

# LBNF Management Breakout Session

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LBNC Review

20 February 2018



# Topics

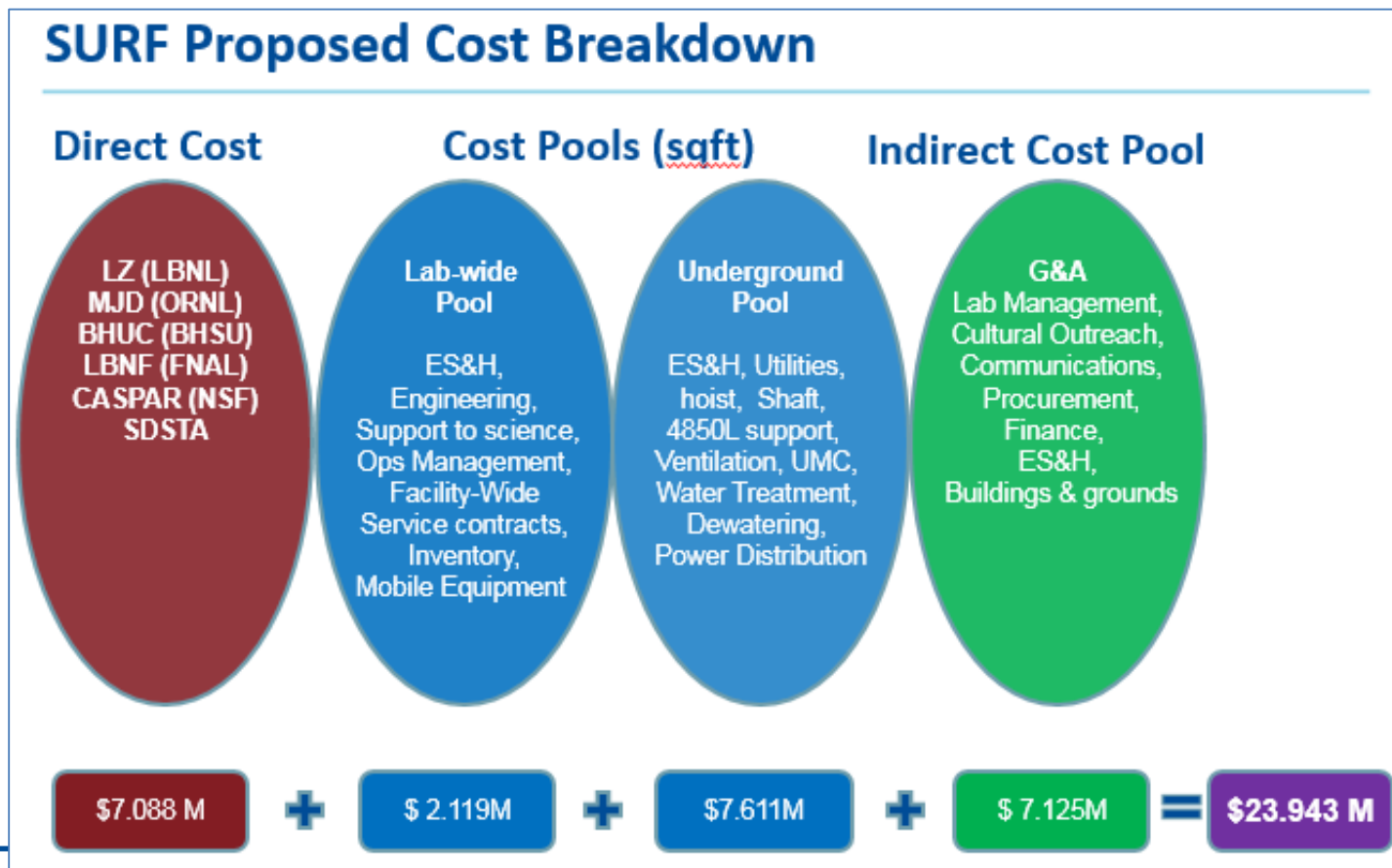
- Update on development of business model for SURF and implications for LBNF
- Update on contracting
  - Contracts
  - Ross Shaft Rehab restart
- Outlook for future issues
  - Paths to start of Excavation
  - Power costs at SURF
  - Host Lab Working Group – LBNF/DUNE Project Support subgroup
  - LBNF NS readiness for CD-2

# Development of Business Model for SURF

- FRA has worked to develop a multi-year operations contract with SDSTA
  - Initial transition contract for hand-off from LBNL-SDSTA contract started Oct 2016
  - SURF business model has evolved after iterations with DOE on the RFP and SDSTA proposal for the multi-year
  - Questions were raised about appropriate allocation of costs to all users
  - Model has been evolved with SDSTA by SURF Services Coordinator, Albert Eiffes and procurement administrator, Chris Bushman, among others.

# The Business Model in summary

- Costs are direct cost, pooled cost, and G&A indirect cost
- G&A indirects charged to both direct and pooled cost



# Pooled Costs allocated to users by area (sq ft) underground and surface

- Two pools – underground only and lab-wide (includes surface & underground)
- For LBNF – only includes leased space

Basis of Allocating Cost Pools						
	UG Laboratory/Science Space		Surface Laboratory/Science Space		Total Lab/Science Space	
	SQ FT	%	SQ FT	%	Sq Ft	%
LZ	17155	2.53%	6118	21.15%	23273	3.29%
Davis Campus	17155	2.53%			17155	2.42%
Surface Lab and RRS			4966	17.17%	4966	0.70%
Foundry			1152	3.98%	1152	0.16%
MJD	15315	2.25%			15315	2.16%
CASPAR	3185	0.47%			3185	0.45%
BHUC	3930	0.58%			3930	0.55%
LBNF/DUNE Leased Space	639720	94.17%	22804	78.85%	662524	93.55%
UG Leased Space	639720	94.17%			639720	90.33%
Surface Leased Space			22804	78.85%	22804	3.22%
Sigma V	1	0.00%			1	0.00%
Xilinx	8	0.00%			8	0.00%
Temp Clean Rm (2457 UG ft)	0	0.00%			0	0.00%
<b>TOTAL UG Lab/Science Space</b>	<b>679,314</b>	<b>100.00%</b>	<b>28,922</b>	<b>100.00%</b>	<b>708,236</b>	<b>100.00%</b>
	Allocation of UG Pool Costs				Allocation of Lab-wide Pool Costs	

## SURF Business Model impact on LBNF

- Pooled Cost for DOE activities (including LBNF) would be paid through SURF Services contract through FRA.
- LBNF direct subcontracts will see higher indirect rates.
- Estimated changes shown below
- Expected to go into effect by 1 Oct 2018

	Direct		Indirect		total		Delta
	New	Old	New	Old	New	Old	
Sanford-SDSTA	\$692,461	\$768,076	\$293,603	\$212,757	\$986,064	\$980,833	\$5,231
Homestake Mining Corp.	\$140,400	\$140,400	\$59,530	\$38,891	\$199,930	\$179,291	\$20,639
Xilinx Corp.	\$2,548	\$2,436	\$1,080	\$675	\$3,628	\$3,111	\$518
LBNL LZ Experim.Supp. DOE	\$1,482,974	\$1,482,974	\$628,781	\$410,784	\$2,111,755	\$1,893,758	\$217,997
SURF Services DOE	\$9,709,696	\$11,607,060	\$4,109,211	\$3,215,156	\$13,818,907	\$14,822,216	(\$1,003,309)
Fermi Ross Shaft Rehab DOE	\$3,776,306	\$3,776,306	\$1,601,154	\$1,046,037	\$5,377,460	\$4,822,343	\$555,117
Fermi Miscellaneous DOE	\$902,567	\$902,567	\$382,688	\$250,011	\$1,285,255	\$1,152,578	\$132,677
Oakridge Majorana DOE	\$30,000	\$30,000	\$12,720	\$8,310	\$42,720	\$38,310	\$4,410
BHSU Low Bckgrd. DOE	\$6,000	\$6,000	\$2,544	\$1,662	\$8,544	\$7,662	\$882
CASPAR NSF	\$75,287	\$30,500	\$31,922	\$8,449	\$107,209	\$38,949	\$68,260
Sum	\$16,818,239.00	\$18,746,319.00	\$7,123,233.34	\$5,192,730.36	\$23,941,472.34	\$23,939,049.36	\$2,422.97
Delta	(\$1,928,080)		\$1,930,503		\$2,423		

# Update on contracting - 1

- FSCF A/E Contract Reassignment – Arup
  - Enables both start of final design and pre-excavation bid support
  - DOE determined that limitation of liability clauses in SDSTA-Arup contract constituted indemnification, requiring getting indemnification waiver from DOE and add'l insurance from Arup to raise the LOL.
  - Awaiting firm Project Specific Policy quote from Arup.
- FS CM/GC Contract – KAJV
  - Prepared to start pre-excavation construction bidding but need Arup
  - Have come to understanding with FSO Contracting Officer about reviews of both self-performed work and sub-subcontracted work
  - Presently KAJV's template for subcontracts is in FSO review
  - Other activities:
    - Partnering session in November (next in April) that included SDSTA & Arup
    - VE Workshop in December
    - Discussions with KAJV on concerns re:delay claims from non-DOE partners

## Update on contracting - 2

- LN2 Refrigeration System – design/fab/option to install
  - Iterating with FSO on Acquisition Plan
  - Preparing RFP components – SOW finalizing review
  - SEB met for 1<sup>st</sup> time yesterday
  - Delayed due to procurement capacity
- NSCF CM/GC
  - Revised some elements of contracting approach after FSCF CM/FC (and another Fermilab CM/GC)
  - Consulted Jeff Sims & Joe Harkins for advice
  - Acquisition Plan in iteration with FSO
- NSCF A/E
  - Required to recompetete after existing Basic Ordering Agreement (for A/Es across Fermilab) determined inadequate
  - SEB formed, acquisition plan in development



## Procurement communication

- Using several means to communicate about procurement
- With FSO, started daily 15-minute meetings with site manager, contracting officer, FPD, others, to ensure coordination at critical points
- With FRA Procurement management, holding weekly meetings of LBNF PD, PM, Co-Procurement Managers, CF to monitor critical procurements
- Using Procurement tracker on LBNF Procurement site to keep track of where procurements are (see next slide)
- Still challenged due to capacity, getting some help part-time from FRA Procurement Department, 2 hires in progress.

# LBNF Procurement tracker – can demonstrate if desired

## Near Term Procurements

### Near Term Procurement Actions

+ new item

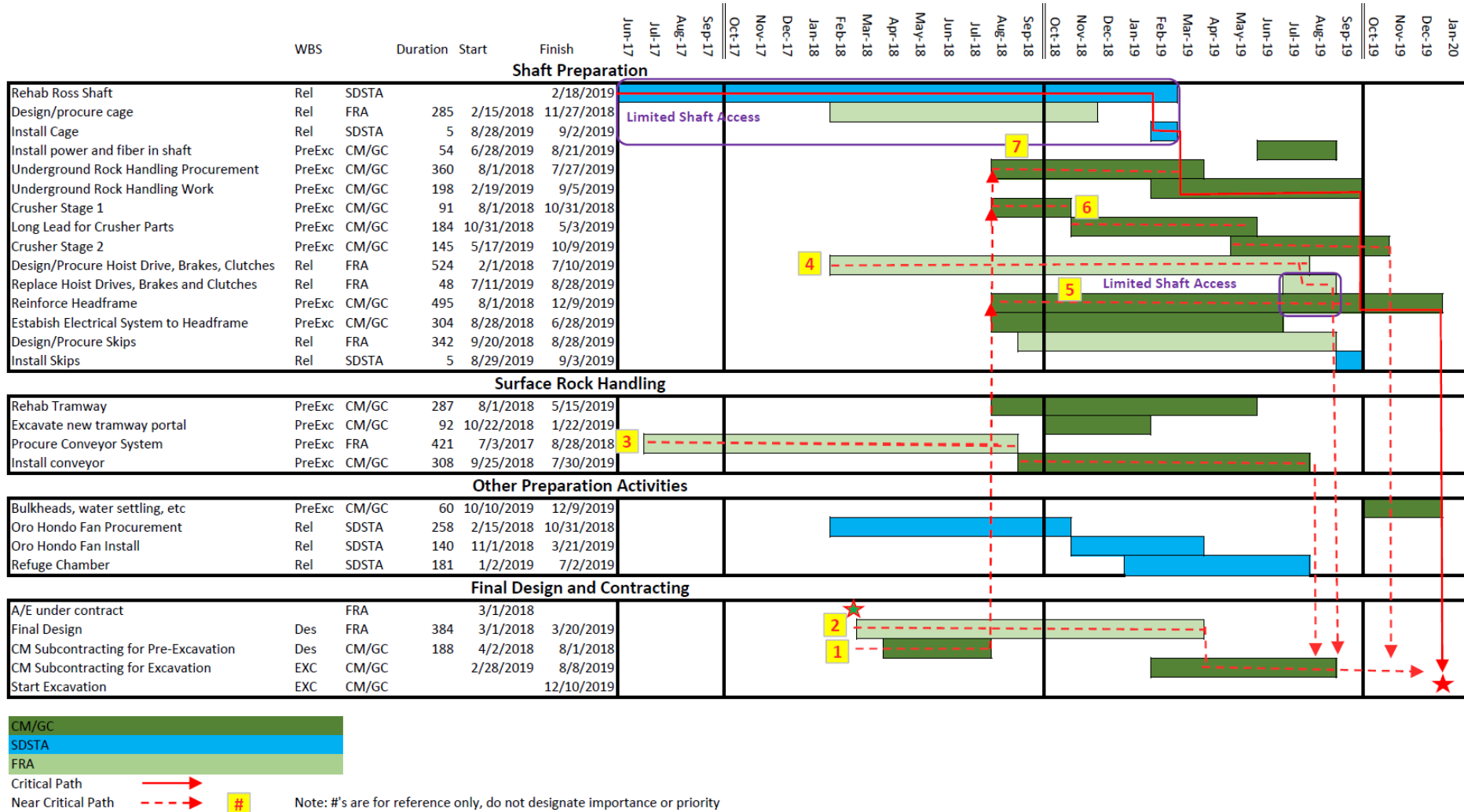
✓	Edit	Action	Assigned	Procurement Initiation	Anticipated Contract Award	Approx Oblig \$ Value	Schedule Status	Priority	Status	Status Details	Ready for Procure Action	SOW	Sole So
<b>Sum= \$119,190,677</b>													
▶ Arup - BSI (3)													
▶ Arup - BSI CM/GC Opt 1A Support (1)													
▶ Arup - EXC (2)													
▶ Arup - EXC CM/GC Opt 1A Support (1)													
<b>Sum= \$135,000</b>													
	Option 1A Bid Support Services	Sandra T. Efstathiou	9/1/2017	3/1/2018	\$135,000		1	In Progress	02/12/2018	Need BOA's in place; RFPs ready to go 11/13/2017 RFP for stand-alone PO issued Draft proposal received	No	Yes	Yes
▶ Arup Construction Administration - 1A Pre-Excavation (1)													
<b>Sum= \$250,000</b>													
	Task Release	Sandra T. Efstathiou	2/1/2018	8/1/2018	\$250,000		3	On Hold	02/06/2018	Need BOA in place; consider pre-contract cost authorization upon receiving PSP	No	No	No
▶ Arup Construction Administration - 3650 Ventilation Rehabilitation (1)													
<b>Sum= \$135,000</b>													

## Ross Shaft Rehab restart

- 8 January Work Platform incident – has shut down work
  - Three technicians were on the work deck traveling from the surface to the 5000L at normal operating speed (500 fpm) when the work deck abruptly stopped, developing a slack rope which caused the work deck to drop approximately 20-25 feet when platform released
  - SURF ESH Director instituted a stand down of Ross shaft work
  - SURF conducted a thorough investigation led by the SURF ESH Director Larry Jaudon, briefed to FRA & FSO on 7 February.
- No direct cause determined for work deck stoppage
- Free fall and sudden stop caused personnel first aid injuries
- FRA requiring dogging system prior to rehab work restarting with DOE funds – design in progress, fab/install estimated ~ 2-4 mos. total delay from incident
- Limited, critical maintenance work identified & restarted with restrictions

# Paths to Excavation

Also linked from LBNC review document page for breakout #4



## Outlook for future issues – Power costs

- It's been determined that LBNF will pay for the incremental cost of power from start of construction to end of project.
  - Will be OPC cost to DOE project
  - Pending \$29M change request
- SDSTA did analysis using LBNF project energy consumption data to determine power increment, and power cost by applying present rate structure from Black Hills Energy.
- LBNF used Fermilab/FESS energy consultant to validate SDSTA's analysis.
  - Rate structure does not favor projected increased consumption
  - Break in rates occurs at higher level than projected consumption
- SDSTA has approached Black Hills Energy about possible change to rate structure.
  - They are willing to discuss
  - Elaine is attending meeting with SDSTA & BHE on March 8

# Outlook for future issues – Host Lab WG – LBNF/DUNE

## Project Support subgroup (2 slides)

ID	ISSUES	DESCRIPTION	DELIVERABLES/NEXT STEPS
PS01	Temporary SURF storage, assembly, test areas	this is covered by project activities	<ol style="list-style-type: none"> <li>1. Ensure this is reflected in LBNF/DUNE interface documents &amp; requirements</li> <li>2. Work with Real Property Team to add spaces as required</li> </ol>
PS02	Expectations between DUNE and SDSTA	<p>Define relationship between DUNE collaboration and SDSTA during phases: experiment design; experiment construction and installation; operations</p> <p>Include discussion of spaces used at SURF for LBNF/DUNE</p>	<ol style="list-style-type: none"> <li>1. Cartoon drawing of how DUNE Collaboration (and DUNE Project?) will interact with FRA, SDSTA, and SURF</li> <li>2. DUNE participants will work at SURF as Fermilab users, so must work through FRA processes for help, facilities, access, etc.</li> <li>3. Transition to Ops plan draft will be developed by EM &amp; JM very soon to help explain what will happen during project &amp; in operations and reviewed with COO wrt host lab concept</li> <li>4. DUNE will work with Neutrino Division to understand best way to communicate the working at SURF paradigm to DUNE collaborators</li> </ol>
PS03	Host lab technical services	What host lab services would be provided, such as to support I&I, etc. Who would be responsible for providing those services?	<ol style="list-style-type: none"> <li>1. develop comprehensive list of services required by the projects, starting with riggers, survey, computing &amp; networking, welders, electricians</li> <li>2. understand whether Fermilab T&amp;M office or project will develop T&amp;M contracts for such services at SURF</li> </ol>
PS04	Emergency response services	SDSTA emergency response team provides underground rescue. KAJV will provide supplemental crew during construction period. Surface is covered by local emergency responders (City of Lead)	<ol style="list-style-type: none"> <li>1. Revise LBNF/DUNE ESH Plan to clarify / codify</li> <li>2. communicate as part of training and preparation with LBNF and DUNE personnel and contractors coming to SURF</li> <li>3. part of webpage on user instructions</li> </ol>
PS05	Logistics services – tracking, receipt, delivery to work site	This is mainly a project activity, not expected to be handled by SDSTA for receiving. Logistics support through the shaft and at 4850L is expected to be by hired riggers-	<ol style="list-style-type: none"> <li>1. Identify what is / is not a project activity. - all activities are project activities until post-DOE project. then T-O plan will address ops stage</li> <li>2. Revise logistics plan to reflect approach, plan, requirements</li> </ol>
PS06	Temporary construction services, including electrical power	this is covered by project activities	<ol style="list-style-type: none"> <li>1. Ensure this is reflected in LBNF/DUNE interface documents &amp; requirements</li> </ol>

ID	ISSUES	DESCRIPTION	DELIVERABLES/NEXT STEPS
PS07	Documented agreement on acceptance criteria and ownership for in-kind contributions	Items to address include: (1) define and document the operational acceptance process for in-kind contributions; (2) determine in what form of agreement this process needs to be documented; (3) define the ownership of in-kind contributions at different stages of the process and consider tax implications; and (4) reach agreement on acceptance and ownership questions and include this language in executed agreements.	(1) Develop agreed-upon language on operations acceptance criteria for in-kind contributions; (2) Develop agreed-upon language on ownership at each stage for in-kind contributions; (3) include language in agreements between parties, and execute agreements.
PS08	Procurement services for non-DOE activities	Incidental, in support of LBNF/DUNE at SURF and FNAL  is this really procurement services for non-FNAL groups at SURF (and at FNAL)? e.g., when CERN is at SURF how can they buy things at the local hardware store? Could this be like "Team accounts" at CERN used by U.S. groups to buy incidentals while working at CERN? or akin to an FNAL procard mechanism?  Could SDSTA set up these accounts for other groups working on LBNF and DUNE? Would that be an OH function?	1. Identify mechanism for small, local purchases. 2. Identify training requirements (content, audience) 3. Identify how non-DOE funding can be utilized in FRA contracts where DOE funding is already paying for part of the scope (accounts receivable mechanism)
PS09	Lodging or service to identify convenient/reasonably priced locations	On what grounds would FRA seek to rent its own lodging in Lead/Deadwood and on what basis would it be contract allowable or made available? Maybe its better if FRA just runs its own hospitality business on the side?  Need support person/interface to help non-US folks. could housing office help with this?	1. determine level of housing support desired 2. determine if housing office can help with arranging for this 3. develop something like users' office info for Living At Fermilab <a href="http://get-connected.fnal.gov/usefulinformation/">http://get-connected.fnal.gov/usefulinformation/</a>
PS10	Medical services	Provide instruction for LBNF/DUNE participants at SURF regarding availability of medical services	1. work with SDSTA to understand available medical services 2. part of webpage on user instructions
PS11	On site food services at SURF	Identify what food onsite food opportunities could exist at SURF both in the LBNF surface leased space and underground.	Explore feasibility of vending or mobile food services; evaluate outfitting of appliances (refrigerators, microwaves, coffee machines) in break space underground during installation activities
PS12	Critical facilities at SURF - what happens when something fails? What contract pays?	When SURF infrastructure breaks, what is process by which repairs are initiated and costs allocated? Contract mechanisms: DOE/FRA SURF services, contract? Ross shaft operations contract? SURF professional staff services contract? CM/GC or other contracts? Does leased vs. non-leased space matter?  Svcs subcontract? standalone contracts to SDSTA on behalf of LBNF?	1. determine the relationship with SURF (Fermi-SURF subgroup) 2. determine what contract mechanism applies to infrastructure issues?

# Outlook for future issues – Property issues

- Received broad DOE Senior Realty Officer exemption for work in project scope
  - Included delegated authority to FSO to monitor actions
- KAJV agreed with taking assignment of SDSTA easements for rock conveyor route - modest cost may be incurred.
- Still resolving how transfer of property from DOE to SDSTA for work on SDSTA infrastructure can be done (e.g., Ross hoist brakes, drives, clutches upgrade)
- SURF Integrated Real Estate Team (FSO & FRA) meeting monthly, including ISC-CH Certified Realty Specialist, to work through ongoing list of issues tracked on team's sharepoint site .

## Conclusions

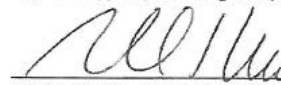
The DOE investments at SURF described in this memo are essential for the accomplishment of DOE's mission to construct and operate the experiment known as DUNE. The investments are for the principle benefit of the Government since they enable the safe, reliable, and efficient installation and operation of DUNE. DOE has taken appropriate steps to protect the Government's interest through real estate agreements and management processes.

## CERTIFIED REALTY SPECIALIST REVIEW:

  
\_\_\_\_\_  
Maria Larsen-Williams, Certified Realty Specialist, ISC-CH  
10/11/2017  
Date

**RECOMMENDATION:** Given the above, there is an adequate justification to allow the LBNF/DUNE project to make improvements to non-Government owned property at SURF for the purpose of enabling the Deep Underground Neutrino Experiment. This request is limited to the project investments described in Appendix 4, and any additions or changes to the defined scope or cumulative cost will be coordinated with the ISC-CH Certified Realty Specialist. Therefore, the undersigned recommend SRO approval of the improvements to non-Government owned real property contingent upon availability of funds appropriated by the Congress of the United States (currently appropriated under Line Item 11-SC-40).

  
\_\_\_\_\_  
Michael Procario, Facilities Division Director  
High Energy Physics Program (SC-25)  
10/11/17  
Date

  
\_\_\_\_\_  
Michael Weis, Fermi Site Office Manager  
10/11/2017  
Date



## Outlook for future issues – LBNF NS readiness for CD-2

- Recent strategy to accept beam optimization
  - Important for DUNE success
  - Challenging to proceed, since optimized component strategy includes much non-DOE scope
  - DOE project is focused on being ready for CD-2 review in October 2019
  - Beam design will be a mixture of readiness for baselining (typically at preliminary design complete)
- Addressing by starting work earlier on NSCF and beamline work in FY18
  - Addresses high risks and major design issues
  - Will set expectations and schedule for design completion through “LBNF/DUNE Design Plan” document being drafted for March 2018 DOE IPR
- Will write Preliminary Design Report (not TDR) for LBNF NS for CD-2

## Summary

- New business model for SURF allocates costs to users both by area occupied and G&A indirects; appears to have only modest impact on LBNF
- Contracting continues to be challenging due to procurement capacity and non-standard procurement types – LBNF success depends on procurement performance.
  - LBNF management working closely with FRA and FSO
- Host Lab working group addressing issues to facilitate work at SURF and an international project
- Decision to baseline entire LBNF/DUNE-US project in Oct 2019 means focused work on LBNF NS scope sooner