

1. General

- a. Is there an overview project description and work plan document to clarify assets, resources and activities; i.e. a Project Execution Plan? This would help substantiate the cargo list, the basis for cargo shipping prioritization and population planning.
The Project Execution Plan is found here:
<https://docushare.icecube.wisc.edu/dsweb/Get/Document-88897/IceCube%20Upgrade%20PEP%202021.pdf>
It updated as indicated in the log, and will be revised as part of rebaselining process.
- b. There is a Logistics risk matrix, but is there an overall Project risk analysis that identifies potential risks, the potential impacts and identifies mitigation strategies?
See answer to question 10 in list of 20 questions
- c. A master list of acronyms would be helpful
Acronyms related to logistics are listed in the ICU Cargo Estimation and Shipment Planning document glossary.
A Project acronyms glossary have been added to meeting organization folder.
- d. Are some Project components already on Station; i.e. SES and TOS? For example, I didn't see the Drill Control Center unit listed on Cargo Master.
All the modules (and the towers) are still located at the South Pole, where they have been stored since the end of IceCube Gen1 drilling in 2010-2011. Components that are in the cargo list are not at the South Pole.
- e. The Drilling Paper; IceCube Enhanced Hot Water Drill functional description captures lessons learned from Gen1 (like stainless steel condensing Hxs, etc). Have those been implemented? If not, have they been assessed for implementation?
Yes, all lessons learned are part of and have been incorporated in the refurbishment and testing plans for the Enhanced Hot Water drill. Additionally, all lessons learned in drill operation during Gen1 are incorporated in the drilling plans for the Upgrade.
- f. Does the EHWD Technical and Operations Manual predate the Drilling Paper, or does it incorporate the lessons learned from the Drilling Paper?
Yes, the Drill Manual predated the drilling paper. The drill manual was worked on in earnest after the last drill season, in 2011. The drill papers were published in 2014.

2. Upgrade Drawings Folder

- a. What are "Pits"; just TOS location?
Each string has its own in-ice cable. At surface the in-ice cable is connected to a surface junction box. The corresponding surface cable is connected to the same surface junction box on one side and to the string field hub in the ICL on the other side. In Gen1, each surface junction box was located near its string. In the Upgrade, since the space is constrained, we will be co-locating 3 surface junction boxes (string 87-88-89, drilled in this specific order) in PIT1 and 4 surface junction boxes (for strings 90,91,92,93) in PIT2. We designate these two locations as PIT1 and PIT2 as they will be effectively pits excavated in the firn. The location of the pits and the repartition of strings to one or

another has been determined taking into account the drilling order. We will excavate the pits, place the junction boxes and lay the surface cables during field season 2. The trenches and pits will be then filled and buried. The following year, we will excavate access to the in-ice side of PIT 1 and we trench and connect the first three strings. We later close this pit and excavate PIT2 and proceed with trenching and connecting the last 4 strings.

3. Review Population Folder

- a. Population Planning Paper - Reference is made to a detailed project schedule with task and labor-hour estimates. Is this available?

Labor hour estimates for drilling, which are the majority of on ice work, are in the project schedule (file provided). Labor hour estimates for installation are not in the schedule now. They will be added.

- b. Population Planning Paper - "Task related deployments (as opposed to Level of Effort - LOE) should be staffed according to the full-time equivalent hours in the schedule"; what does this mean and how is it applied?

It means that the estimated labor hours are added for the season per the profile needed and then divided by the available hour for one FTE in order to estimate the number of staff needed.

- c. Population PowerPoint lists assignments and activities. An explanatory walk-thru of this would be helpful to evaluate.

Will be done during the population presentations.

- d. Population PowerPoint, slide 2, org chart shows 12 FTE personnel but the population chart indicates 10; please explain. Similar issues noted for other seasons.

This is because some people swap in/out, so the numbers of beds occupied is less than the number of people throughout the whole season.

- e. Will alternates be PQd and on standby should on ice replacement be needed?

Yes, alternates will be PQed and will be on standby.

- f. Field season 3 indicates 45 personnel on Station; that's HUGE!

- i. Possible to shift tasks to Season 2, winterover or a Season 4?

Shifting any deep drilling/installation tasks will require 45 people, even in another season. Once drilling start the system is operated 24h/7 and requires three shifts.

- g. Does schedule incorporate time for personnel acclimatization on Station?

Yes, we generally schedule staff to arrive on Saturday so that they have time to acclimatize

4. Review Fuel Folder

- a. Fuel PowerPoint - Seems to present a logical analysis based on calcs and historical data, with contingencies, but it would be helpful to walk thru to fully understand.
Will be explained during fuel planning presentations.
- b. Fuel PowerPoint - Winter heating (which is electric) shows a transmission efficiency adjustment (90%). What is this?
Will be explained during fuel planning presentations.
- c. Note - Plan includes real time monitoring and trending which would enable adjustments, if needed as season progresses and between seasons. This is a good strategy.
Yes, will be explained during drilling presentation.
- d. Note - Peak season, 3, uses 70,000 gals, about 18-20% of annual Station use. This is significant.
Will coordinate with AIL.

5. Review Cargo Folder – Cargo Estimation and Shipment Planning

- a. Section 4.3 – Cargo delivered via COMSUR and overwintering at McM is indicated it is likely 9-10 months from arrival MCM to delivery Pole. But if delivered via SpoT3 would not arrive at SPX until end of season.
This statement is, indeed, true. “Cargo delivered via COMSUR/C17 and overwintering at McM is indicated it is likely 9-10 months from arrival MCM to delivery Pole. But if delivered via SpoT3 would not arrive at SPX until end of season.” The first Upgrade shipment to travel to the S. Pole overland did arrive with SPoT 3. In the seven-year cargo plan we do not have any shipments traveling along this path. That said, we would not want to preclude this option. We will adjust the document to reflect the possibility.
- b. Fig 4 logic implies DNF winter over is an option in MCM. This contradicts 4.3 pg 9. There is limited DNF space in McMurdo. It is an option, albeit an unlikely one. Shipment size is a big determinate. In general we assume that McMurdo DNF is not supportable. There could be cases where we explore the option as it allows for vessel shipment rather than SAAM use.
- c. 4.5 pg 13; last bullet – is intent for INTL shipping for RDD to mean arrival date in CHC? (Which would seem to match Fig 5)
RDD is the delivery date to a USAP cargo system entry port. In some cases, it is Christchurch, in others, Port Hueneme.
- d. 4.5 pg 14 – Point of Departure here seems to coincide with Owner/Guardian designation on Master Cargo Schedule – suggest common title for clarity.
Actually at this very moment we are using UW as point of departure for all Special Devices/Calibration Devices leaving United States and DESY for all the Special Devices/Calibration Devices leaving Europe, so we prefer to keep this distinct.

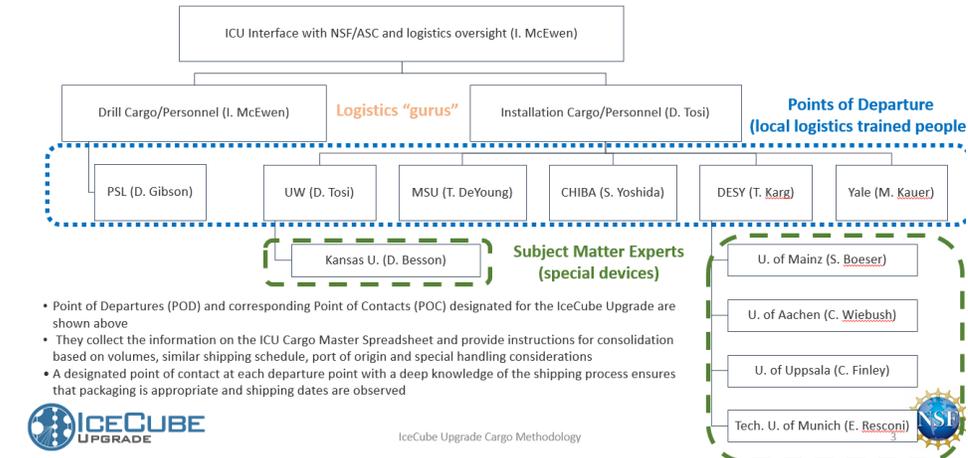
e. 4.5 pg 14 –

i. Are the Logistics Managers the same as the Logistics POC?

Ian McEwen and Delia Tosi are, currently, the project's logistics POC's. Delia fields the majority of string cargo coordination and Ian the drill.

ii. What is the relationship between the SMEs, Logistics experts, Logistics POCs and Logistics Managers?

Logistics support personnel in IceCube Upgrade



iii. Should there be a Project wide overall Logistics manager that reports to the PM?

Yes, there is. Ian McEwen is the overall logistics Manager and reports directly to Project Manager.

iv. Should there be a single entity responsible for the Master Cargo Schedule?

This is Ian on project side and coordinated with AIL Delia Tosi manages the Master Cargo Spreadsheet.

v. The Master Cargo Schedule lists Validator 1(SME) and Validator 2(Logistics).

Suggest the terminology be the same between the Planning Document and the Schedule.

Point taken, will revise.

f. 4.5 pg 14 – Yale is listed as a POD on the Master Cargo Schedule but is not listed here. Coordinate.

Point taken, revised.

- g. 4.6.2, pg 17 – Reference the USAP ProForma paperwork. Is the destination the Antarctic destination and the POC the POC at the Antarctic destination? Or is this referring to destination PTH? Drill hose example below.

SHIPPER INSTRUCTIONS

In all orange shaded areas, the shaded area does not need to be completed unless the information is known, not size is size consistent.

EST choose a Special Handling Requirement or No Special Handling Requirement. Items with different Temperature and Special Handling Requirements require a separate form.

Country of Origin refers to the country of item manufacture. Use HS22 letter standard to identify (http://www.worldalac.com/usafairtoycodes.htm).

Items containing cargo of an unknown origin, please list code "U" in the Origin field.

Complete print a copy and place inside your shipment and email an electronic copy to PH-Cargo@USAP.gov.

RETURNING cargo:

Returnables (DR) should be identified as "L-Lo".

Items going to different addresses or have different environmental requirements require separate forms.

(Select from the drop-down menu)

ROUTING:

Ship To Destination: Antarctica & New Zealand
End User: US National Science Foundation-ASC

(Select from drop-down menu)

Consignee: (Select from drop-down menu)

Attention: IYG-RL USAP, NPX, DR3, HANSON, A-333-S, ROS 1124

Shipment Data (date as applicable)

Invoice #
DMCC #
BOOKING #
CONTAINER #
SLIP

Special Handling Requirements:

Do Not Freeze (DNF) ___ Keep Dry (KD) ___
Do Not Drop (DN) ___ Keep Frozen (KF) ___
Do Not X-Ray (DNX) ___ Keep Upright (KU) ___
Fragile ___ Do Not Expose To ___
Keep Chilled (KC) ___ Magnetic Field (MAG) ___
No Special Handling required ___

Additional Handling Instructions:

Maintain temperature above -55C (-67F)

DESCRIPTION STATEMENTS: Select from drop-down menu

By	Shipping No.	Detailed Description	Part Number	Manufacturer	Country of Origin	Total Wt. (kg.)	Export Class (ECCN)	Schedule B/HTS	Licensed NLR	Unit Value	Total Cost
		Wood spool containing 3x4000 lengths of yellow-stripe PIG rubber hose each length with a viton O-ring clipped on each end each length with an aluminum metal retainer clipped on each end - clamp shell into accompanying rail spool - spool dimensions: 32x 0.0, 70 in height	HOY MAX 1000 LOW DENSITY 2-12"	WEG Co Backers Spa		4447.00				418,336.00	\$1,085,564.00

Drop Downs
End User
Choice or Enter information

Shipment #, Program, Destination (NPX = S. Pole) Science Destination Code, (DR3), Principal Investigator (POC), Project Code, ROS Date

- h. 4.6.4, pg 18; second bullet – for international items sent to NZ commercial, 5 weeks between NZ arrival and Pole ROS date is suggested. But shouldn't the objective be to match the PTH RDD date for the required Pole ROS date per 4.5?
We add float on our side to include a time window for customs and delays by commercial service. Refer to float table

- i. This Document provides guidance and recommendations for shipping, but it seems like a lot of different entities in a lot of different locations are going to be packing cargo for shipping. Is there a QC person and a QC process to insure it is all being done correctly before it is turned over to USAP Cargo?
The logistics managers, Installation manager and QA manager will work with local POCs to ensure adherence to packing and shipping requirements.

- j. This Document outlines guidance for the most efficient and preferred shipping method(s) but is there a QC process to ensure maximum efficiency is being achieved? And is there a feedback loop with USAP Cargo to ensure the level of efficiency being achieved meets expectations or objectives?
Yes. QC occurs during the ICU Cargo Master Spreadsheet validation process when the cargo line entry is checked by a WIPAC logistics POC (currently Delia Tosi & Ian McEwen).

- k. 5.0, pg 19 – There are several discrepancies in the Example. Recommend these be reconciled to avoid confusion.
Yes, there were discrepancies, apologies. The example will be worked through on Nov 4 during the cargo methodology illustration. (presentation n11)

6. Review Cargo Folder – Cargo Master Schedule
- a. Suggest adding columns for RDD and ROS dates specifically, for reference, since these are dates that interface with USAP Cargo.
See float table

7. Review Cargo Folder – Logistics Risk Matrix and Impact Register
 - a. This spreadsheet is not mentioned in the Cargo Estimation and Shipment Planning Document. Recommend it be referenced for clarity and how it applies.
Will do
 - b. How is it used?
See presentation by Mike DuVernois, 08.Logistics_Sensitivity_DuVernois
 - c. Are there actionable items that come from it?
Not at this time. It is to show sensitivity and possible cost and schedule impact.
 - d. Should high risk items be flagged in the Cargo Master Schedule to keep focus on it?
Yes, will do.
 - e. Should the risk analysis result in some mitigation strategies that are spelled out?
Yes, we need to do more work here.

8. Review Cargo Folder – Cargo Estimation and Shipment Planning
 - a. 5.0, pg 19 – There are several discrepancies in the Example. Recommend these be reconciled to avoid confusion.
Same as 5k above. We will go through the example step by step at the presentation on Nov 4.
 - i. Reference para Schedule; reference , “...they need to be flown via USAP airlift from CHC to McMurdo.....”. This conflicts with Figures 4 and 5 which list a logic path that includes vessel shipping for DNF and DNDF items. Clarify.
 - ii. Reference para Schedule; reference 4th bullet – this bullet discusses shipping time from UW to PTH. The Example is for shipping from DESY. Presumably the point of this bullet is that planning for vessel shipping on a date equivalent to PTH RDD would result in an arrival at CHC on target for SAAM. Is that the intent? Recommend clarifying.
 - iii. Reference para Schedule; reference 5th bullet – this bullet concludes the target International shipping date is 1 August, which is basically equivalent to PTH RDD. However, Fig 5 implies that for International shipping the PTH RDD should be used as the CHC arrival target. Clarify.
We will reconcile in the document after consulting the USAP contractor. Our goal is for cargo to reach CHC at the beginning of the heavy airlift window in order to maximize it. This approach could, potentially, cause storage issues at PTH or ChC.
 - iv. Also, Section 4.3 suggests adding 2-4 weeks buffer to the RDD. This suggested buffer seems to be missing.
Yes. Thank you. Same as above. We will correct.

- v. Reference para Packing; reference, “....items will travel by USAP airlift, this also constrains the packing dimensions which must not exceed.....”. This implies packing for the airlift results in the need to meet the packing requirements compatible with the use of Air Force pallet 463L. However Section 4.2 says to default to packing for 463L irregardless of the likely path to insure maximum flexibility in the cargo Logistics process. Clarify.

Discussed in today's talks. As much as possible we size cargo to fit on single 463L pallets regardless of their path to keep the option open.