

Jim Inahara notes for advisory committee

- People upset that B+U not @ table 5/27/2016
- Bullseye here but not at table art glass 2016

Mark - focus of additional cost of DEX unit - not GS.

Al H: if Tiv 2 need TV - need connecting -

\$10 - \$20,000 connecting assistance.

→ already included in \$25,000 - \$100,000.

Chris - Assume 1 additional baghouse - assumption?

Armad - uncontrolled furnace in metals

Jack - note that cost could be 0 if not baghouse

Chris - how many furnaces 750 Tpy?

Al -

Mark - baghouse cost? from who?

→ \$70,000 should be higher for Bullseye

→ electrical cost clear.

→ maybe
\$100,000

Jack - \$14,000 high end of electrical?

Al - \$16,000 was first estimate. After electrical

500 hp motor - @ max capacity

\$65,000 - \$70,000 in electrical.

Variable frequency drive - she not a list of

PM - turn motor down. 75% capacity -

Installation #s similar for
Archenry & Bullseye. Surprising
that same size baghouse found on
cost) for Tiv 1 & Tiv 2.

Need more data from Tiv 2 for
installation cost. - Δ production #s.

Jack - Bagnouse TAB - in spreadsheet.

Al - Tiv 1 gather all air in need.

But Tiv 2 has fine so

not so much air in draw.

More atm's for Tiv 1 than Tiv 2

Chris - annual operation - handling &
disposing materials out of baghouse?
Treated as HW?

Al - consider baghouse ^{just} re batch collected
material & reheat.

Paul - cannot go to landfill - must be
treated as HW. No cost yet.

Will provide info - based on volume.

Al - HW - Waiting to get cost estimate
HW disposal.

draws & dust

6-8 months of
testing, needed
to replace bags

Abe - bag replacement - NZ facility has BHT for
20 years. Tr between filter 2 =
replace bags 12/16 months.
2-8 years to replace bag. Temp
going to by house - warm - cold
wet - can ruin filters. No.

Combustible gas. Temp = 103°F lit.
Lo = 78°F. 190 filter @ ~~20000~~ / 265,270

Al - filter replacement 2-3 years, each filter.
don't know cost yet.

Reporting costs -

Paul - \$12,000 too low but hard to
guess - maybe double @ 24,000

Abe - need to hire contractor? can be
employee.

Al - annual reporting

Abe - filter 2 monitor daily?

if 1 Northstar monitoring daily = \$17,000.

Paul - depends on skills of employee.

Abe - user staff / management

Arac - 20 hours/month? \$50/hr

Al - don't know about requirements.

multitask multiple spots in system -

A nodes - all combined to 1 air flow -
test @ all ducts going to manifold.
estimate 1 hour - 1.5 hour = daily.

Arac - hourly rate of employee?

Al - bag benefits included = \$50 a little high
but not a lot. \$40 - \$45.

Arac -

Al/Paul - 7 days/week. record daily

Abe - computer will monitor, thermocouples connected
to computer. Time to deal w/ issues.

Fails - why? Higher S.P.? need contractor.

Software \$10,000.

Joc - costs?

Abe - contractors are not cheap!

ST costs

1) Cr conversion

2) 90%.

Abe - based on GD & KM conversating - not set

time frame 32-48 hrs Tier 1 meets

Chris - Bullseye test, how long, cost?

Jacob - requested?

Chris - how long run for Bullseye?

AR - EPA said not consistent emission
of PM & vapor throughout course of
melt - varies dramatically.
Could be up to 22 hours long for melt.
Challenge to educate agencies. Other
facilities are very consistent over time -
not glass.

Scientists will learn about emission patterns
over time - tests will change.

Willing to work w/ DEA/EPA so ST relevant.

Science will evolve but hard to predict costs.

Amade - materials used - change efficiency of
baghouse? Choose material to game
test?

AR - yes. Melt products to not use as much
heavy metals as possible.

Amade - use 16 hour melt time - worst
possible scenario.

AR - ST from NZ?

AR - \$100,000 tests! Baghouses work. Monitoring
around Bru. Use amb monitors to
test baghouses instead of ST.

\$60 \$65,000 from who?

Need clear direction. Costs depend
on length of test.

AR - costs are wrong.

Chris - Baghouses required under CFS or not?
Is it required by CFS anyway?
w/ additional cost for IDEQ rule?

AR - A rule for EPA for CFS? No -
just re-interpretation.

Chris - Cost carried thru? as a possibility.

Mark - follow exp. letters to U & B. CFS
by or DED.

Chris - of ST for Bullseye?

Modeling? \$10,000 - \$30,000

AR - ^{modeling} costs added to ST for Northstar

Jacob - request into w/ deadline - and
update spreadsheet. Another opportunity
to review? via email?
share changes w/ committee
cannot have discussion

Chris - costs? consider benefits of regulations
or costs to other parties. Placeholder
for fiscal benefits of pollution control.
day care? Environmentalists for
fiscal benefits?

Jacob - EPA 03/2011 Benefits of cost of CAA.
annual \$30-\$1 impact or \$3-\$1 low
gain / cost

reduced asthma rates, reduced missed days.

Ananda - Nicole? health costs of air
pollution. Cost of not implementing?

Health costs. Home value? Lower

IQ? Childcare - loss of revenue.

Work from home - breathing 24/7.

Soil testing / medical testing / heavy
metal exposure.

Need spreadsheet for health care costs.

Mark - Avoided costs of implementing reg? For
Ball rep?

Ananda - PSDR econom

Chris - Ernie Niemi - Eugene - nature

Other related trades to glass industry.
Check in 65 EPA for fiscal.

Chris - Economic benefits analysis for
Statewide analysis.

Al - agree on holistic economic impact.

Today - legislature - requires DER to
ask fiscal impact. But statutory
requirements to get it.

Jacob - reading statute - public health
benefits. If use CAA benefits -

\$10.5 MM → \$15 MM to public.

Al - agreed - DER is funded by state -
limited budgets - so maybe not reasonable
to expect DER

Chris - Statutory requirements - cost to smaller
business is 1 part. fiscal impact
or whole.

Abe - Legal fees! not included. / Consultant costs

Ananda - cost of BH legal fees, but legal
fees just because doing wrong - not should not
be included.

Tier 1?

Optim + limit metals - not chosen

not viable

Asc - all Tier 1 will all install BH.

Jacob - wrong - less? How close to threshold?

decrease production?

Mark - threshold for less? Gd try / furnace

Asc - Tier 1 choose to do ST/modelling -
based on production. Cannot exceed
production over ST ^{production} amount.

~~Asc~~ Al - \$5000 to prepare application.

Asc - estimate or accurate? Set in rule

Al - BH cost \$400,000^{-BH}, Tier 2 operators
costs applicable here.

Asc - Bigger of Tier 1, 3-4 weeks away

\$400,000 seems high for Alchemy -

Al - Sufficient capacity - to control all
furnaces - significant ducting.

Asc - \$275,000 → \$305,000 max

Big facility - less \$ for ductwork.

More flexibility.

Paul - may have to make, exponentially increase cost.

Because of configuration of Bldg - hard to

\$250,000 - \$400,000.

Asc - annual costs could go to \$0 after
installed, minimizing costs?

Jacob - can Alchemy/Trutman also use
automatic tracking of BH?

Al - 1 time investment or manual.

Significant part of business.

Other tasks tabled because of

BH installation. Anything to

hold off cost also reducing effectiveness

of BH - helps. Hold off on

computer monitoring.

Jacob - calculate ROI on computer system?

Asc - ~~decide~~ easier to absorb costs because
bigger than other tier 1. Cannot give
raises to employees now.

Paul - ROI - depends on operating costs

Jacob - ROI on computer monitoring.

Al - over all good ROI - cannot afford.

Ananda - rebates, govt grants?

Asc - looking for subsidies? Energy trusts

OPA is fed
govt in volver

Early SB to give a to glass mfg. Publied
Support for subsidies.

Jacob - advocating for env. improvements in
neighborhoods

Abe - mgt & care about env. Better for
factories to communicate.

Al - Apply TIV 2. Conversation & TIV 1.

Chris - submit written comments on narrative.

4 Questions:

1) Fiscal Impact - yes

Abe - ex. OPA is fed govt

AP - ok

Amade - costs if rule not

Jacob - fiscal benefits

Mark - yes

Paul - yes

2) Extent of impact:

Abe - captured but uncertainty

Al - yes

Amade - public health

Chris - public health, fiscal benefits because public

3) SB impact

Abe yes

Al - partially unhelp

Amade - child care, other small businesses,
home sales

Chris - adverse & beneficial impacts on SB

Jacob - yes

Mark - ~~yes~~ yes

Paul - sis

4) Economic impacts minimized?

Abe - SB could opt out but

Al - not possible to reduce fixed on SB -

must do end to it right. No material steps to
reduce costs

Amade - cannot see how to reduce & meet
health & safety goals

Jacob - OPS differing compliance

options - no controls or doing ST/modeling -
but all choosing to do right thing.

Mark - yes. can & has been reduced by DOE

Paul - over 6 months to get permit -



- Need permit before? using metals.
- Permit applications:
 - 1 week - Northstar
 - 3 weeks - Alchemy
 - ? - Transterra

Clarify MAO?

Amade - great conversation, appreciate progress

Jacob - encourage Page 4 #4 - 3 sections
Statement on public health impacts
cost ~~the~~ benefits.

Paul - other financial impacts - loss of jobs &
glam artists - around the world.

2nd meeting?

Paul - new language? another chance to
review?

Chris - letter to Bullseye & Harbors -

- converse 1 more time w/ info from B+U.

Abe - Bullseye can provide feedback.

Amade - meet again of especially public health
impact.

1/30

Debrief w/ Joel Judye

- Send Katie's email to Joe about US.