironworkers assembling and welding rack components and pouring cable sockets. Fitters started on down-hole hardware per prints furnished by Joe Hill for shot no. 2. All material put on order as nearly as we can guess from our present information for shots 3, 4, and 5. Hill called and relayed information from Blossom. Blossom wants the next shipment of piping for the top and down-hole hardware cleaned with acid. We will have dipping tanks built by tomorrow. Also Rea wants the 5' radius bend on the 3" standard pipe as true as possible, and the flanges on 90°. Joe also said the #3 shot would have 460' of cover. We are still figuring on 1210 feet of cover for nos. 4 & 5. Ironworkers worked 4 hours over. We sent for the modified canister from Alpha and I notified Van Gemert that it would be ready for him to ship in the morning. The spring steel non-rotating devices were taken to SM-30 this morning for shipment.

Tuesday - Sept. 12, 1961

Continued work on rack by machinist and ironworkers. Fitters fabricating and electricians fabricating coax. We received word from Newman from NTS that troubles had been experienced setting the hardware in the hole because of irregularities in the lengths. Hardware for hole 2 was immediately revised to take care of this. See notes dated 9-12-61 for other corrections. We were also told to make preparations to go to a 800' hole. This means extra pipe, harness and lifters.

Material was requisitioned by air. Dynamometer is due tomorrow but left lay cable has been delayed at mill in St. Joseph, Missouri, because of previous DX priorities. Factory will however, start Thursday and work all Thursday night to get the first 1000 ft. of left lay out. Mr. Junge will have a truck with two drivers waiting at St. Joe Friday morning. We should have cable Saturday morning. Ordered all harness material for holes 4 and 5 today. Decision was made to go to 1-1/4" cable. Alpha engineering contacted and we will send for canister No. 1 Thursday morning. The rack is really starting to take form in the ironworkers shop. "Skip" of J-7 called and said it had been decided to go to 2" lifting rings on cannisters 3 and 4. Bob McKenley of Alpha called and advised of this. He was also given a bolt center dimension he lacked on lid and told he was to roll a set of cylindrical plates for each cannister. Leon Ross called and asked to get a "pickling" formula for the hole hardware. Fred Humphreys was contacted altho he was in the hospital and he worked out an acid solution with inhibitor for us. Also a neutralizer. Fred advised we contact Mr. Tate of Braun Chemical Company, Albuquerque, and use their recommendations for an inhibitor. This was done and requisition was made for the material.

Wednesday - September 13, 1961

Machinist, ironworkers and fitters working on rack and down hole hardware. No work on cable harness because of lack of material. Electricians stopped on coax fabrication because of question concerning lengths. We also want to know if we are to wire the racks.

Wednesday - September 13, 1961 Continued

Newman contacted late in the afternoon at N. T. S. and verified that we would go ahead with the coax as originally planned and that we would be expected to wire the rack. Some changes were also requested on the sample pots and clamp arrangement on the down hole hardware and slip joints. (See notes dated 9-13-61). Bill Junge checking with the AEC to see if we can use a DX priority on material purchases. Pickling tank ready and set by the Fitters fabrication area.

Thursday - September 14, 1961

Machinist, Ironworkers and Fitters working on rack and down hole hardware. Still no material for harness. We must have 1-1/8" left lay cable by Saturday morning to meet shipping deadline on harness. Electricians working on coax cables.

Friday - September 15, 1961

Work continued on rack and heavy aggregate poured. Rack shipped to Area 4, TA-49 and set in gray house. We still don't have cabling instruction for the rack although McQueen has been contacted. Had a hassle with Cliff Strang because classified information was copied from board in Newman's Office and carried to our safe here in TA-3 Office. I had been told that info was confidential and to treat it as such. This was done but as I am not authorized to classify documents or carry them Cliff unofficially reprimanded me. Sam is going to correct this situation with Wendell. Fitters working on hole hardware and Electricians working on cables.

Saturday - September 16, 1961

Riggers working on harnesses as the left hand lay cable was delivered.

Sunday - September 17, 1961

Harnesses were tested with 100,000 pounds pull and the soil proved to be unstable around the deadman. Concrete cracked and beam deflected. Nielson got a trencher and dug a trench in front of the deadman and installed another deadmankicker, this seems to hold it.

Monday - September 18, 1961

J Division is back from N. T. S. and we were warned of impending changes. We decided to put in another deadman on the other side of the salvage lot so we won't have to pull directly on the "cat" by doing this and putting the dynamometer on the live line in front of the blocks and snubbing the blocks to the deadman, we can increase the 100,000 capacity of the dynamometer several times. Work on the hardware proceeding. Work on rack at TA-49 proceeding and Nielson dug a 30' calibration hole near the gray shed. About 1600 hours Newman called and said he was ready to discuss changes. Neilson, Hugh Hancock and I attended a meeting in his office and along with Joe Hill were briefed on changes. Superintendents involved were called and alerted on action to take in the morning. Canister lid design was modified and Hill made new sketches. Alpha Engineering notified.

Tuesday - September 19, 1961

Joe Hill and I worked on changes and I took rough sketches to superintendent. Joe finished drawings and made final design changes. We will switch holes and use No. 2 harness and hardware in No. 3. Quite a bit of modification is necessary but nothing we can't cope with. It was decided about 1100 that a mock up of N. T. S. operations would be built in Area 4, TA-49. A 12' hole was drilled and 1/2" wall 36" diameter casing ordered from Alpha Engineering. Also a 12' section of 1/2" wall cannister. Bob McKinley dropped everything and we asked Junge to send a truck down to pick it up about 1600. We will set and grout casing in the morning and have it ready for J Division by 1000. Wayne Gore, Hill and I worked on some design problems on the sample pots. Machinists also given sketches on some design changes and worked late. Small Ironworker Crew worked a few hours on design changes after 1630. See sketches and notes dated 9-19-61 for mock up at TA-49 and machine design changes.

Wednesday - September 20, 1961

The truck came in to area four at TA-49 last night and left the float then loaded with the 40' cannister, cannister lid, the balance of the curved 1" plate sections for the racks and the two 12' lengths of casings that were ordered yesterday. Crews arrived at TA-49 at 0700 hours and we poured the cal-seal plug in the bottom of the holes, set the casing and when plug hardened set the cannister section and grouted the annulus between casings. Because of the design changes and the noon deadline on shipping tomorrow we put two extra Fitters on the fabricati

Wednesday - September 20, 1961 Con't.

and still had to work until 0230 hours before we were in shape to make the deadline. Riggers worked at Area 4, TA-49 lowering the rack into the hole for calibration purposes. Carpenters worked late fabricating a shipping box for the sample pots. Electricians worked a few hours at TA-49 making up cables and connectors.

Thursday - September 21, 1961

Loaded all cable reels that were ready at TA-49 and all the down and top hole hardware for reloading and shipment at SM-30. All harness also shipped. Newman called and Joe Hill and I met with him. Newman indicated there may be a speed up in the schedule and he wanted to know what we could do and still not hurt the rest of the laboratory as far as Zia Company effort was concerned. Tentatively I assured him that we could meet practically any schedule he would want and not divert effort from other lab work as our backlog was at a record low and we would be laying people off in a few weeks. We also settled on using a ball type valve and a roll-a-grip clamp for quick disconnection. We are moving the Fitters work from S Site to the TA-3 shop, this will give us more room. Ironworkers fabricating on rack for cannister No. 2. Sam and Wendell filled in on my conversation with Newman.

Friday - September 22, 1961

Moved pickling vats and pipe into TA-3 shop from S Site and are preparing to fabricate in TA-3 shop. Ironworkers fabricating on rack in shop and Electricians finished making coax connectors at TA-49. Sam and I went to Newman's office and Sam outlined our work load and confirmed our ability to support J Division in this program. Newman

Friday - September 22, 1961 con't

called late in the afternoon and said he could confirm nothing beyond the series of 5 shots but that things could change radically. Joe Hill gave us preliminary drawings so we could get a start on No. 3 hole hardware. Called Aeroquip Corporation, Marman Division, Los Angeles, Calif. and talked with Mr. Bill Poppe. I explained our need for a quick opening clamp that would work on standard 2" and 3" pipe. He promised to air mail me some literature on clamps and flanges that he thought would work.

Saturday - September 23, 1961

Ironworkers fabricating on rack and building a monorail on Fitters dock for pickling vats. Fitters working in shop on No. 3 hole hardware, one Machinist working on rack assembly. Joe Hill completed all hardware details and down hole and top hole hardware assembly for hole No. 3. Ironworkers also fabricating on harness for No. 3. Thorne and I worked out a better, cheaper, and safer way to test the harnesses.

Sunday - September 24, 1961

No work by any crafts.

Monday - September 25, 1961

Checked with the Roebling Company of Trenton, New Jersey and with Union Wire Rope of Kansas City, Mo. to see if they had a prestressing set up for cable. We need to check before setting up some hydraulic equipment here for testing. Union Wire Rope has a set up that sounds a if we should check it before setting up here.

Tuesday - September 26, 1961

Thorne left by plane for Kansas City to see the cable tensioning set-up of Union Wire Rope. Ironworkers working on harness and rack. Fitters working on down hole and top hole piping for shot no. 3 (665').

Wednesday - September 27, 1961

Work continuing in shop on hardware, harness, and rack for shot no. 3. Joe Hill completed the down hole piping for shot no. 4 - (1200'). Thorne came in late in the evening and brought back information that checked with our plans here. Also, he brought back samples of swaged ferrules for slings that look promising for use here as we have press facilities.

Thursday - September 28, 1961

Shops continuing to fabricate on No. 3 and Joe Hill and I flew out to Mercury, Nevada. Checked in with Newman in the barracks and outlined our work for tomorrow.

Friday - September 29, 1961

Joe and I spent the entire day and until about 0230 the next morning. This is a tremendously complicated operation and requires intelligent and well coordinated support work. We discovered many small things that we should do back in Los Alamos to make the loading and recovery operation work better and more efficient. As work was being done on the rack by the University, they discovered some changes that should be made on the next rack. I called Thorne from the field and he made the changes on the no. 3 rack before it was sent out to TA-49. The shot was put down hole with all the coax and diagnostic

pipng and secured until tomorrow. Gave Newman the special run costs through 9-24. We have spent \$84,000 approximately and everyone seems pleased with the costs.

Sat. - Sept. 30, 1961

Joe and I got out in the field early and checked through the dry-run with Charlie Brown, and watched and made notes as the hole was filled and capped. This is a long operation and I think Reeco should go to a conveyor on the sand fill and use transit mix trucks instead of motor mixers for the Cal-Seal. Joe and I called Nilson and gave him some design changes to incorporate in the next set of hardware and harness runs.

Sun. - Oct. 1, 1961

Newman told me to prepare for two more holes. A 1200' and 2,000'. Joe and I compiled a list of material and called back to Los Alamos to get the ball rolling. Thorne, Nielson, Gore and Musser had a meeting at the TA-3 Office and made plans and take-offs. In view of the many problems that needed answers and getting prepared for shipment on No. 3 shot on Oct. 5, I decided to come home as soon as possible and Joe is to stay and help Newman tomorrow figure coax and get any changes on the up-hole hardware. LASL fired the shot about 1430 and I managed to get a seat on a charter plane flying directly from Mercury to Los Alamos. Arrived in Los Alamos about 2300.

Mon. - Oct. 2, 1961

Checked in with all the shops and noted the progress of the No. 3 shot preparations. Wayne, Thorne and I talked over the changes we must make to correct things that didn't work too well in the field. We mocked

up and tried the new ball valves that will be used next time and devised an extension handle that should work. We will also stagger the lengths of the handles so it will be easier to lower the concrete box lid over them at the test site. Another connection that will work well in the field is to supply enough dummy pipe on the last harness length that it will gill out a harness full length and avoid the long delay that occurred Friday night. We are also setting up an exact mock up of the test site procedure at TA-49 so we can determine what is causing the 1-1/8" lifting ropes to spin. We will use the 100' hole and the spare area 12 bottle for weight, (45,000 lbs). Rack shipped to TA-49 for calibration. Hydraulics equipment for testing harness ordered and air shipment and delivery promised for the end of this week.

Tuesday - October 3, 1961

We are coming along in pretty good shape to finish the shot hardware for hole AE. Changes are necessary on the rack at TA-49. More lead must be put on the center pieces near the pellet. We will have to do this by wrapping lead around them in the field as its impossible to get the pieces out. We got everything ready to test out the cables and duplicated field conditions exactly by lowering the bottle into the hole with a 10' harness and then a 60' harness. We first hooked the harnesses together left lay to right lay and they spun 4 revolutions with just the 10' and 60' harness linked together. We then took the bottle out of the hole, laid it down and straightened out all the harness cables. The bottle was then lowered into the hole with the 10' harness, then a 60' harness, and finally with another 60' harness.

The harnesses were looped together right lay to right lay and left lay to left lay. Absolutely no spinning was observed. This solves a major problem that occurred when the can was lowered at N. T. S. Care must be taken that right lay is coupled to right lay and left lay coupled to left lay.

Wednesday - October 4, 1961

J-Division back from Mercury and some changes are going to be necessary on the top hole hardware. Also, four more shipping boxes are necessary by noon tomorrow. A load of coax was picked up at TA-49 for shipment to N. T. S. and all the harnesses and down hole hardware was loaded out to SM-30 and reloaded from there to a commercial carrier for shipment to Mercury. Minor changes being made in top hole hardware and an additional set up for a sample pot of stainless with solenoid valves was designed and turned over to the fitters for fabrication. Air actuated valves, a 3" on the first pot and a 2" on the filler can were requested by J-6. Mose Day and Warehouse contacted a source suggested by J-6 and managed to get confirmation of air shipment. We worked fitters, ironworkers, carpenters and machinists until 2230 and have things in shape to complete shipment tomorrow.

Thursday - October 5, 1961

We completed shipment of all top hole hardware and the 4 shipping boxes. Last minute changes on the "W" rack came in to add 9 1" thick steel plates.

Friday - October 6, 1961

Extra Stainless Steel Pot completed as 1" solenoid valves were received by air today. Another change on the "N" rack. 3" lead plate is now required for their calibration. Ironworkers fabricated the plate after 1630 and it will be ready in the morning. Shops are working on hardware etc for hole AH. Carpenters lined up to make a wood mandrel to check the roundness of the cannisters we are getting from Alph Engineering as these last two are almost 3/4" out of round.

Saturday - October 7, 1961

Fitters, ironworkers, carpenters and machinists working. Rack finished being calibrated at TA-49 and loaded about 1500. Air actuated valves received by air and crated. These valves and the stainless steel pot crated and shipped with the rack and cannister. This completes the hardware for hole no. 3. Hole AE.

Sunday - October 8, 1961

No work by any craft.

Monday - October 9, 1961

Crafts working on hardware and harness and rack for hole AH. We are a couple of days late on the rack but mainly because of the changes on the last one. The vanes and the power unit are in and we have made a preliminary design to start installing in the morning so we can test cables hydraulically. We will work a small crew of ironworkers tonight. Ferro-phosphorous did not come in today. Warehouse is checking.

Tuesday - October 10, 1961

All crafts working on fabrication for hole AH. Ironworkers fabricating for the hydraulic ram draw bar. Electricians and fitters making up piping and controls. I talked to Newman today and asked if he had any objections to our following through with some of our personnel on the next two shots as I would like to follow up on how effective our changes are and to see first hand operating problems. Newman has no objection to this and we will make the necessary arrangements to send Wayne Gore and J. D. Thorne.

Wednesday - October 11, 1961

Fitters and ironworkers fabricating on hole AH, and the hydraulic testing unit. The "N" rack will be ready to pour the cal-seal and ferro-phosphorous. We will try a trial run on pouring cal-seal and sand tomorrow. We will make a slurry of the cal-seal and then induce sand into the slurry. If this works we won't have to dry our sand anymore.

Thursday - October 12, 1961

We worked about half of the ironworkers shop until 10:30 PM as we won't make our shipment deadline due to changes in the rack and having to make new sets of split beams. We fabricated an aluminum can : the "W" rack and poured it full of parafine. It took about 400 lbs. This is a switch from the 1" steel plates of the last one. If they are going to continue the use of parafine, we will get a 55 gal. drum with steam coils and a spigot to milk and draw off parafine. We continued fabricating on the hydraulic testing ram frame and finally got it set in position and ready to tie down about 1:30 AM. The steel drawarms and push beams

are designed to go to 400,000 lbs if we need to. Electricians worked cabling the "N" rack and getting power over to the hydraulic testing unit.

Friday - October 13, 1961

We worked all day getting hydraulic unit set and pistons and draw bars. We were short of men today and only had one man to spare to work on it. We had to work until about 10:30 PM to get the hydraulic testing mechanism working correctly and calibrated. The fitters worked until about 8:00 PM but finished the hole hardware for hole AH and delivered it to SM 30 for shipment. Joe Hill called and said he and Tatum were working on a cost projection for 30 units and wanted to know what we thought we could manufacture a complete set of hardware, rack, harness, etc. for a 1200 ft. hole. I guessed about \$30,000. If we could know for sure where we are going, I would set up shifts when we were short of shop room and equipment and we could eliminate a lot of overtime this way. I believe that with shifts and mass purchasing we could best \$30,000.

Saturday - October 14, 1961

Started testing the harness. Everything works fine and we are testing one complete set, marking it and loading for shipment to SM 30 in 25 minutes. We had Grove Dow from S-Site look our set up over this morning and he says it is good, simple, and inexpensive. Crew out at TA-49 to load the "N" rack and cannister. "W" rack still has to be calibrated. Fitters started on piping for hole AI. Ironworkers shop working on "La Cuna" No. 3 and "N" rack for hole AI. All harness and remainder of split beams for AH were taken to SM-30 and loaded

out in the afternoon. This completes the shipment for hole AH.

Sun. - Oct. 15, 1961

No work by any craft.

Mon. - Oct. 16, 1961

Crafts fabricating on hardware for AI.

Tues. - Oct. 17, 1961

Crafts fabricating on hardware for AI. Made up a cost sheet from man hours accumulated by the crafts on hole AH. The analysis was made on the basis of straight time altho actually some of it was worked on overtime. Analysis is as follows and is for labor only:

Diagnostic Piping	\$ 2,809.19
N-Rack	5,239.86
Harness mfg. & testing	2,108.19
Lifting Devices (split beam)	1,960.35
Support Work at TA-49	922.97
Electric cabling - rack and down hole	1,237.36
Clean-up - crating, misc.	<u>380.33</u>
Total Labor	\$ 14,658.25

On the basis of a 50-hour work week, the labor would increase 10%. This analysis was shown to Newman.

Wed. - Oct. 18, 1961

Crafts working on hardware for AI.

Thurs. - Oct. 19, 1961

Crafts working on hardware for AI. We finally found the chemical formula for "Drycid". A representative of the "Oakite" Company was here and called the laboratory in New York City. Dr. Bremmer, the head of Oakite's Laboratory told us the acid was sulfamic acid made by the DuPont Company (HSO_3NH_2) and an inhibitor that is a nitrogen compound. The inhibitor is less than 1% of the compound.

Fri. - Oct. 20, 1961

Crafts working on hole piping, harness, and rack for hole AI. A Mr. Harold Perla and a Mr. Mike Tierney came in from Los Angeles to see our manufacturing process and to talk to Newman. They are engineers with Holmes and Narver, the Architect-Engineers for the Nevada Test Site. Down hole and top hole piping loaded out for SM-30. We will have three sets of hardware out in the field by the first of the week and as the drilling schedules are so messed up, we will not work this weekend until we see where we are going.

Sat. - Oct. 21, 1961

No work by any craft.

Sun. - Oct. 22, 1961

No work by any craft.

Mon. - Oct. 23, 1961

Crafts working on harness and rack for AI and piping for AI.

Tues. - Oct. 24, 1961

Crafts working on harness and rack for AI and piping for AK. Learned that AE was to go down hole on Friday and made arrangements for Gore and Thorne to leave Thursday afternoon for the Test Site. Carpenters closing in the hydraulic units and rams.

Wednesday - October 25, 1961

Working on harness for AI and piping for AK. Drilling schedule at NTS is still uncertain, altho AE is still scheduled to go down hole Friday. Rack for AI finished and taken to TA-49.

Thursday - October 26, 1961

Checked with Blossom as to the latest drilling schedule. From this information a new shipping schedule was made out. Cost of production was discussed with Blossom and we were assigned two more orders for hole hardware, holes AO-800 ft. and AL-1200 ft. Gore and Thorne left for the test site. Welded aluminum can for "W" rack.

Friday - October 27, 1961

Finished testing the harness for AI and working on piping for AK. Poured parafine in aluminum can for "W" rack for AI and used the steam heated drum. This drum saved over six (6) ironworker man hours compared to the way we were heating and pouring it.

Saturday - October 28, 1961

No work by crafts.

Sunday - October 29, 1961

No Work by crafts.

Monday - October 30, 1961

Thorne and Gore and most of the people from J Division coming back from test site. Many changes to be made as they can't get the 36" casing down in hole AH and they are going to a 24". We will have all new piping, rack and canister and lid. Joe Hill worked out the new down hole piping and called me and gave me dimensions for a new size canister. Alpha Engineering was contacted and they will have the can out tomorrow.

Tuesday - October 31, 1961

Different groups of J Division getting together on the new rack but nothing concrete as yet. J Division wants an early shipping date and we will be pushed. Nielson suggested a method where-by we can use the existing lifting devices and this will save many man hours. Thorne and Gore had ideas for improving the loading operation and we will use them on next set of hardware. No information on the rack, top hole hardware or canister lid and bottom. Canister picked up late by our truck and brought to Ironworkers Shop.

Wednesday - November 1, 1961

Fitters working on new down hole piping for AH. Will contacted Gore and asked for a different type solenoid on the no. 4 collector pot. Hill called in the afternoon and said he had some information on piping and the canister. Thorne and I went over to J-6 offices and after getting information from Hill we were asked by Blossom if we could get the canister lid and top hole clamping devices ready to ship by 0800 in the morning. We called and caught machinists to get the lid ready and split the ironworkers into two crews. One to work through until midnight and the other to come on at midnight. I will stay until midnight and Thorne will stay on the next shift. Joe Hill stayed late and made drawings so we could keep fabricating. We still do not have any drawings or design information on the "N" rack. Fitters worked a few hours overtime and completed the revised down hole piping for AH.

Worked a machinist at Transportation getting the lid machined. We finished drilling and taping the lifting bolts and canister bolts in the lid here in the TA-3 shop. 1" lifting band made and bolted to canister, the bottom made for canister and the lid fitted to it. Second shift worked all night.

Thursday, Nov. 2, 1961

The canister with lid and the clamping device were ready for shipment by 0830. Got the prints for the W rack late in the afternoon and some preliminary prints for the bottom section of the N rack. This gave us enough information to go ahead in the ironworker shop. Fitters loaded out the down-hole piping for hole AH and sent it to SM-30. Ironworker shop worked six hours overtime. Fitters working on the special top hole collector pot and have ordered two special hydraulic actuated Solenoid valves that will remain closed in any position. This was requested by Joe Hill.

Fri., Nov. 3, 1961

We kept in touch with J-6 and J-7 and got preliminary prints from them, a few at a time. We finally got prints on the N rack, the canister lid, the "N" rack machine parts details, and the top extension on the rack for the cable connector plate. We worked our machinists and the ironworker shop through until about 10:30 p.m. Tanners worked late and also a carpenter making spacers and a crate for the fitter material. Fitters worked a few hours over and finished the special sampling piping. Worked the Caldwell rig at TA-49, digging one 52' deep, 44" diameter hole and one 10' deep, 44" diameter hole for mock-up facilities.

Sat., Nov. 4, 1961

Ironworkers started at six a.m. and we finally got strung out and started making all the component parts for the "N" rack. We changed shifts at 4:30 p.m. Thorne went home about 7:00 p.m. and Nielson relieved him. I joined Nielson to relieve him at 10:00 but there were so many things to lay out and check that we both stayed until 3:00 a.m. when we shut the shop down. Machinists and tanners worked also. We have found a few construction and design bugs but nothing serious. Frankowski came out and checked with us in the afternoon. The rack is taking shape but the little details are eating us up and we will have to work more tomorrow than I thought.

Sun., Nov. 5, 1961

We started at 7:00 a.m. on the rack and found we had made a mistake on both the lid and top rack plate. We called Frankowski and he came out and stayed until we had checked out the detector spacing using detectors that Swanson brought to us. We found they would go in but the hangars had to be modified and we also found out we would have to set the rack on rollers as all three of the lead doors would have to be removed. We worked the ironworkers through until 10:00 p.m. and the electricians in the afternoon worked until about 1 a.m. getting the cables in place. Mose Day finally traced the air actuated hydraulic.

Monday, Nov. 6, 1961

Poured the ferrophosphorus and loaded out the revised rack for hole AH. We immediately began cutting out for a second rack as we have to make an identical rack and take it out to TA-49 so it can be calibrated. Mock-up calibration facilities must also be set up at TA-49 for the "N" and "W" racks and casings and canisters have been ordered. Doug Lier told me we could fill around

the 52' long - 24" diameter casing with sand instead of grout. The 10' long casing is to be grouted. Caldwell rig finished drilling the hole at TA-49.

Tues., Nov. 7, 1961

Received word from Joe Hill that because of drilling troubles at NTS we will have to build another special rack and a canister. This size is to be 26" OD/1/2" wall for the canister and 24 $\frac{1}{2}$ " OD for the rack. There is only one man left here and available to start the new rack design for J-7 but there is some preliminary work we can do. Called Alpha Eng. and ordered another canister. Called Bob McKinley late in the evening and asked if he could get the canister ready so we could pick it up early Thursday morning. He promised to have it ready by 0700 Thursday. Bill Junge contacted in the afternoon and asked to find us some 4" x 2 $\frac{1}{2}$ " car channels and let us know so we could let J-7 know before 1700. Their rack design depended on whether we could get them. Junge called back and said he had located them in Compton, California and they would be loaded the next morning. Junge called again late in the evening and advised to pick up 24" casing for TA-49 tomorrow and leave early Thursday to pick up canister at 0700. Balance of TA-49 canisters due in by our truck tonight. Junge also asked to get 100' of heavy beam for La Cuna and increase the car channel order by one length.

Wednesday, Nov, 8, 1961

Joe Hill and J-7 got enough prints to us that we can pre-cut most of the plates, machine the lid, and get some of the lead cast. We worked the ironworkers and machinists late and the casing, "La Cuna" beams, and some tubing came in about 2100. We received more prints late in the afternoon and the lid and parts for the canister were completed. Cable harness for AK were completed and the testing started. Revised top hole piping for AK was completed by the fitters and ready to ship tomorrow. Plug poured in the bottom of 10' "W" rack mock-up hole at TA-49

and 24" casing set in about 8" of grout on top of plug.

Thursday, Nov. 9, 1961

Canister picked up at Alpha and arrived here about 1200 hours. Ironworkers fit lifting band, lid, and bottom and made a top hole clamp for the 26" canister. Canister loaded on U of C truck about 1730 and the AK harness and top hole piping were shipped to SM-30 about 1500 hours. We will shut down the work for the weekend and Friday holiday because the carbuiding channels for the AK 24.5" rack will not be in until tomorrow or Saturday. One machinist worked a few hours over to get parts ready for rack assembly Monday. Most of the prints are in our hands now for the rack and canister and Joe Hill called me at home and said he would have the remainder of them tomorrow and would put them on my desk. "W" rack casing in area 4 at TA-49 grouted to the surface.

Friday, Nov. 10, 1961

Holiday for Zia crafts. We worked two timers getting the detector cars ready for the ironworkers Monday.

Saturday, Nov. 11, 1961

No work.

Sunday, Nov. 12, 1961

No work.

Monday, Nov. 13, 1961

Ironworkers started a shift on the racks at 0200 hours. Another crew worked over to 1030 hours. Machinist worked over. All the component parts of the rack were laid out and cut.

were laid out and cut.

Tues., Nov. 14, 1961

Ironworker crews working from 0200 to 1030 with a split shift. We didn't receive the cable listing for the rack until this morning. Extra electricians assigned to the work and they completed making up the cables about 2100. The rack was turned over to them about 2230 and they finished installing the cables about 0100, 11-15-61. We received word that the canister we had shipped Nov. 2 had been lost in a hole at NTS and we will have to get the one ready we were going to use at TA-49 for calibrating and ship it in the morning with the rack for AK. This means putting a bottom in the can, making holding rings and bolting them on, and drilling the top for the lid. Talked to Hill during the evening and asked him to get information on writing the balance of the work orders on Nougat, ordering more canisters as we only have one coming in -- urged him to get the rack design changed to channels -- find out about Bendix connectors as we are out.

Wed., Nov. 15, 1961

Poured ferrophosphorus in rack about 0930 and loaded out the rack and can on a University truck about 1500. Down-hole piping and piping for Pit No. 5 and the "W" rack were loaded on another truck. A spare "La Cuna" was pulled into the ironworker shop and preparations made to start the 2^u 19" rack that is to go to TA-49 for calibration and then to NTS for hole AP. Hill called and said to write the work orders for hole AT, AU, and AQ, gave me specifications for ordering 4 more canisters. Three of them to be 20 $\frac{1}{2}$ " O.D. with 1/2" walls and one for U-4B to be 26" O.D. with 1/2" walls. Also, the design has been changed to channel. We ordered the canisters and channel. Fitters working on AD piping.

Thurs., Nov. 16, 1961

Completed cutting parts for the 19" rack. The size of the canisters was changed. All of them now 26" O. D. Alpha Eng. notified. Hill completed piping drawings on AD. Talked to Hill about canister for hole AM. It's a small hole and will use a rack with a 2' extension for the connector plate. The can may be below the water table and it will be a real problem to seal against water pressure. Fitters working on AD piping.

Fri., Nov. 17, 1961

Started assembling rack (19" for TA-49 calibration and then use in hole AP) 21" diameter canister with 1/2" walls delivered this morning to the ironworkers shop. A method of making a pin connection on the 4" tubing extending below the lead plate under the detectors @ 312 inches was devised and Lier called. This would allow the removal of the lead plate and give access to the detectors better than any method we can think of and better than we are doing now. Also, a 1/2" thick lead ring will be inserted in the top so the 1 3/4" lead doors won't leak radiation.

Sat., Nov. 18, 1961

Assembling of rack continued by crews of ironworkers. Small crew of electricians making up cables.

Sunday, Nov. 19, 1961

No work by any craft.

Mon., Nov. 20, 1961

Ironworkers assembling rack and electricians working on cables. We have a deadline of tomorrow morning to deliver the rack to TA-49 for calibrating but in view of the strike situation at Mercury, I called Newman and asked if it was

now necessary to make delivery on Tuesday as it would mean considerable overtime. He said it wasn't and we rescheduled to have the rack finished Wednesday. Fitters finishing piping for AD. Newman advised us that we should make preparations to go to swaged sockets on cables instead of poured. Letter to this effect in file from Holmes & Narver. Finished testing the cable harness for AP.

Tues., Nov. 21, 1961

Rack finished by ironworkers and part of the cabling done. Piping finished for AD and shipped to SM-30. Cable harness for AP shipped to SM-30. We called the National Swage and Tool Company in Chicago and got them to send drawings of dies, literature, and sample fittings. Tested the cable clamp on the tension tester and pulled to 40,000# before it slipped. The design of the split pieces is OK but needs to be modified to make it hold. Swede will machine them again and we will test again next week. Hill called and said that J-6 might be in need of some of our personnel. I talked to Newman about this and found the requirements for this personnel.

Wed., Nov. 22, 1961

Checked with Sam on the personnel question. We agreed that we could furnish some people from our office and that the qualifications were probably met by Howard, Sam, and me. Rack was finished by the electricians and poured with ferrophosphorus. Fitters working on AP piping.

Thurs., Nov. 23, 1961 -- Thanksgiving Day

No work by any craft.

Fri., Nov 24, 1961

Definite word received from N.T.S. and Nielson scheduled out on a C-47 Monday at 0700 from field here in Los Alamos. Rae Blossom, J.D. Thorne and I met with Jim Taub, Gail Hanks, Jim Church and Ed Brundage in the press building. We explained our problem concerning the swaged type sockets instead of the poured type and CMB-6 agreed to let us use the press and train our people to operate it. The 19" rack for AP was shipped out to TA-49 and put in the calibration hole. Fitters working on AP piping. Ironworkers laying out for 24.5" rack for AO.

Sat., Nov. 25, 1961

No work by any craft.

Sun., Nov 26, 1961

No work by any craft.

Mon., Nov. 27, 1961

Ironworkers cutting out rack for AO and starting to make a new "La Cuna". National Swage Tool & Die Corporation called again in Chicago and asked to send drawings for the dies required to swage sockets so we can order a die set for the press. Junge sending out new bids on swaged sockets and dies so we can get rolling on the purchase of them and get dies made and shipped. Fitters working on piping for AP.

Tues., Nov. 28, 1961

Ironworkers assembling "La Cuna" and cutting out rack for AO. Fitters finishing piping for AP. Nielson called from the site at N.T.S. and gave me some cable changes for the 24.5" rack (see notes). Also wanted us to go to cloth tape on pipe ends. Hill called and said to get a mock up at TA-49 for the N rack as well as for the W rack. This means a 52' long casing, 30" OD and a 50' long canister, 26" OD. Also, Joe said we wouldn't ship the AP racks and canister until after it was calibrated.

Wed., Nov. 29, 1961

Piping for AP shipped from the fitters shop to SM-30. Ironworkers working on rack for AO. The harness for AP was taken to SM-30 about a week ago. Booth will ship the AP harness and piping together. Nielson called from the test site and gave us more information and changes to make on hardware design.

Thurs., Nov. 30, 1961

Received the drawings from National Swage Tool & Die Corporation. The swage fittings and dies have been put out on bid and we will order as soon as we hear who gets it. Ironworkers, machinists and fitters working on AO. Casing and mock-up canister for the W rack came in. Ten (10') foot hole will be drilled at TA-49 tomorrow. Got a call from Ed Tuchfarber asking us to turn a trailer belonging to W division around in the compound so a tractor could be backed into it. Trailer is to be shipped to N.T.S.

Fri., Dec. 1, 1961

Fitters, machinists and ironworkers working on AO hardware.

Sat., Dec. 2, 1961

No work by any craft.

Sun., Dec. 3, 1961

No work by any craft. Nielson came back from NTS.

Mon., Dec. 4, 1961

Some changes on 19" rack in calibration hole at TA-49 to be made. Frankowski checked with us on these changes. Assembly of AO rack started. Fitters working on AO piping, 30" X 10' 0" long casing set and plugged in hole at TA-49. National Swage Tool & Die Corporation were low bidders on sockets and dies and sockets ordered for AM, U4B, AL & AR. This is a repeat order on sockets as we couldn't stop shipment on poured type sockets. We are shooting to be in business with the swaging by 12/22/61. Blossom advised of this. Crane at TA-49 is scheduled to pull a water well which will tie it up for three (3) days. The 555 crane has been sent to ACF for a few weeks. Blossom advised of this and asked if the calibration of the 19" rack at TA-49 could wait until Monday. He checked with Westervelt at N.T.S. and called back and said we could figure on Monday. Crane will be dispatched to the well tomorrow.

Tues., Dec. 5, 1961

Crafts working on AO hardware and harness. Due to set back of firing schedules at N.T.S. we reduced manpower in the fitters shop and authorized Thorne to pull about 50 - 60% of the men working on N.T.S. production and catch some X-priorities and close schedules for IASL at various sites. Our latest shot schedule shows we are about a month ahead and no definite information on the future program. We will run with reduced crews this week and next week unless something develops.

Wed., Dec. 6, 1961

Concerned crafts working on hardware for hole AO. Harness cables are being tested and will be completed tomorrow for shipment to SM-30. AO piping also scheduled for shipment to SM-30 tomorrow. Booth and Hill advised.

Thurs., Dec. 7, 1961

Nielson was notified by Hill that changes must be made on the top hole piping of AO. The position of the No. 3 pit is to be changed and we are to furnish enough pipe to run to the dump hole. Shipment of hole piping for AO delayed until changes are fabricated. Ironworkers working on rack for AO and finished testing harnesses for AO. Harness delivered to SM-30 for shipment.

Fri., Dec 8, 1961

Ironworkers working on AO racks. Fitters working on AO piping changes.

Sat., Dec 9, 1961

No work by any craft

Sun., Dec. 10, 1961

No work by any craft

Mon., Dec. 11, 1961

Ironworkers working on AO racks. Fitters working on revised top hole piping for AO.

Tues., Dec. 12, 1961

N rack for AO completed by ironworkers. Fitters working on the revised AO top hole hardware. Received a call from Newman wanting to know the cost of a complete set of hardware for a 1200' / 29" hole. We completely re-estimated this cost by using actual time book records for labor and made material take offs and priced them out. Newman was called this afternoon and given a price of \$27,000.00.

Tues., Dec. 12, 1961 (con't)

A detailed letter will follow in the morning.

Wed., Dec 13, 1961

Electricians cabled N rack for hole AO. New 3" size "Y" branches for AO, AI, & AP must be made so the up hole piping on these holes can be changed at N.T.S. to conform to the new placement of pit No. 3. Delivered the letter to Newman and was told that Livermore and Sandia were both interested in the possibility of Zia making some hardware for them. This decision will be up to the AEC if it is requested by Livermore or Sandia.

Thurs., Dec. 14, 1961

Ironworkers set N rack out of the shop and set it up to pour ferrophosphorus and Cal-Seal. Joe Hill came over and gave us the latest schedule for hole hardware. Layout work for new rack continuing.

Fri., Dec. 15, 1961

N rack for AO is ready to pour but because of the heavy snow storm we will delay until Monday. Ironworkers pouring lead pieces for new racks. Fitters working on revised top hole hardware for AO.

Sat., Dec. 16, 1961

No work by any craft

Sun., Dec. 17, 1961

No work by any craft. AK expended at N.T.S.

Mon., Dec. 18, 1961

Poured the N rack for AO. Talked to Newman about work orders for holes AV, AX and AZ. It was decided to cancel the work order written for hole AU and use it for hole AV as material ordered for it would be interchangeable. Joe Hill called and wanted us to ship out one of the 3" "Y" branches immediately so it could be installed at N.T.S. on hole AP. This was done. Shipping information on swage type sockets received from the National Swage Tool & Die Corporation. Copy of letter sent to Hill and Newman.

Tues., Dec. 19, 1961

Taking information on schedules furnished by Joe Hill and the work load in other places, we decided to hire more ironworkers. We are changing the ironworker shop to gain more room and are moving all the operations that we can outside to the salvage yard area. This coupled with some new capital budget equipment that is due in next month, will allow us to increase production on a straight time basis. Ironworkers fabricating on AQ rack. Fitters finishing AO piping. We will ship the AO piping to SM-30 tomorrow. The harness is already there. Booth and Hill notified of this by Nielson. The Air Conditioner that was moved in from TA-49 to trailer J-12-12 checked out and put in operation. 26" canister hauled in from Alpha Engineering.

Wed., Dec. 20, 1961

Fitters shipped AO revised piping to SM-30. Ironworkers still working with a reduced crew but cutting out plates and pouring lead for rack AQ. Machinists working on rack pants.

Thurs., Dec. 21, 1961

Mr. Lowery called from Chicago and said he shipped 80 - 1 1/4" closed end sockets, 37 - 1 1/4" open end sockets, one set of 1 1/4" dies today. The 1 1/2" sockets, one at the heat treaters and the whole order should be shipped in time to be in by the end of this month. Fitters working on AQ piping. Ironworkers and machinists working on racks.

Fri., Dec. 22, 1961

Crafts working on harness for AQ. Newman called and wanted to know if we could ship a 19" rack by 1/2/62 if we got prints on 12/26/61. We told him we could and alerted the shops. Checking later in the day, Newman told me we probably wouldn't have to build this rack as they were having engineering difficulties with their design. N and W racks for AO were shipped to TA-49 for calibration next Tuesday but checking later with Blossom he told us it would be Wednesday at least before the rack would be calibrated. We moved the 19" "La Cuna" into the shop anticipating a push Tuesday and started making the 20 1/2" top hole clamp for the canister.

Sat., Dec. 23, 1961

No work by any craft.

Sun., Dec. 24, 1961

No work by any craft.

Mon., Dec. 25, 1961

No work by any craft.

Tues., Dec. 26, 1961

Crafts working on racks for AQ. No word from J-6 regarding the 19" rack. Electricians poured scotchcast around RG-18 connectors to make a tension test. We are trying to work out something that will hold the connectors together when going down hole. Nielson also came in with a mechanical clamp to be used on the cables on either side of the connector. This clamp essentially is a wood tube inside of an aluminum tube and then the tubes are split. We will test both methods under tension to destruction.

Wed., Dec. 27, 1961

We are starting another "La Cuna" for a 24.5" rack and we will start assembling AQ rack as soon as it is finished. The scotchcast splice probably can't be used because of the heat generated. The mechanical splice looks the best. Two more ironworkers were sent in by the local.

Thurs., Dec. 28, 1961

Crafts working on AQ rack, cables and piping. Rack for AO picked up at TA-49 and shipped to N.T.S. Orders written for two (2) sets of chokers, six (6) extra sets of harness and a handling sling for the split beams. Tension test on coax connectors made. Standard RG-18-U connector with no splice failed at 800 pounds. Connector with scotchcast splice failed at 1700 pounds, but the heat was terrific. Mechanical splice failed at 1200 pounds. We will fabricate the mechanical splice.

Fri., Dec. 29, 1961

Crafts working on AQ rack, cables and piping. Assembly of rack started on "La Cuna".

Sat., Dec. 30, 1961

No work by any crafts.

Sun., Dec. 31, 1961

No work by any craft.

Mon., Jan. 1, 1962

No work by any craft.

Tues., Jan 2, 1962

Checked with Newman about delivery back to our shop of a 24" "La Cuna". He checked and told us it will be at least a week before we can get one back. We will have to build another, as we can't wait that long to start assembling the AT rack. AQ rack nearing completion in ironworkers shop. AQ piping being loaded for shipment to SM-30 and AQ harness will be finished and tested today. Bradshaw called Nielson about noon and told us that the entire down hole piping was to be revised and to go to a 3" pipe instead of a 2". The heavy wall tubing was resized to 3" also and cut in length to 60' 0". Since Joe Hill is not in town, Nielson, Gore and I revised Joe's prints on AO and AQ. The new tubing was ordered and if we can get it in time we will be ready to ship the revised piping for AO by 1/12 and for AQ by 1/22.

Wed., Jan 3, 1962

"La Cuna" from AK was unexpectedly delivered. We will order the steel for another one anyway as it looks as if we will need it. Fitters working on revised piping for AQ. AQ rack being assembled. Joe Hill back and working on revised piping drawings.

Thurs., Jan 4, 1962

Work progressing on revised piping for AQ and racks for AQ. Canister completed. Some of the dies for the swaging operation are in but die set is not in yet. 1 1/4" & 3/4" swaging blanks are in. Hill called in and asked us to issue a work order and make up three (3) pots and a 3" - "Y" splitter for the Sandia Corporation.

Fri., Jan 5, 1962

AQ racks finished in ironworkers shop and set outside and poured with ferro-phosphorous. Fitters working on revised piping for AQ. Electricians started cabling AQ "N" rack. Started assembling AT rack on "La Cuna" in the ironworkers shop.

Sat., Jan. 6, 1962

Worked machinists but no other crafts.

Sun., Jan 7, 1962

No work by any craft.

Mon., Jan 8, 1962

Continued assembling AT racks. New 5" and 7" heavy wall tubing for the revised down hole hardware due in today. Electricians finished cabling AQ rack. AQ racks and canister loaded on truck for shipment to N.T.S. about noon. Blossom called and said he wanted us to make some new holders for the down hole piping and coax that clamp across both 3/4" cables. Also, Blossom said he wanted us to fabricate some columnators and pour them with heavy concrete. It was also agreed with Blossom that we would recap the financial statement on the 8100 series work orders once every two weeks, instead of once a week. The die set, 1 1/4" dies and the die mounts came in. Gale Hanks notified and we will take them over to the press building tomorrow and see about getting set up.

Tues., Jan 9, 1962

Ironworkers and machinists working on AT racks. Fitters working on AO revised down hole piping and AT top hole piping. 5" tubing still not in although 7" came in yesterday. Material ordered for new pipe clamps that attach to the 3/4" cables.

Wed., Jan 10, 1962

Three inch (^{5"}3") tubing not in but being traced. We can't complete AT rack without it. AT harness being fabricated. Fitters working on AO revised down hole and AT top hole piping.

Thurs., Jan. 11, 1962

AT racks nearing completion - harness being fabricated. Down hole piping complete for AO except for the 5" tubing. We have traced the tubing and it is due in Albuquerque tonight. ICX will bring it up tonight so it will be ready in the morning. Die set, die holders and 1 1/4" socket die set up in press at the press building. Mr. Lowery contacted in Chicago and he will be in Monday. We will have to use a slightly different method of stopping and seating the harness cables on the split beams as the swage type sockets have a long cylindrical shank that will not seat on top of the split beams like the poured type sockets will.

Fri., Jan. 12, 1962

AT rack complete except for the top pipe that connects to the diagnostic piping and we aren't sure if it takes a 3" ID or a 4" ID tube. Cables cut and taken to the press building so we can start swaging Monday. The 3" ID heavy wall tubing came in first thing this morning and ironworkers and fitters started assembling it for the AO down hole piping. We will ship the revised AO down hole piping to SM-30 although we will probably have to work the fitter shop a few hours overtime to get it done. Special slings shipped also.

Sat., Jan. 13, 1962

No work by crafts.

Sun., Jan 14, 1962

No work by crafts.

Mon., Jan. 15, 1962

Joe Hill called and said to concentrate on the revised down hole hardware for AD instead of AQ and to use the 3" ID heavy wall tubing. We are short of this tubing and don't have enough for AQ and AD down hole and also the racks. Nielson suggested that we use the 4" ID heavy wall tubing out of the racks and then we could adapt to the 3" ID if J Division wants it and we would still be ok if they decided to go to 4" ID on the down hole piping. Nielson checking this out with J-6 and J-7. We weren't able to start swaging as Mr. Lowery was delayed getting a flight to Albuquerque because of weather. Sam, Newman, Hill and I discussed future work and personnel needs to support the testing program.

Tues., Jan 16, 1962

We started the swaging operation with the 1 1/4" dies. While Mr. Lowery was here, we swaged the 3/4" and the 1 1/2" to establish the necessary pressures on the dies and to learn the proper methods. The swaging operation is fast and should save a lot of money. Fitters working on AQ revised down hole. Ironworkers finishing rack AT and cutting out for racks U4B, AR and AX and assembling on AL.

Wed., Jan 17, 1962

We pulled to destruction one of the 1 1/4" cables with the swaged sockets. The cable failed near the center of the 60' span at 155,000 pounds. No sign of failure evident at the socket. We will cut a socket in two and see how it fatigued. Ironworkers assembling on AL and working on other racks. Fitters working on AQ revised piping. There is a chance I will be at N.T.S. next week and Jay Nielson will be gone on leave so we will fill Hugh Hancock in on details and let him follow the fabrication.

Thurs., Jan. 18, 1962

We heard that the shots were not producing samples and Nielson and Thorne looked over our N rack with this in mind. They think that there is a possibility that the 16" standard weight pipe may be collapsing.

Thurs., Jan 18, 1962 con't.

We can beef it up and Nielson will contact Newman to see if he wants to try this. Word received today from Joe Hill regarding new firing schedules. He also said we were to use AT hardware for AG. This is a new hole and we don't even have a work order for AG. Fitters still working on the revised down hole hardware for AQ. We will have to use the AT top hole hardware for AG and then replace it and the rack on the AG order. We understand that AG is a 500' deep by 36" diameter hole but a 24.5" rack will be used. Poured the ferrophosphorus in the AT rack. Swaging cables for the AL harness at the press. We have set up a new work order series 8120-xx to be used for work other than N.T.S.

Friday, Jan. 19, 1962

Shipped the revised AQ down hole piping and the AT "N" & "W" racks with their canisters to N.T.S. The 1 1/2" harness for U4B was shipped to SM-30 for storage. Fitters started fabricating for the AG. down hole piping. We received prints for some Phonex sample holders that must be machined, WO 8120-01. We are trying to make arrangements to get some surplus machine tools from the University to supplement our shop. Fitters worked a couple of hours overtime to complete the loading of the pipe.

Sat., Jan 20, 1962

Worked two machinists on rack pants.

Sun., Jan. 21, 1962

No work by any craft.

Mon., Jan 22, 1962

Doug Lier back from N.T.S. and wants some minor changes made on the "N" rack. He wants smaller gussetts at the top where the flashers go and the 6" heavy wall tubing extended 1'-0" more above the rack. He also wants the 3/8" pin holes in the heavy wall tubing relieved for a looser fit. Ironworkers assembling rack to be used for AG instead of AL. Fitters working on AG & AD down hole. Machinists started on some sample holders 8120-03. Push on this job for completion and we will have to work two men four (4) hours a night and Saturday to keep up.

Tues., Jan 23, 1962

Fitters working on AG & AD piping. Ironworkers working on AG racks. Joe Hill received prints on crypts (our WO 8120-02). The outer shell and middle section will be procured by H and N. The top and bottom racks will be made by us. Also, additional lead shielding will be necessary on the detector cans in the rack and a lead shield must be made for the transition joint out of the can to the piping. Blossom called and said Newman wanted me to come out to N. T. S. today. I caught the 4:40 PM flight out of Albuquerque and was checked in at the barracks at Mercury bu 2030 hours. Hugh Hancock will keep up the diary at the Los Alamos end.

Wed., Jan 24, 1962

Checked in with Newman at 0800 and discussed personnel, etc., for a couple of hours and then met Jerry Tatum at Area 3, hole AQ. Stayed with Jerry all day and checked back in at Mercury about 1730 to see Newman. We wanted to talk to Bob Campbell and firm things one way or the other but due to circumstances decided to wait until in the morning.

Thurs., Jan 25, 1962

Poured extra shielding for racks already in field to be shipped Friday. Fitters to pour lead shield around reducer joint in pipe.

Fri., Jan 26, 1962

Shipped racks for AL. Shipped piping for AG also harness and pipe supports. Crafts started building and assembling AR.

Sat., Jan 27, 1962

Ironworkers working on AR. Fitters working on AR pipe. Phonex columators ready for tubes. LASL to furnish tubes. Machinists working on Phonex camera sample holders.

Mon., Jan 29, 1962

Fired AQ. Ironworkers completed AR racks. Electricians worked 6 hours over to get cabled up. Fitters completed pipe except for 5" heavy wall which we haven't received yet. Some changes made in O. S. W-racks waiting for new prints.

Tues., Jan 30, 1962

Ironworkers started assembling U4B rack and started building #9 La Cuna, also received prints for Over Seas W-Racks and started work on them. Fitters working on down hole hardware for hole AD. Shipped can and rack for AR. Moved pipe and harnesses to SM-30 ready to ship tomorrow.

Wed., Jan 31, 1962

Shipped AR pipe and harness, didn't receive 5" heavy wall pipe until 1:30, had to work 1 1/2 hours overtime to complete. Mr. Newman called and asked us to discontinue all sample pipes. Ironworkers assembling U4B rack and working on over seas hardware.

Thurs., Feb. 1, 1962

Fitters stopped all work on sample piping until further notice. Ironworkers assembling N rack for U4B, tested harness for AB. Machinists working on Phonex camera equipment. Laborers hauled away contaminated salt from Area 12, TA-49. Guards will be pulled off TA-49 gates Monday and gate locked.

Fri., Feb. 2, 1962

Routine work on machining and setting up rack U4B. A meeting of Tech Division Engineers, Musser, and Wendell called for this afternoon and I gave a description of the scope of the work to be done at N.T.S. and what it would mean in manpower and effort from our division.

Sat., Feb. 3, 1962

Machine shop worked.

Sun., Feb. 4, 1962

No work by any craft.

Mon., Feb. 5, 1962

Routine work on rack U4B and the crypt assemblies.

Tues., Feb. 6, 1962

Work on U4B rack progressing. Enough material now in to really start machining processes on the crypt assemblies. It is apparent that we must put our big lathes on a three (3) shift basis, seven (7) days a week to meet deadlines demands. Swede worked out the details and we set up shifts for our machinists as well as some from transportation. No overtime will be involved except on the week ends. Hill called and needs dimensions on all overseas trailers. We set up a W.O. 8100-35 and started one of our engineers and a carpenter to getting this information.

Wed., Feb. 7, 1962

Work progressing on the machining of the crypt assemblies. U4B rack being assembled in shop. Newman called about 1500 and said he wanted to see us as Dr. Graves had given him the OK to use Zia help. Sam and I checked with him to see what he needed and worked out a schedule of man power. Our people alerted and scheduled to leave this coming Monday.

Thurs., Feb. 8, 1962

Wendell and Goodson checked with and a letter written to the AEC asking that the Zia Company be allowed to assist J-6 in the field. A survey of the rad. chem piping was made to determine what had been left over and what materials were on hand that wouldn't

Thurs., Feb. 8, 1962 con't.

be used since it had been determined that the pupung would be deleted and not used on future shots. Work continuing on U4B rack and the machining and assembling of the crypt racks. Part of the slab for the testing machine area poured. Information on the size, openings, etc. of overseas trailers about complete and given to Joe Hill (WO 8100-35).

Fri., Feb. 9, 1962

Machinists on three (3) shifts on crypt production. Ironworkers starting to assemble racks for crypts. Last pieces of the aluminum for the crypts came in about 1600. 31" rack being (AI) assembled in ironworkers shop. Slab poured for the cable testing area. Wendell called about 1230 and said that Burke had turned down our request to assist J-6 in the field at N.T.S. Newman notified of this turn of events. Hill gave us information to write an order to build two (2) complete crypts and have on the site at N.T.S. by 3/1/62. "N" and "W" racks for U4B shipped with its canister. "W" rack is a special 19" rack and top plate has been adapted to 24" "N" rack.

Sat., Feb. 10, 1962

Machinists working on crypts. Made drawings to send to Alpha Engineering for new complete crypt assemblies. Called out some ironworkers to saw more material to keep the machinists working.

Sun., Feb. 11, 1962

Machinists working on 8120-02 crypt assemblies.

Mon., Feb. 12, 1962

Word received about 0930 that Dr. Graves was checking with Dr. Bradbury to see why the AEC had turned down the proposal to use Zia Company at N.T.S. Newman called later and said he was writing a letter to Dr. Schrieber requesting our use and giving justification. Sar and I were asked to come over and review the draft.

Mon., Feb. 12, 1962 con't.

Prints came in through Joe Hill to make two (2) alignment fixtures for the Phonex Camera. WO 8120-07 was assigned. 31" rack for the revised AI shot being fabricated in ironworkers shop. WO 8100-37 written to build one (1) complete #1 crypt and one (1) complete #2 crypt. Labor charges on the revised AI rack, one being charged to AB (8100-14) because one rack has been built for AI and will probably be used in AB. Machine shop and ironworkers working on the crypts. Ironworkers are assembling and welding them (WO 8120-02). Thomas, Alvarez and Humphrey are being briefed on the N.T.S. operation and N.T.S. and overseas fabrication. Steel cylinders and 38" diameter rings for crypts on WO 8100-37, Ordered from Alpha Engineering in Albuquerque. Delivery promised by this coming Friday.

Tues., Feb. 13, 1962

Joe Hill, Nielson, and I worked out the history of the production and material ordered for each hole WO from the beginning (hole AC 8100-99) through the latest hole (AL-A-8100-33). WO 8120-08 written to transfer all costs from 8100-35 to it. This was the WO (8100-35) that all overseas trailers measurements were made. Special 31" rack for AI being fabricated. Harness for AI has already been made. Thomas, Alvarez and Humphrey being briefed. Machinists and ironworkers working on crypts. Ironworkers welding collumnators into metal boxes. Hale started with Caldwell rig to be used to set canister in. This hole is located by ironworkers shop. Hill called late in the afternoon and said he was unable to get any definite information on new rack design. We will get with him in the morning and see if some information can't be obtained or we will have 20 men with nothing to do for a while.

Wed., Feb. 14, 1962

Mr. Newman requested we stop all work on N racks until we get some new designs out. We will probably have to lay off some ironworkers. The ironworkers are assembling the N rack for AB. We will stamp this (AI revised). J-7 stopped the work on Phonex camera equipment for overseas as this shot is unsettled. We are still working on aluminum crypt liners.

Thurs., Feb. 15, 1962

Completed #2 crypt liner and it was picked up by GMX-3. Mr. Newman requested two (2) crypts complete by March 1, one to be complete by February 21. Ironworkers assembling AB racks. We met with Mr. Newman for briefing on LASL policy and Mr. Francis, Mr. Alvarez and Mr. Humphrey left for Nevada Test Site to assist J-6 with field operations.

Fri., Feb. 16, 1962

Electricians wired rack AB. Thorn notified ten (10) ironworkers because we don't have any prints. Balance of the men are working on crypts. Swede is also working on crypts. They want one (1) crypt #2 in the field Tuesday so Swede will have to work over the weekend.

Satn., Feb. 17, 1962

Swede worked two men 12 hours on steel for crypt #2.

Mon., Feb. 19, 1962

Completed test hole in back yard. Lowered can and rack AB (AI revised) into test hole for final fitting. Started assembling crypt #2. This should be shipped Wednesday morning. Machinists are working on machine work for crypt #1. Thomas left for Mercury.

Tues., Feb. 20, 1962

Shipped can and rack for AB. Marked AI revised. Also shipped one (1) columator tube box. Crypt #2 will be ready to go to Bldg. 430 in the morning. Machinists working on rings for crypt #1.

Wed., Feb. 21, 1962

Delivered one crypt #2 to S-Site. Working on crypt #1, waiting for prints to begin another N rack.

Fri., Feb. 23, 1962

received prints for W rack for AI #2 cut this out and started to assemble. Also received prints for can and rack at 5:00 PM, so will work Saturday in order to complete this and ship by March 3. Continued work on crypts.

Sat., Feb. 24, 1962

Started layout work on racks for AI-2. Also poured all lead for pipes and plates so machinists can machine this Sunday.

Sun., Feb. 25, 1962

Machinists worked on AI-2 hardware.

Mon., Feb. 26, 1962

Continued cut out. Started rack assembly. Made over pieces per change in design. No prints as yet. Working as directed. 6:00 PM will try and get prints out in AM. Worked 6 hours overtime, 11 men and 2 foremen.

Tues., Feb. 27, 1962

9:30 am, still no prints, added 20 cm (7.875") polythene plug. Will make up out of 1" thick wafers. Measure each piece and add up. Air stand off no problem. Poured lead. Assemble. Additional plan information. 10:00 am to 1:30 pm - 5:30pm 6 hours overtime, 11 men and 2 foremen. 2 mech. 4 hours. 2 tinner 3 hrs. Plans complete to tap conc.

Wed., Feb. 28, 1962

Additional plan information on top section. 3:00 pm, 1 lead chamber to be redesigned. 12 ironworkers, 2 foremen - 6 hours. 3 mech. 6 hours. 1 tinner 5 hours. Feed thru plate to electricians

Thurs., March 1, 1962

6 ironworkers, 1 forman, start 2:00 am.

IW - AI2 N-rack work. - Fabricating new detector housings (lead). Support for detector housing to be removable. Reviewed revised prints 3:00 PM. IW crews will work 6 hours. Graveyard crew to come in 2:00 AM. Mechanics - machining parts for detector housing plus pellet and bottoming devices. Shooting for shipping afternoon. 3 M. M. - completed work on lid and lead boxes 6:00 PM. 3 M. M. completed work on pellet holders (2) and lead box (elliptical). 6 IW and foreman worked on thru to 1:00 PM Saturday. 4 elec. and foreman started at 4:30 PM and worked on thru to 11:30 AM Sat. Everything complete and ready except boxing lead detector chamber (elliptical).

Sat., March 3, 1962

Start 8:00 AM. Riggers loaded two (2) trucks. 2 carpenters boxed lead chamber banded boxes and rack. Fab. coax splice protector styro to RG 18/u hinged. Trucks on job 8:30 PM. N rack left 9:30 AM. Other truck left here 10:00 AM and went to whse. SM-30 for four (4) boxes. Riggers left for press building to put lugs on 2 - 40 - 1 1/4" slings requested Friday night and will load on truck.

Mon., March 5, 1962

Started fab. on AS. WO 8100-39 (a) complete set of prints promised for Tuesday March 6, 1962 (J. Hill). Work started 1:30 PM. No action in morning. Checking to make sure ALA would not come in ahead of AS. Go ahead on as from Joe Hill 1:15 PM. IW working on crypts. WO 8100-37 - crypt #1 - SCD 3-7-62
crypt #2 - comp. (at GMX-3)

WO 8120-02 - SCD, 4-1-62. AS rack to be same as AG per Joe Hill. New schedule for NTS distributed 3-6-62. Dist. - 132-1, 134-1, 135-1, 138-1, George -1, Howard -1.

Mon., March 5, 1962

Status of NTS orders - Active.

WO 8100-10-B. Item #3. IW will go ahead and fab. clamp for 20 1/2" can per

Joe Hill. Remainder of order complete.

WO 8100-12 - Hole AD. Order complete. Used 32" rack made for AH.

WO 8100-13 - Hole U4B-3. W-racks fabricated. Two (2) of them on supplement.

N-rack shipped to NTS 2-8-62. Harness shipped to SM-30 for storage. (check)

Ref. 8100-94 will use on AMS. If AMS is not delivered by 3-16-62.

WO 8100-14 - Hole AB. complete. Shipped 2-23-62. Marked AI revised. Cables

shipped 2-2-62. Mech. fabricated parts on WO 8100-16 used for this hole.

WO 8100-15 - Hole AT. Cables 1000' 1 1/4 - shipped 2-2-62. Used this rack for AG.

Will build new rack for AT and charge to WO 8100-32 original AG hole.

Material is ordered and some fab. has been done. LM&R material and time

charged to 8100-15. No charges on 8100-32.

WO 8100-16 - Hole AU. Cables shipped 2-2-62 (250' - 1 1/8") Started fab. on rack.

Stopped for redesign. LM&R fab. partly. Supplement A - issued to change

hole designation from AU to AV. and depth from 1200' to 250' and hole size

from 24" to 36". ATTN: Look for New WO for AU.

WO 8100-17 - AQ hole. complete

WO 8100-21 - AR Hole. Complete

WO 8100-24 - AX hole. Cable fab. and in IW yard. No fab. done on races. No prints,

etc.

8100-25 - A.Z.Hole. Cables in IW yard. No fab done, no prints, etc.

8100-32 - AG Hole. Cables shipped 1-26-62. No fab done. No prints, etc.

Used material for AT. (ref. 8100-15)

8100-33 - ALA HOLE. Material order for 24-1/2" rack. Partly fab. Stopped work 2020-62 for redesign. Cables stored in IW yard.

(Note from B. Francis) Keep accurate charges. Proceed with this work a. s. p. So backcharge to U.K. can be accomplished. This hardware will be used on AU. Per schedule of 3-13-62.

8100-37 - Crypts. Look at notes for date of 3-5-62. On WO 8100-37

8100-39 - Hole AS. In progress 3-5-62. Watch for prints (3-6-62)

8100-40 - Hole BA. No prints, schedule, etc.

8100-41 - Hole AI-Z. Complete. Shipped 3-3-62. Hold for material charges.

8100-42 - Complete. Revise La Cuna #2. AI-Z. Hold for material.

8100-44 - AW Hole. New order - ref. 8100-33.

8100-45 - AUS Hole. New order.

8100-94 - AMs hole. See note on WO book. Same specs as U4B. If cannot ship by 3-16-62 will use U4B hardware now at NTS.

8120-01 - Phonex Columators. IW stopped work 2-15-62. Waiting on group.

8120-02 - See note on WO book. Crypt, W-racks.

8120-03 - Check Lindstrom for Comp.

8120-04 - Check.

8120-07 - Check.

Tues., March 6, 1962

Went over work orders to be closed with J. Hill, and closed. List in WO book.

Issued new order for AU, 8100-46⁽⁵⁾ columators - W.O. 8120-01. One (1) shipped per supplement A. Three (3) required 5-1-62. Will use AG design for AW (per J. Hill) unless changed at later date.

Work orders pulled from Work Order Book add turned in complete.

5003-29	8100-15	8100-43
8100-12	8100-17	8120-05
8100-01	8100-21	8120-06
8100-02	8100-36	

Wed., March 7, 1962

Request for W-rack (AS) to be shipped 3-9-62 on C-47 flight (per WCF). Ironworkers will complete W-rack Thursday, March 8 and deliver to Orba Booth, SM-30 before 5:00 PM. Arrangements made Booth and Cattami. (above cancelled 3-8-62.) Located W-rack that belonged to AL (British furnished own W-rack). 19" W-rack at Pajarito being modified to fit 24" N-rack. IW to make one (1) adaptor plate and W-3 to bolt in place. IW to deliver plate 3-7-62. (will be used in AMs). Ironworkers working on crypts (WO 8100-37). Crypt #1 - ready for shipping to GMX-3. Will ship 3-8-62. Will include one (1) set of slings. Ironworkers working on AS.

Thurs., March 8, 1962

Crypt #1 delivered to GMX-3, Bldg. 410 (Curtis Bond & Ray Gauler) complete with slings. Notified by J. Hill and B. Francis of new schedule for NTS work. Waiting on letter from J. Hill before putting new schedule out. Ironworkers, mechanics, and Carpenters working on AS and crypts. Installed base course per WO 5003-29. Work complete.

Fri., March 9, 1962

Ironworkers and mechanics working on AS and crypts. Received request from Francis for additional bolts (socket head and set screws). Will ship Monday, March 12th.

SAT., March 10, 1962

Went over print for Hood (meinel optical bench) WO 8120-10 with J. Hill and Howard Holcombe. Issued new WO 8120-10 with SCD of Thurs. 3-15-62.

Mon., March 12, 1962

Ironworkers and mechanics working on AS and crypts. Shipped one (1) box of: 8 - splice protectors (AS); Socket head screws and set screws - 18 ea.; to the attention of Wm. Francis. Revising new NTS schedule as per letter from J. Hill dated 3-9-62. (16-62-102) crypt #1 in progress, 45% complete. Crypt #2 in progress 14% complete - 60% complete. Will ship completed crypts (17) to S-Site per request from Jerry Tatum.

Tues., March 13, 1962

Work Orders turned in: 8100-13; 8120-09; 8100-14; 8100-91. Received from J-6 office, Jerry Tatum, 550 ea. - RG 1213 BU - connectors for RG a/u & RG 10-u picked up by Killough. Distributed new schedule - 3:00 PM. Distribution, 1 each to Ironworkers, Electricians, LM&R, Howard Holcombe, J. Hill, Geo. Alvaraz, W. C. Francis. Delivered to S-Site, 17 crypts #2, Bldg. 410. Called by Jerry Tatum, possible change on crypts. To call tomorrow with complete details. Working one mechanic 6 hours overtime. Working on aluminum parts for crypts so ironworkers can keep working to meet deadline of April 1st. Received call from W. C. Francis (8-13-62) 9:00 PM. Request - check alignment of splice protectors 1-5/8" styro to RG 18/u. Holes egg shape and out of line. They are also running short on splice protectors (for all other racks from now on will furnish 10 instead of 8). Requested special shipment of 20 splice protectors as soon as possible. Bill requested that AS rack scheduled for shipment Tuesday, March 20, be shipped Monday, March 19. Bill will leave NTS Thursday, March 15 and will return to NTS Wednesday or Thursday, March 22. George will leave LA, Tuesday, March 20 - spend two (2) days with Nielson NTS. Nielson will probably leave NTS Friday, March 23. Humphrey will stay in NTS til week of 3-26-62.

Wed., March 14, 1962

Splice protectors - carpenters will ream and true all splice protectors on hand (8).
On all new protectors will first cut wood and then drill. This will assure a round
and true hole. Have shipment of 3" aluminum tubing coming in Thursday, 3-15-62.
Will fabricate 20 additional protectors and pro-rate cost on WO 8100-25, 45 and 47.
Made arrangements with crafts (ironworkers, mechanics, electricians) to meet new
shipping date for AS - 3-19-62. Ironworkers will go down hole Friday 3-16-62.
LM&R - pour can Friday 3-16-62. Electricians - wire rack Saturday 3-17-62.
Ship Monday 3-19-62. Change six (6) crypts. Cut ring w/slots 2-1/4" 180° from
each other and six (6) crypts weld continuous as shown on prints. Crypt #2 and #1 cut
slots as above. Crypt #1 and #2 where slots cut. GMX to furnish plate to weld
rings to, changed as per Tatem, J-6. See sketch for change of Crypt #2 as per
Newman, J-6. Crypt to be picked up on call from J. Tatum, J-6 at Bldg. 202,
S-Site from McGilvary. Borrowed 54' of 3" aluminum tubing from LASL machine
shop to fabricate splice protectors.

Thurs., March 15, 1962

Picked up hood, aluminum from Tin shop. Pickup was made by Chuck Fuller, started
fabrication of splice protectors. Twenty six (26) to be shipped to NTS as soon as
possible. Completed sketch for reinforcement of Crypt #2 and gave two (2) copies to
Ironworkers. Splice protectors are to have a friction fit. Check on feasibility of
reboring splice protectors and will be impractical. Can salvage Al, wood will be
wasted. Ironworkers, 4 men and 1 foreman - 3 hours overtime. Fitting lead and
lid and preparing can for down hole operation. Conc @ 1230.

Fri., March 16, 1962

Cable splice protectors are okay and there is no need to change process. Pour 80" x 1½" lead sleeve on 6" pipe at top of can. Cable clamp at top is to have bearing on pipe and will be leaded. J-10, 1 and 2 connectors previously deleted by conversation with J. Hill and Geo. Alvarez are to be reincorporated to make a total of four (4) for J-10. Ironworkers, 7 men and 8 hours overtime each, working on forms for lead and pouring lead. Placed conc. in rack and checked down hole. Fitted top on rack. Picked up #2 crypt at S-Site. Brought to ironworkers shop for modification/sketch. WO 8100-37.

Sat., March 17, 1962

Continued pouring and milling lead for AS and U4B racks. Ironworkers, 11 men 18½ hours. Operators, 1 man 12½ hours. Machinists, 4 men 12½ hours.

Sun., March 18, 1962

Did not start as per schedule.

Mon., March 19, 1962

Shipped can, racks and harnesses for 8100-24, 24, 33 and 94 to NTS. Started fabrication on AZ in ironworkers shop. Continuing work on crypts and additional fabrication of reinforcement of one can for crypt. Boral scraps will be cut and boxed for shipment to NTS. Scrap pieces should be no larger than 12" x 12". Ship in 12" cube boxes. Lead will be added to all cans as was done on AS. Hole AZ will be changed to BC as per supplement, BC to be shipped 4-2-62. Shipped 4-2-62. Need Boral and Parafin can on BC. As per call Joe Hill and Jay Nielson lead and all harness in yard to be shipped as soon as possible. Requested overtime to facilitate loading and shipment. Splice protectors will also be shipped. Nielson requested harnesses as there is a shortage of harness at NTS. Check with Bill Francis as to harness and Alvarez to check on harness at NTS.

Tues., March 20, 1962

Fabricated 12" x 12" x 24" box for Boral Scraps and will pick up Boral Scraps on hand W Division to be cut into pieces no larger than 12" x 12", to be shipped to NTS. Harness for ALA shipped to NTS and completes shipment of all harness on hand. Completed reinforcement of top and bottom of crypt #2 and delivered to Bldg. 202, S-Site, McGilvary. Started discussion of changing work order system with Francis, Paul and Musser. Ironworkers (7), Machinists (1) worked 6 hours on new rack on overtime. Continuing work on aluminum for crypts.

Wed., March 21, 1962

Got minor changes on schedules from Joe Hill plus prints for aluminum tripod for Theodolite to be built by 3-30-62. Deliver plates on crypts at top of lower inst. rack as legs are cut off. Deliver to Bldg. 202. Have thirty (30) ready to deliver. Continued fabrication of racks and parafin can. Will work seven (7) ironworkers, one (1) operator and five (5) machinists overtime on racks. Sheetmetal workers rolling 9 $\frac{1}{4}$ " x 17" collar. Continued discussion of work order changes to standing work order. Picked up forty (40) hose clamps, 9" from LASL. Notified Bradshaw of same to get charge number. Work Order 8120-11 issued for tripod. Work Order 8100-48 for extra La Cuna to fabricate

Thurs., March 22, 1962

Continued fabrication of racks. Continued fabrication of crypts. For four additional shot in Fiscal '63, one (1) hole at 2500' deep, hole size 29", one (1) hole at 915' deep, hole size 36", two (2) holes 800' deep, hole size 29". This information obtained from J. Hill 3-22-62 for material estimation and purchase on standing work order system. Will not work any overtime.

Fri., March 23, 1962

Removed rack from shop. Completed down hole operation. Placed concrete and started cable placement. Continued milling lead pieces for 8100-25. Continuing work on W-rack for 8100-25. Joe Hill relayed information on four holes, FV 63,

U3BA 1000' at 29"
U4B 1600' at 29"
U3AT 1000' at 29"
U3AN 2500' at 29"

The above information will be for procurement on standing work order system when put into effect. Ship all crypts that are ready to S-Site as soon as possible. Arrangements made to ship can, rack, W-rack, box of boral and splice protectors on one truck to leave Monday, March 26, 1962.

Sat., March 24, 1962

Worked on crypts, rack and can for BC and completed iron work on ALA. Started electrical wiring on rack for AIA. Ironworkers completed material list for standing work order system.

Mon., March 26, 1962.

Change out screwed on plates for cable holders and shipping date on BC to 4-9-62 as per telephone call from W. Francis. Plates will be tack welded. Shipped racks, can, boral scrap, W-rack and splice protectors for ALA. Picked up prints on sample pot Ams. Issued craft add slip for painters to shellac two boxes for J-6, charge to WO 8100-25 per J. Hill.

Tues., March 27, 1962

Standing Work Order System put into effect. It shall be 8150-00 series.

8150-01	3/4" harness
8150-02	1 1/4" harness
8150-03	1 1/2" harness
8150-10	24 1/2" N-rack, cabling and canister
8150-11	30" N-rack, cabling and canister
8150-20	24 1/2" W-rack, fabrication and materials
8150-21	30" W-rack, fabrication and materials
8150-30	Coaxial splice protector, fabrication
8150-50	Shop supplies and tools

Continued work on crypts. Shipped three (3) each #2 and eleven (11) each #1 to S-Site.

Wed., March 28, 1962

Completed all the work on crypts. We can wait until LASL brings more parts.

Started assembling 24 1/2" N-rack. Schedule of holes and harness:

Hole #	Depth	Sets Req.	Sets Shipped	Size:
AS	450'	7	0	1 1/4"
AF ²	866'	14	15	1 1/4"
BC	450'	7	0	1 1/4"
A-JS	550'	9	9	1 1/4"
A-MS	1444'	24	34	1 1/2"
AX	875'	14	15	1 1/4"
AV	250'	4	0	1 1/4"
AUS	1500'	27	27	1 1/2" - U4B cables
AW	865'	14	0	1 1/4"
		51 sets 1 1/2"	61 sets 1 1/2"	
		69 sets 1 1/4"	39 sets 1 1/4"	
ALA extra		0	20	1 1/4"
AT		0	17	1 1/4"
Extra on site		0	13	1 1/4"

Total 1 1/4" required 69 sets
 Total 1 1/4" shipped 89 sets

20 sets of 1 1/4" harness extra and
 10 sets of 1 1/2" harness extra to July 1, 1962.

Thurs., March 29, 1962

Assembling AJS rack. Waiting on materials for the balance of the crypts.

Fri., March 30, 1962

Continued assembly of AJS racks. Fitters built sample pot for AMS.

Mon., April 2, 1962

Assembling racks for AJS. Mr. Francis called from Mercury and requested we make a stress test on cables clamped on as they are when we go into the hole. Put two (2) $1\frac{1}{4}$ " cables in tester and clamp off with four (4) each clamps. Then pull them to 50,000 lbs. and relighten the clamps. Then pull until they start to slip and record this strain and tighten the clamps again and pull until they slip again and record this pressure. Do this with four (4) clamps first and then 6, then 8. Record all measurements.

Tues., April 3, 1962

Continued rack on AJS rack. Mr. Francis called from Mercury requesting we eliminate the bolted straps over the cable troughs to install a 6" roller next to the bottom of the La Cuna. Install two (2) pat eyes next to bottom of La Cuna, reinforce top plate on rack and build potting compound ring around the connector plate on lid. Also to eliminate the stand-off bolts in the scatter chamber.

B. ITEMS DONE RELATIVELY INFREQUENTLY

1. Maintain and/or provide drainage in all areas	\$ 100
2. Realign photo towers.	\$ 100
3. Lay special signal cable for photos and effects measurements.	\$ 40 m
4. Move trailers.	\$ 200
5. Provide trailer access platforms.	\$ 250
6. Repair and/or replace Godiva cables.	\$ 125 m
7. Install and maintain items required periodically by security and safety.	\$ 40
8. Provide lightning protection as required.	\$ 250
9. Maintain elevator, building and underground system, Area 10	\$ 150
10. Maintain building and hole, Area 12	\$ 100
11. Maintain, extend and relocate temporary fencing, all areas	\$ 100
12. Switch-over to Area 2-B.	\$1800
13. Install, repair and maintain locks and keys.	\$ 20 m
14. Test pump Well 10A.	\$3000
15. Sample water in wells 5A, 9A and 10A.	\$ 300
16. Relocate phone lines (tied to trailer movement).	\$ 50
17. Provide and maintain alignment jigs and devices.	\$ 100
18. Provide and maintain extension cords in areas.	\$ 60
19. Hook-up trailers (tied to movements) for drains and electricity.	\$ 100
20. Support USGS moisture probe work.	\$ 80
21. Provide hot waste containers for Area 11.	\$ 500
22. Maintain siren.	\$ 75
23. Drill contaminated material dump holes.	\$ 250
24. Move and set-up photo flood banks.	\$ 20
25. Maintain sand vacuum machines.	\$ 100
26. Recovery of equipment from filled holes.	\$2000

"m" after a cost indicates materials may also be required above indicated estimated cost.

TYPICAL ITEMS FROM DUCK-SLIP FILES

EST AVE COST PER JOB

A. ITEMS DONE RELATIVELY FREQUENTLY

1. Repair of existing temporary wooden structures in shot areas.	\$ 150
2. Repair and replace wooden safety platforms; duckboards, trailer platforms, etc.	\$ 50
3. Survey of holes (Zia).	\$ 50
4. Maintain and repair trailer air conditioners.	\$ 75 m
5. Maintain and repair electrical systems.	\$ 100
6. Haul construction water for roads and areas.	\$ 60
7. Serve assembly Barn and Shed.	\$ 200
8. Maintain and repair trailers.	\$ 50
9. Field or shop modifications to canisters.	\$ 100
10. Build protective boxes or sheds for new equipment.	\$ 500
11. Install new cables, connection boxes, terminals, etc. for scientific gear.	\$ 200
12. Provide brackets, mounting plates and shelving for new or existing equipment.	\$ 20 m
13. Maintain equipment and building, Area 11.	\$ 100
14. Maintain buildings in Area 5.	\$ 100
15. Maintain, repair and replace dry boxes, Area 11.	\$ 500
16. General TA-49 cleanup.	\$ 1000
17. Relocate installed equipment in trailers and buildings.	\$ 100
18. Shuffle equipment around within an area or areas to area (cables, transportainers, shot cans and lids, lead brick, shacks, racks, detectors, etc.)	\$ 100
19. Clean up or salvage damaged equipment and facilities.	\$ 50
20. Install, repair and/or relocate cable troughs and trenches.	\$ 50
21. Provide cable and cable slings to replace expended items.	\$ 250
22. Maintain and replace signal cables and connectors.	\$ 200
23. Standby time during shots.	\$ 300
24. Install, maintain and replace road gates and horses.	\$ 20
25. Maintain stocks of materials to do this miscellaneous work.	\$ 200
26. Paint, install and maintain signs throughout area.	\$ 40
27. Provide propane at Area 11.	\$ 20
28. Repair user-furnished electrical gear (MG sets) vacuum pumps, etc.	\$ 80
29. Maintain and repair blowers and ducting and CMP casing for hole work.	\$ 100
30. Install, move and/or fabricate well head earth retainers and covers.	\$ 10
31. Salvage used coax.	\$ 100
32. Maintain Area 11 air compressor and air distribution system.	\$ 80

"m" after a cost indicates materials may also be required above indicated estimated cost.