

October 25, 1984

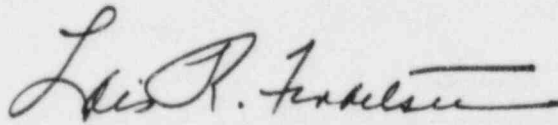
Note to: Jim McKnight
Document Control System

From: Lois R. Finkelstein
Office of the Executive Legal Director

SUBJECT: TMI-1 RESTART, DOCKET NO. 50-289

Attached is a copy of handwritten notes, responsive to a discovery request against the Staff, which I request you place in the NRC Public Document Room at H Street and in the Local Public Document Room for the TMI-1 Restart Proceeding, under Docket No. 50-289. These notes are being produced pursuant to the NRC Staff's Response to Intervenor Union of Concerned Scientists' First Request to the Executive Director for Operations for Production of Documents dated October 4, 1984.

Thank you for your attention to this matter.



Lois R. Finkelstein

8411020506 841025
PDR ADOCK 05000289
P PDR

6/15/83

Wednesday - TMI - Interviews

- Utility pt. regional exam
- lots of material
 - intense experience
 - time is very compressed
 - operators already know material

D'Arcy says exam precipitates anxiety

PHR - Trainer Question #1

- Operators believe that written part of exam = not a valid exam

- the more questions & training materials submitted by utility, the more valid exam would be

- if NRC makes written exam more generic, then there is a concern (theoretical rather actual running of plant)

Joint ops - training committee looks at entire program

Passport card, etc. - they will give

3/16/83

Fig 7.8 - emergence in training and plant

TMI's instructors have to spend two days/mo
at plant ———— OCA Do Not

All instructors now go as a team
to simulator and must operate

↓
evaluated on simulator, not on time
in control room

- Department hired from outside
paused recruitment because of
press denial of job opportunity in
rank & file paid also because
these trainers had no operating
experience @ TMI 3

#4 Only regular training cancelled
was because of restart slow
- only happens when instructor
is from OPS and gets
called away

#5 - AO+ and non-plant people from
outside

- three instructors in operator
training ———— best well perceived
has not been transferred
(seems to have resolved problems)

6/16/83

Ex-Navy operators -

to run go into control room as a
new hire

- we will get program they
now get



theory + fundamentals
from the "textbook"



they previously had little
(or no) knowledge of plant



Put navy guys end in
plant with AOs but
no formal mechanism
for doing so

10 of these trainees
@ TMI were
ex-Navy guys
[SEE N for TMI (FHE)]

SPECIFIC PROCEDURES

Letter letter ?

"loss of feedwater"

same as
'81 program

{ Initial Training
Regual Training }

What's in use today?

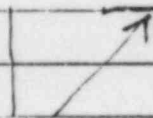
Updating training for all operators

Use of the...
...Decisions...
...gated

Probe

WXXX

How do you find...
...
...



TRT Training Center

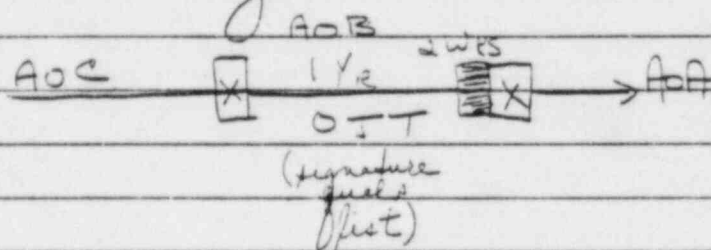
RHR Report Issues - TRAINERS QUESTIONS

Questions # 1 -

- Have heard comment
- Comment is common when there is taught, attitude, problem is part of it

- Walk around plant and trace pipes
- AO hostility against people hired from outside plant is sometimes a source of \leftarrow trainee \leftrightarrow trainer antagonism
- Attempts being made to shift systems training to plant site; AO program is evolving in this direction

- Each shift has training week once every six weeks



Quest 2 - Much written info is not correct; this material is being rewritten / updated

Sept / dit

- Instructors are extensively monitored
- T-4E has fine instructor training school

- not on routing for tech
spec changes

- cancellations are not common
practice

- one training cycle during
generator job

Startups; shutdowns; Normal OP;
loss of specific equipment

Meeting - 6.6.83 - 1300 -

- who is in charge of supervisory training?

They did interview auxiliary operators.

- I have heard that comment —

- I have made that comment
- Aux operators are now
out in plant — this
is an improvement

- Training - 60% 70% OJT

- classroom compressed
into 2-10 wks

- last class had 42
weeks of training
to familiarize them
with theory -
systems.

- now teachers review
class for items for
AOA

- we now have objectives
try to expand as far
as possible

- using site as
lab/training experience

- break out kits —
hands on stuff

- fire fighters actually
went to the York fire fighting
school

Question 2

- Probably addresses teaching
systems before they operated
them - we taught about
systems before they had
"hands on."

e.g. emergency feedwater system
- went to equipment and
tried to explain.

- Regual program?

- inspectors (non-licensed)
 - occasional reviews
 - I am not instructed
per se — I review
by myself or with
licensed instructors

Design + procedure changes
I am on routing.

#4 Cancellation of Regual classes

- Not licensed Regual.
- ~~When~~ generator problem
caused AE Regual to be
postponed — notification

- Training is not canceled as a practice.

Outegouism

- A0 training people hired off the ~~street~~ — these folks had no TMI experience
- situation improved — this type instructor has now been set in plant to learn specific system.

#7

Ex - Navy Operators

- Once they get feet wet - they should gain confidence

How do you study for exams?

- Old lesson plans
- - lesson ~~to~~ objectives
- not looking at tests

#23

on RTR/GNOP

response

- Σ go into more detail when asked - why
- more operationally questions on new exam (about forming valves, etc.)

#34

Analyzing plant conditions

Transient plant analysis —
plenty of this (Computer) Great!!

What is meant by plant conditions?

30 + 33

- Constantly training on emergency
proc. training

- What good is it to train on
normal ~~ops~~ procedures when we're
not operating? They have to
train us this way

+ Transient analysis not in every
cycle

+ Plant incident form is IMMEDIATELY
put into system, fed back to
operators

+ Training needs — my crew is
very well trained. can probably
start up just fine

How do you prepare for exams?

Ops training manual — primary
plant stuff — that's what they'll
test — don't use old exams —
they really don't help

Tap Recorder

Have seen one used on site
through

- there are usually ready resolutions

#34

There can never be enough training in analyzing conditions

- We do a lot at simulator

- we have latest ones (from GPO & BOW)
[transients]

Questions or request quizzes [transient analysis]; - can't remember having these - maybe a year ago - sometimes there isn't enough time

Events @ TMI-1:

- not specifically reviewed but traces are brought out if discussion (TCS + RPS) is on that generic topic

Needs (Training)

More on turbine generator operations; no lectures on generators

Recent licenses?

I don't have any ex-Newy operators on shift; AD trainee is good and can run procedures and perform quite well

6/17/83 F4F - Training Issues -

1. Exam preparation vs. Plant Operation
There's only so much you can get from a class or text. Plant experience can only be had in operating plant.
2. Training content vs plant experience
- Doesn't apply here: when we learn @ simulator differences are stressed --
3. Antagonism - training vs operations
It's there - always the feeling that the only training worth anything is in the plant.
- Operators has rewritten training manual - what do we need training department for
- Training is bogged down in paper work/documentation (because of cheating scandal, etc) they haven't time to do their job;
- Quality of training has gone 100%
- Many changes in department

Exam prep

- Classroom: surveilled with T.P.
(in plant) studied on my own
Classroom paper work for E.K.A.;
use old exams to get flavor
for type of questions; only @ 10%
of time — you can't predict
Second guess an examiner

Tape recorder

never seen anybody use one;
not for debriefing either; don't
see any particular use for this

3/17/83

1. Training for Exam vs training for plant
- dept is supposed to be both;
more inclined to do classroom, book
work; time constraint on simulator

AO program is good on plant

Shift sup in last CRO training
program as "operations tuto"

You have to learn something
on job

2. Training content vs plant experience

I don't know — I got here
right before accident; I have never
operated plant at power

What I was taught about shut down
was pretty close — but some
things you never see taught in
plant

Antagonism

NO — training was extremely
helpful — always gave answers —
sometimes differ as of opinion, but
that is good

6/17/23

1. Have heard comment!
- Training department is
everything (including operations)
they give you building blocks

2. Training content vs. operators plant
experience

Simulators training involvement
they give us all we need
an adequate

3. Traditional — guys who write the
test — actually we work pretty
well together — they do what
they have to do — generalities
always come in.

There is communication —
gave us PT glass computer — they
really try

#30 There used to be a lot of emphasis
less so — but there, needs to be

• We also get a lot of training in

#34 The only way to train in plant
is on simulator

Engineered transient @ TMI-1

- don't recall in licensing
- got this in STA training
- we go over industry experience

Needs

More plant analysis training
I'd like to see the head of
training that would make me
obsolete. I do tutoring - my
degrees are in nuclear engineering

Exam preparation

2-3 hrs intensive study —
1 day to look at tests — Procedures
scan for hot points old training
material; reduce procedure to
one page apiece

Page recorder

never seen it used, not a
good idea, would make me jumpier

#33

Specific procedures are key procedures

- Simulator if we have one
- Synchro is for specific responses (Reverell ones)
- simulator people really helped
- next best thing is train or procedures + dry run it in plant.

questions do show up in questioning

- Training (initial) does include DMI-1 transients — little graphs, etc.

- I am satisfied with training

- Our whole background is the crew concept

- Prepare from old exams — 25-30% of study time — gives idea of what NRC wants to test on —

- Never seen tape recorder used — walk-through

#33 Plant Conditions

↳ de plant in an off-normal state

- For operators, it is getting better
 - training computer
 - simulator
 - ICS training

We don't get enough of normal stuff — a lot of emergencies

Specific procedures

Cardboard mockups (but it is gone)

Drills

Scenarios are too specific

SIMULATOR

OR — better than drills

↓
Analyzing plant questions

Signal events

↳ Can't remember @ transient questions

6/17/83

Training of exam vs training for plant

I don't believe emphasis here is on test — emphasis is on getting people to run plant; we do get practice tests; practice walkarounds; orals are also given by SRO's

Training content vs plant experience

Practical knowledge vs theoretical.

Heat transfer / Fluid flow is closer to theory than practical

Systems training is close to plant — factor theory is pretty close to plant

Antagonism

I-training vs. LO is more tough repaired

guys hired off street w/o train get less respect

Prepare for exam

Review program: I study
my weak areas: procedures —
~~I~~ don't look at old regional
exams — questions are not
same anyway — old exams
don't do me any good

No tape recorder

I wouldn't encourage using
it as a tool.

More problems than it's worth

New people on shift don't expect alarms to happen the way they do
Training content vs plant experience

I don't know what they mean — not sufficient information in the statement

Maybe it just means that things stressed in training aren't actually used in plant (things taught are building blocks but don't necessarily get used, e.g., Bernoulli equation.)

Antagonism between training & ops.
- I expect arguments, that's how we learn

- I get along with everyone over there. actual antagonism 'is not really there

Emphasis on training has changed — NRC has changed tests — I can't compare because I'm not in training —

People are better, but I don't know whether it's due to training or class of people

- last turbine trip - everyone wrote
summary of what they saw

Logs recorder - debriefing of events?
- Computer has sequence of
events

Training needs

Could use training in heat
transfer; I don't think it's taught
right — possibly @ engineer
level; I think we're overboard;
there's no guideline for what
should be taught

Exam Training vs. training to run plant
Can't teach everything in
classroom — plant
training needs to be OJT —
smart test takers can't always
be comfortable in control room

Training may be changing emphasis
rather than getting broader;

I try not to say that operators are
part of training

Surveillance procedures not covered
much in training; neither is
everyday stuff

6/17/83

#33 - Specific procedures

Emergency; normal; start up;
shut down; key procedures

#34

Analyzing plant conditions

instrumentation in control room;
pressure, temperature — transient

I think we have enough
training

Where is training on plant cond. analysis

- major part @ simulator
- PT can be done in classroom
- computer is good practice for operators; don't know if it's same as plant computer

Regual

Are there questions on transients?

e.g. loss of feed pumps —
not so much lately; usually
in annual exam, not in
regular training

Review of TMI - 1 —

- Review of past events and
training — usually
something that happened
in past year — not
much before because
there aren't many old
timers left

Evening

- current Proc. - old exams - lesson plans
handouts

walk-through

- "owner" has responsibility for full procedure maintenance
-

Antagonism

Yes - always — but there are few professional conflicts → personality conflicts
Increased operator input is alleviating the antagonism problem
Friday meetings

Plant conditions

- are long standing — you have time to analyze
- we now have keys to analyze i.e. Note Pad
- Simulator will be big help
- Training on ^{major} emergency procedures is done in classroom — there is more time allotted to this now

Specific procedures

Teaching of procedures that we do — major plant procedures

5/10/13

Regual classes not cancelled as a regular practice.

Class objectives → questions not always asked the same way as stated in objectives

1. training exam → training for plant

- I don't agree — training now teaches concepts, etc.

- There is a way to teach Test; it needs to be done

- Simulator training good

- Glitches picked up here

2. Training content vs plant experience

- Prior to "accident" is 50/50 -

- Training is now 90% accurate

- Operators are writing plant ops manual for training

complete system equipment

- may also be from days when drawings were not updated

- system descriptions were not always accurate

- procedure owner - person who "owns"

procedure must sign off on change (PCR)

5. Specific procedures interpreted as things you must always do

6. Transient as TMI-1 - review in training

Can't recall specific instances but other operators who have been here mention things in class that have happened @ TMI

7. Equipment so far has operated as I was taught it would

8. We got opportunity to express kinds of additional training in areas where we felt we needed it.

9. Exam preparation

- weekly tests; OJT tests
comprehensive, mock NRC, drills given by supervisors. Looked at past tests; mostly studied alone

10. Not using tape recorders

Transient Analysis

RCS being jumped down —
tube pluggings; transient analysis
PT computer trainer

Specific procedures

Thinking about emergency procedures

Analysis/Transient

Simulators; Emergency drills;
(Unannounced exercises)

+ There are questions or quizzes

+ LERs are reviewed in training TMI-1
and others)

Exam Prep

Schedule comes down for what we should
go over — helps to zero in on
what to review

Walk-thru

Content of training vs. plant experience
- There are differences — we
iron them out on case-by-case
basis

Antagonism

- there are people who don't
have enough experience, but
not need

6/16/83

More training in plant now than
before

Exam criteria has changed

1. Have not heard comment?
 - maybe don't always understand
what's going on; personality problems
 - training good — more systems
2. Training content vs plant experience
 - instructor may not have had
plant experience
3. Frustration due to condition may
be cause of antagonism; stress
factors

6/16/83

- Thinks we have a lot of training in plant conditions i.e. TMT-1 restart simulator; before October '82 regular cycle; PT plant computer trainer, plan to use this system in back shift to train

- There are questions on transients on regular quizzes if it is in the cycle

- How people on shift expressed specific training needs?

- forms to use for request

- shift sup gives training on particular systems

- Training works change modifications into programs

- Exam re operating plant

Statement is misleading: TD spends a great deal of time trying to keep up with NRC regs; training could do better with less implications; feels people have confidence to run plant now;

detect antagonism — I believe
there are personality conflicts

Preparation for Exam

Went from CRO license to SCRO
training immediately

OJT: control room, paper
work: home study (old notes
from CRO) oral boards

Did have AO training and used
this equipment in Navy

Weak areas reviewed in SCRO
training program

Type recording used for walk through:

No. 1 used note book and then
transferred to forms from training
department.

Some record training material

When need is expressed we try to
give them what they want. That
we can't always do this. (Constraints
of regular cycle prevent too much
flexibility)

integrate back shift training
plant CR walk through; what
is taught in training; I have
been here only since shutdown

Transient Analysis

Simulator and training department

Have you reviewed past experience
at TMI-1?

In SRO training → significant
events; this is different
than regular

Regular training review
transients thru questions asked
by people who were on shift prior
to shutdown. Training efforts
to fit it in as systems are
studied

Training in analyzing plant
conditions is sufficient; simulator
leaves free time for you to try
things about which you have
questions

"What if" questions usually get
answered

If you really want to know something,
you can get info

6/11/83

1. Training for ~~exam~~ - not to operate plant

Experience is the only thing that will teach (OST) —
Training gives you what you need to learn the plant —

Tough to do OST when plant is shut down; restart guide card will help; restart program is good

When a system is made operational, each crew has to operate system as far as is possible

2. Training content different than plant experience

- NRC directives can sometimes be the cause of this

- can't actually see this

Type of training received in plant conditions

We do love enough;

On Friday, shift coming off site with training department and discuss what has been done and what will be done.

Analyzing plant conditions

Looking at instruments

Drills @ simulators

Training @ simulator is what trains me to handle a generic emergency (see 36 and contradictions).

Thorough briefing and review of operating budgeting plant ops

Good job of preparing me for test; never seen an NRC exam; didn't want to zero in on specific tests; mock exams developed by training department;

Diaper recorders not used.

6/16/23

Preparation for exam/plant operation
-- You learn to be good operator
on your own

- Actually it is not true that
they only teach to exam

TRAINING CONTENT IS DIFFERENT
BECAUSE THE PLANT IS DOWN
(PLANT EXPERIENCE different than
content of training question)

Needs were addressed @ POWBEX system
at time of this training - training
department said no dice.

Conclusion

Training department is isolated;
training department sometimes seemed
disinterested, this is not a good
attitude

- There is a limit to what can be taught

Train to Pass exam not operate plant -

I don't agree with that - I feel pretty good about training on systems in plant; why at end of course did they get us cranked up for exam

Antagonism

Instructors not familiar with plant didn't have a really good answer

Licensed instructors were quite knowledgeable, non-licensed instructors didn't always know as much about systems as they should

Training → study groups for four weeks; grounded in each other → asked questions;

Did review old NRC exams but not much

Never used tape recorders nor have we seen them used

Specific procedures

major plant evolutions: emphasis is on casualties — that is good.

Where should procedures be taught?

- should be done in plant not in classrooms: what's to see it in plant

- simulator is not as much help because it is Western-based; we have C.E. —

Analyzing plant conditions

- looking at parameters and analyzing possible transient; I don't feel uncomfortable with the amount of TA that we get — it is adequate

- has not been in regular cycle — yet

- my training was good, spent supervised work with us for six months to teach systems specific to TWIL

Specific procedures

head up; stars up; lights
off pumps — goal card will
help

Don't get much out of drills; after
first time operators fell into
observer mode; it is an awkward
system — hard to get it to
come out smoothly.

Repeat exams do evaluate knowledge
of subject; TCS transient questions;

Do not really review transients
at TMT-1 specifically

Unit going critical by itself
has been discussed

Study for exams —

review for specifics; old
exams not used much; look
at

— tape recorders not used for
debriefing during walk throughs

Training on cycling basis —
simulator is better; would like to
have more systems training

Team concept is emphasized in
control room

Question 2 - theoretical is more —
How do you shut off a feed pump
and why?

Shift Sup sees schedule before

Antagonism

As training program progresses —
people from plant fill in; long time
operators want more from training
department

Outside instructors teach theory —
may know stuff but don't always
get across to operators

Instructor is in regular himself;
has no big gaps with training

Cancellation of classes is not a
pattern here

Ex-navy people

Concern for hands on experience
they feel they miss something by
not working with AOs. part of
this is not possible with plant
in shut-down condition

- difficult to do startups unless
you can actually do this
on plant; there will be
a startup test program

Training in "Plant Conditions"

Shakes it's plant analyses, much
of this has to be acquired at
Tynchburg once per year

Trainer - Trainee Antagonism

When you ask users what's
wrong with training, they won't
tell you; attitudes different

Study for Exams

of self-study: training program
not using old 'test'; they can
look at their own; they don't
get old exams; you won't know
 specifics unless they flunk

Week-through

- use notes to ask questions -
never seen anyone use a
tape recorder

Things people see on the street DOES
NOT WORK !!

You should do it in a block of
time (i.e. one week) preferably
at night when you are doing
operations rather than paper
shuffling.

Cancellation → NYET
no consistent history of this

ANTAGONISM

- Yes - I've heard it
- It's a vague cause - answers
are not forthcoming -
- No one can identify the
problem when pointed to it

#7. If many folks - expressed needs to operate
equipment

- would rather have more
system training than
they are given

Restart

- Who will participate during restart
program

- Walk-downs -

- another brief up will walk with and also with preman or supervisor

- have not heard of use of tape recorders as de-briefing tool or prompting tool

- after exam, crews talk to each other but now different exam is generated each week

- Priority issues

- Some old thing about school being not relevant to actual job

- Operators were able to start up and do what they were taught, other things are Kernia in jobs

- Present training models are different when it concerns systems — lots of human — set in plant

Truncation Analysis (Licensed + to use)

FS - specific course, many hours
- simulator

Plant Drills - 3x5 cards used
in the plant

Follow procedures and do it
by walk through

Pressure / Temperature Plot Trainer
[APPLE COMPUTER]

↓
Plots on CRT in control room

↓
Summits - needs translation - print out
panel

Instructors are not getting time
to go up on shift - it is not
as much of a priority item as
it should be - we
should do it routinely but
there is a manpower shortage
among trainers

It is difficult for instructors
to maintain their own licenses - OVERTIME
is just about a necessity

- more effort to bring equipment into classroom — HANDS ON;
HANDS ON

- Quality of instruction has improved because of methodological teaching of instructors

Weekly meetings with Ops Dept —

+ Training Coordinator

- Are subjects important?

- Instructional techniques?

- What next week

- have we missed anything

- next steps

- Letters from Loss

- we've been responsive

INPC

Operators

Supervisors

Commitments are tighter

540 hrs
left to play with

50 hrs