

IN-AIR TRANSFER - CASK TO POOL

Equipment Arrangement -

A) For Handling Cask Lid:

1/2 ton electric hoist (with long cord on control unit) mounted on trolley. Guide ropes on trolley for transverse movement.

B) For Source Handling:

Source hook on rope through pulley and through beam tube controls vertical motion of the source basket. Pulley rides on taut rope stretched between two special clamps and secured to the rear eye bolts.

Transverse motion of pulley is controlled by guide ropes on either side of pulley and through forward eye bolts. Guide rope controlling motion toward the pool goes through the beam tube.

C) For Visual Clarity:

Light bar with four bulbs mounted on south wall of cell.

TV camera mounted to I-beam.

D) For Radiation Control:

Portable shielding walls in labyrinth.

Portable Victoreen Vamp Monitor set up at outer portable shield.

Setting Up -

With the ropes, pulley and hook set up, as described above.

- 1) Move cask through labyrinth and winch up onto area adjacent to pool. Center the cask lid lifting eye under the monorail.
- 2) Position electric hoist in place, temporarily putting hoist hook through lifting eye (lid bolts are still in place). Take out slack gently so that hoist position is exact above lid. Place C-clamp on monorail (rear side) on

Setting Up (Cont'd.)

- 2) Cont'd.

pool side and snug against trolley so it will act as a stop in the event the lid must be reinserted at a later step after it has been moved. Tighten clamp securely.
- 3) Lower hoist hook just sufficient to disengage.
- 4) Exercise trolley travel in both directions by pulling on yellow rope to check position and effectiveness of stops. Leave at left stop. Mark positions by ink marks on rope where it passes through eye bolt at outer shield area.
- 5) Exercise pulley travel in both directions by pulling on plain cotton guide ropes. Set left stop so hook is over cask lid, and verify that right stop is over pool. Leave hook clear of cask on right (pool) side. Mark positions on rope at outer shield station.
- 6) Set up safety ramp between cask top and pool. Check that it does not interfere with lid.
- 7) Check out lighting and TV camera.
- 8) Move inner shield into place at foot of ramp (approximately 3' from right wall). Position upper blocks to allow 3/4" slit for long (17') tongs at center line of cask lid.
- 9) Move outer shield into place at near end of long hallway - approximately 14' from inner shield. Make similar slit in top 3 rows of blocks.
- 10) Assemble long (17') tongs and place into slits in shields such that tong section is through inner shield and handle section is on doorway side of outer shield. Move hoist control switch to this position.
- 11) Pull left hand pulley guide rope to bring source lifting hook to the preset left hand stop.
- 12) Check alignment of tongs - Operate tongs from behind outer shield (using TV monitor) to grab hook.

Setting Up (Cont'd.)

- 13) Set up Victoreen Vamp unit with detector at the operator position of Step 12--the Monitor at labyrinth entrance.
- 14) Transfer operations are now ready to begin. Leave electric hoist over lid - source lifting hook to right of cask with elevation to clear cask top.

Transfer Procedure -

To be used following the completion of set-up arrangements described in early part of this procedure.

Operator #1 & RSO* - (Note: RSO* means RSO with meter)
Operator #2 designated as COM (Communicator)

- 15) Operator #1 & RSO* - remove bolts from cask lid (break the wire seal).
- 16) Hook hoist into lifting eye of cask lid.
CLEAR AREA - MOVE TO SAFETY BEHIND OUTER SHIELD.
- 17) Operator #1 - Operate hoist UP control in short steps to raise lid;

COM - observe on monitor for obstructions or hang-ups.

RSO - observe hand held meter & vamp monitor.

- 18) Operator #1 - When RSO gives o.k., pull left hand yellow rope to move lid to left hand stop.

COM - confirm

NOTE: If RSO determines that readings are too high at this step, lower lid and add more shielding.

- 19) Operator #1 - Pull left hand cotton rope to move source hook to left stop.

COM - confirm

- 20) Operator #1 - Grab hook with tongs and lower until you have hook near upper end of shank.

COM - observe and talk hook down

- 21) COM - Talk guide Operator #1 and hook to positive pick up on bail....give 2-3 inch pick up to confirm presence of weight on hook and visual of positive hook engagement with bail eye well into lower hook notch. Confirm that all sources move up with bail. Keep tension on Lift rope.

- 22) While Operator #1 maintains lift rope position at 2-3 inches, RSO check reading at handle of tongs. If o.k., Operator #2 withdraw tongs back to shielding wall. Verify on monitor that tongs are clear of source.

Transfer Procedure (cont'd.)

- 23) Relocate operating position to labyrinth entrance. Check or remark position of lift rope at fixed position by tape mark.

- 24) Operator #1 - Pull source lift rope to upper stop. Confirm with tape mark.

COM - confirm visual on monitor

RSO - check reading on VAMP

- 25) Operator #2 - Pull right hand pulley line steady and smoothly to right hand stop while Operator #1 keeps tension on source lift line -- check marks on ropes.

RSO - watch monitor and VAMP. Confirm when stop reached.

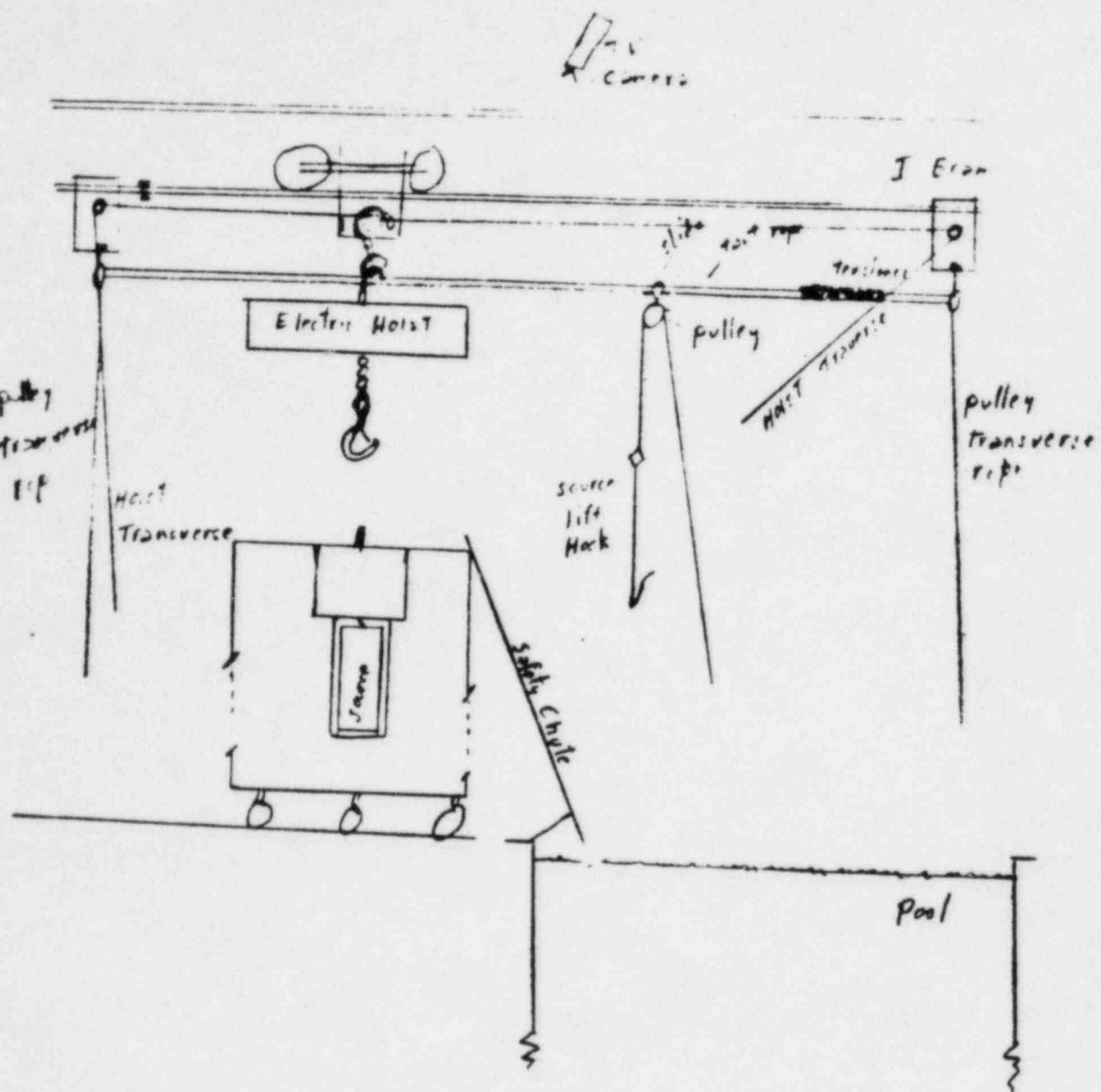
- 26) Operator #1 - Lower source bail into pool. Use 16 feet of rope.

- 27) As radiation levels permit - RSO* enter cautiously to confirm that there are no sources remaining in cask and radiation levels over pool are normal.

- 28) Operator #1 - Cut rope near beam tube. Pull source end clear of pulley and tie off. (If another cask is to be transferred - thread end of new lift hook rope through pulley and string splice to old beam tube rope for threading through beam tube.)

- 29) Operator #1 - Replace cask lid and secure with 2 opposite bolts loosely hand tight.

- 30) Crew - Remove shields and cask and prepare for operations or next transfer.



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Goie O'Sullivan VP 10-25-82
2:00 PM

Radiation Service Associates 59-13848-01

RSA Corp. 10121, N.Y.

201-361-2553

In anticipation of the arrival of 400,000 Ci Co-60 from AEC, started to move things around. Water activity rose from the normal range of 5×10^{-6} — 2.5×10^{-5} $\mu\text{Ci/ml}$ to 1.026 $\mu\text{Ci/ml}$. (3 orders increase).

Believe it is not a new leak but is caused by disturbing the bottom sediments. During the work they brought up a piece of broken 55 cable which read 500 mR/hr at 1 ft. Also had the filter system on a temporary pump. Filter showed 1 R/hr at 2 inches.

Plan to have Chem Nuclear or Hoffman clean the pool with a water vac system. Also hydrojet the side of the tank. Place concrete containment.

RSA -

10/27

O'Sullivan

Chen Nuclei low 5-6 or beyond

< Hittman - Oct 30 - Sat >
sign agreement with Hittman

Hittman liner

pay agreement - check steel bed filter

Allegation to Barnwell -

Estudy → 4 days

Shady:

Single pool water (cannot see bottom)

top center 1.7×10^{-3} ml / ml

(5-7 ft) middle pool 1.71×10^{-3}

re-sampled (in summit) 1.59×10^{-3}

filtration 6.8×10^{-4}

1 ft from bottom 5.7×10^{-3}

A69

Site sediment aug - 23.4 g / ml 69

same sediment to 1 ft at bottom 200 ml at bottom

~~REST~~

RSA

Engin O'Sullivan

10/29

Hittom - money problems
Chem Nuclear -

Barnwell →
Allocation -
Wait until Nov

Next Friday
Monday

Nov 5
Nov 8

log in center - 6.1×10^{-4} nCi/ml
(sediment diff)

1/2 way down 7.4×10^{-4}

plastic trap across pool
for enrichment

No air samples

wipes and pool

new pump

700 gpm

A70

Circulation System is off -

70

11/3/82, telcon Friedman → O'Sullivan.

Bruce Thomas, Plant Manager, R.S.O.

1. No recirculation of pool water.
2. Chem-Nuclear planning to arrive Saturday, begin work Sunday. Estimate 4 days.
3. Contract \bar{c} Chem Nuclear not signed. Chem Nuclear conducting credit check which is not yet complete.
4. International Neutronics^(IN) plans to load own sources from AECL casques. Casque may not fit into pool due to I-beam welded to bottom of casque. IN ~~plan~~ is considering an in-air transfer of sources if casque doesn't fit into pool.

International Neutronics

12/23/82

Neutron Products

1. Take ^{AECL} sources
 2. ~~Chem Nuclear~~ Disposal
 3. Re-encapsulate old sources
- Chem - Nuclear

1. Come back to clean up

~~Neutron~~ International Neutronics

1. One leaking source identified ^{on 12/21.} Can see crack or fissure on encapsulation. Wipe high relative to surrounding water.
2. Considering reconstructing facility.
 - a. new pool & irradiator
 - b. eventual decommissioning of old pool.
3. ~~may be other~~ Other leakers not ruled out.
Leaker discovered in process of scrubbing dirt from sources. Operation not completed.

Int. Neutronics

1/4/83

1140

1. Leaker in pipe in pool, not torqued up.
2. TV camera to be used for close visual inspection of sources.
3. Pool concentration $3.8 \times 10^{-5} \mu\text{Ci/ml}$. Still have contamination on bottom & sides which can be stirred up.
4. Waste application filed in South Carolina. Hope for answer by end of Jan.
5. Application filed for new irradiator design.