

June 2017

# SDF FEPS SCREENING OVERVIEW

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- Introduction
- Features, events, and processes (FEPs) approach
- Development of the initial FEPs list
- FEPs screening process
- FEPs screening criteria
- Path forward
- Final thoughts

- **Performance Assessments (PAs)**
  - Complex, non-linear models to estimate or approximate future conditions at a site or facility
  - Support regulatory decisions with respect to risk, safety, and dose analyses
  - Must have defined boundaries and consider all relevant features, events, and processes (FEPs)
  - SRR Liquid Waste PAs
    - F-Area Tank Farm (FTF) PA (SRS-REG-2007-00002)
    - H-Area Tank Farm (HTF) PA (SRR-CWDA-2010-00128)
    - Saltstone Disposal Facility (SDF) PA (SRR-CWDA-2009-00017)

- **Features, events, and processes**
  - Systematic approach for evaluating individual FEPs and determining which FEPs should be included in the PA modeling
  - Provides justification for FEPs that are excluded from PA modeling
  - Has been used and discussed throughout the DOE complex by NRC and internationally
  - Not explicitly required by regulation for our SRS waste disposal facility PAs



## ■ Why are we here?

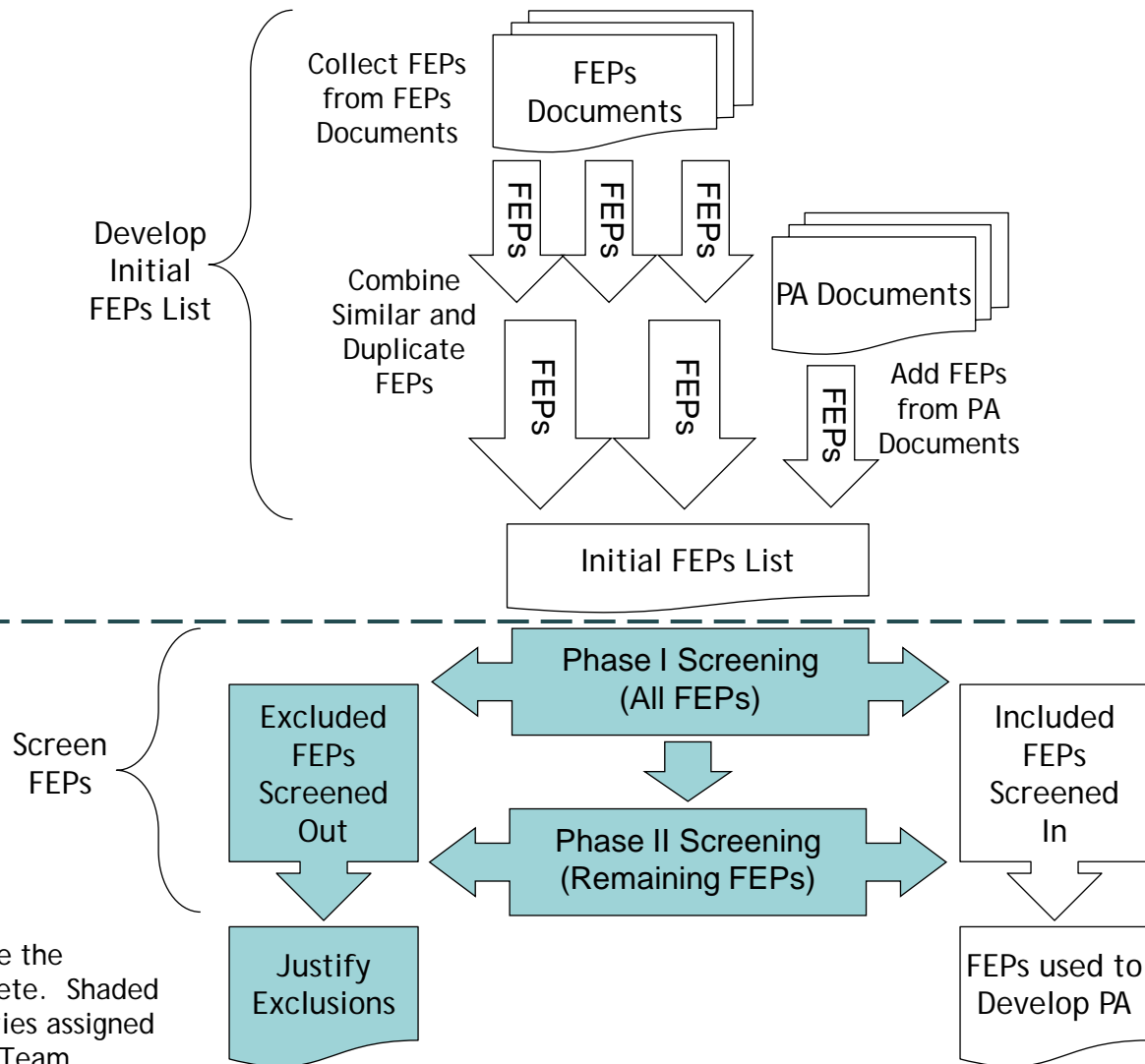
- The FEPs process has been identified by PA reviewers as a preferred method for *formally* identifying scenarios of interest

## ■ Our mission

- In a transparent manner, identify relevant FEPs to consider during development of future SDF PA modeling scenarios

## ■ Typical FEPs analysis

- FEPs are identified (Initial FEPs List)
- FEPs are “screened”
  - “Screened in” = FEPs considered for PA
  - “Screened out” = document the justification for excluding FEPs from PA
- Included FEPs are **considered in PA model development**
- Justifications for excluded FEPs are documented



**Notes:** Activities above the dashed line are complete. Shaded shapes indicate activities assigned to the FEPs Screening Team.

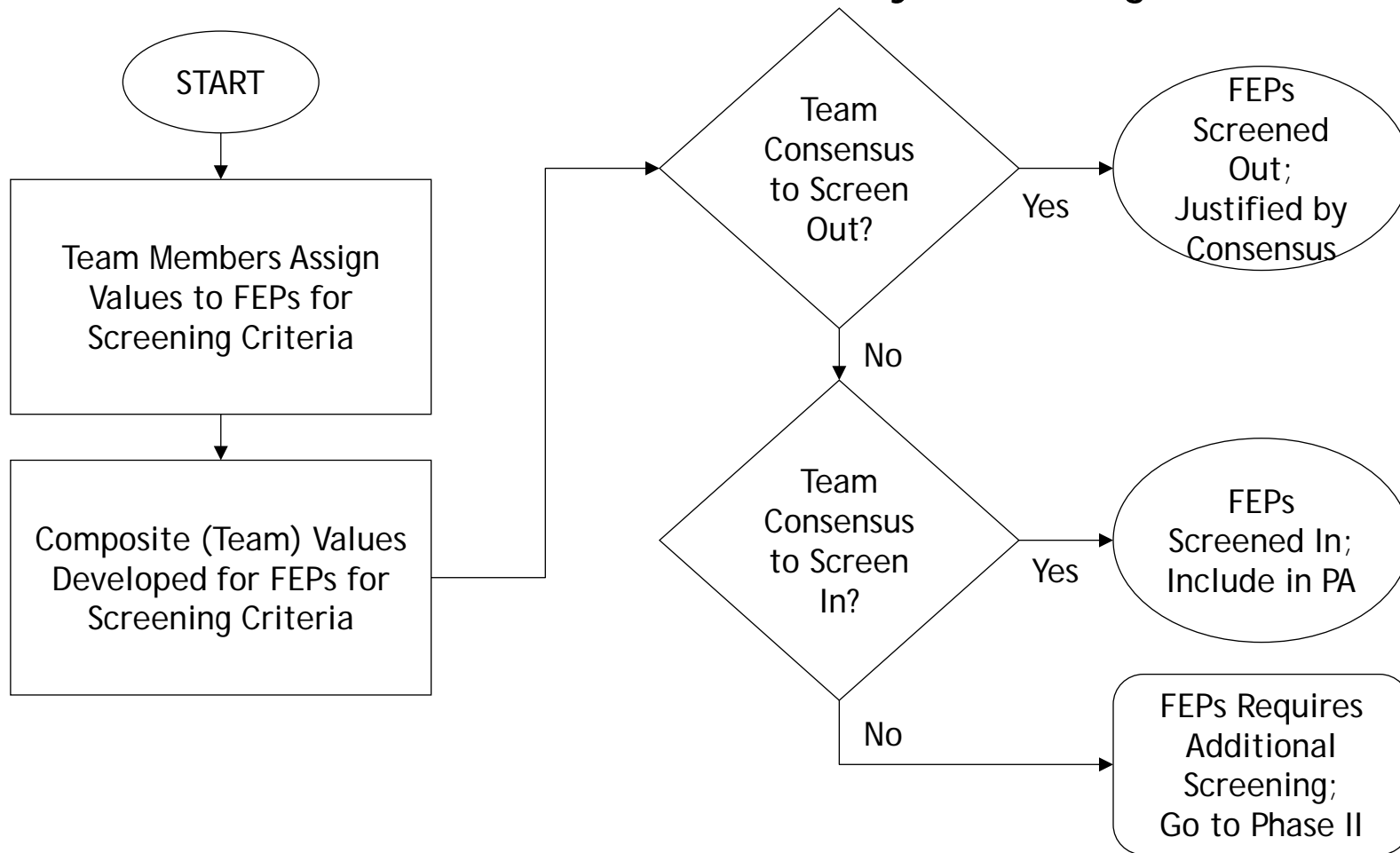
- Initial FEPs List started with 268 FEPs from Table 3.0-4 of SRR-CWDA-2012-00011
- Added 77 FEPs based on SDF operational experience and literature reviews
- $268 + 77 = 345$  Initial FEPs
  - Of these 345 FEPs
    - 53 were screened in by WDA for programmatic reasons
    - 292 remain to be screened
  - List will be provided electronically to the FEPs Screening Team members for use during the screening process



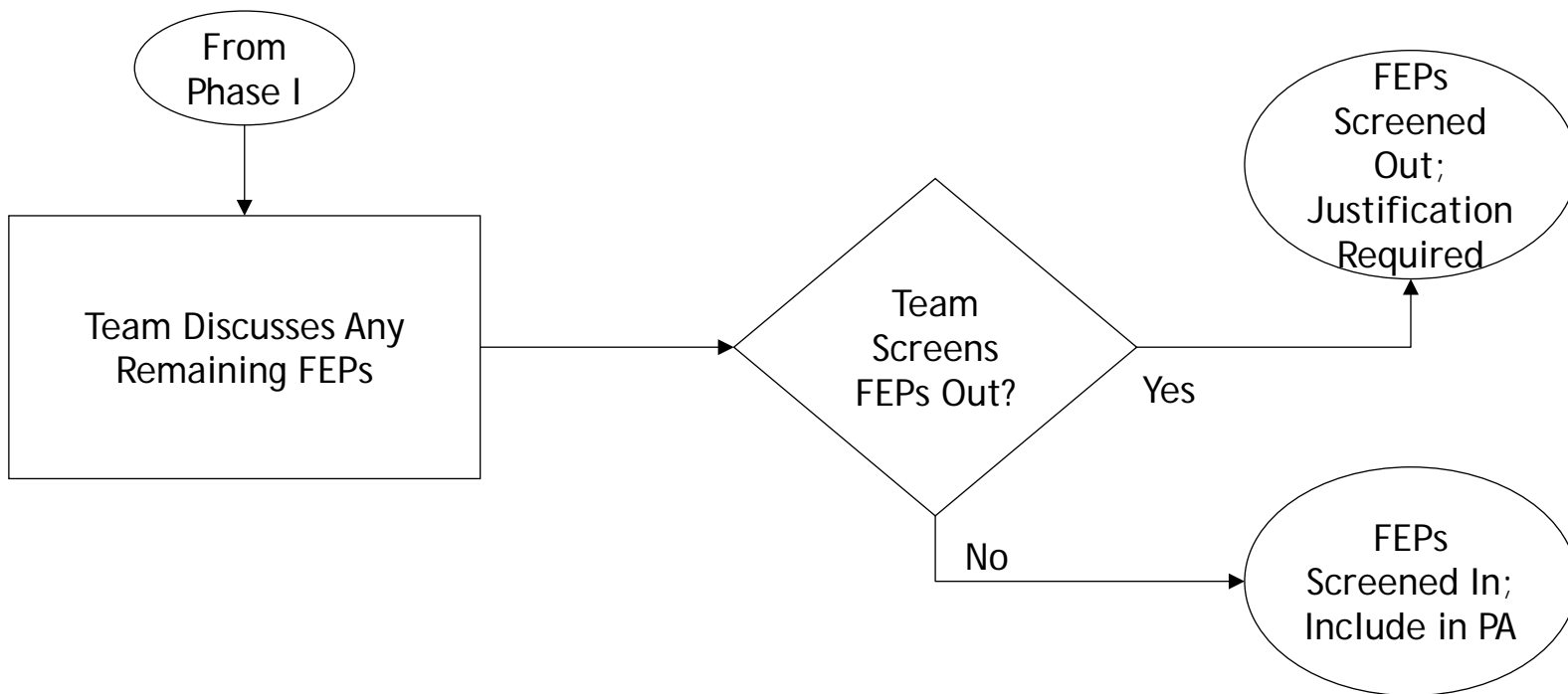
## ■ Screening criteria

- Two criteria
  - Perceived frequency (probability of occurrence)
  - Perceived impact (consequence)
- Evaluate qualitatively based on the professional judgment and perception of each team member
- Two screening phases
  - Phase I: Team survey screening
    - Team members unanimously agree (prior to discussion) that FEPs should be screened in or out
  - Phase II: Team discussion screening
    - Team members discuss and disposition FEPs as screened in or screened out

## Phase I: Team Survey Screening



## Phase II: Team Discussion Screening



- FEPs screening criteria for perceived frequency

Description	Perceived Frequency	Score
Anticipated, Expected, or Already Known to Exist or Occur	Will Occur in 10,000 Years	2
Unlikely or Extremely Unlikely	May Occur in 10,000 Years	1
Beyond Extremely Unlikely	Not Expected to Occur in 10,000 Years	0

Note: If you have no opinion for a specific FEP, enter "NR" to indicate that you have no recommendation.

## ■ FEPs screening criteria for perceived impact

Description	Perceived Impact to Member of Public	Score
High	Significant Impact on Release or Dose	2
Moderate	Moderate Impact on Release or Dose	1
Negligible	No or Negligible Impact on Release or Dose	0

Note: If you have no opinion for a specific FEP, enter "NR" to indicate that you have no recommendation.

## ■ FEPs screening criteria matrix

Frequency		Beyond Extremely Unlikely	Unlikely or Extremely Unlikely	Anticipated, Expected, or Already Known to Exist or Occur
Impact		0	1	2
High	2	<i>Considered</i>	Screened In	Screened In
Moderate	1	Screened Out	<i>Considered</i>	<i>Considered</i>
Negligible	0	Screened Out	Screened Out	Screened Out

Note: "*Considered*" FEPs = FEPs that advance to Phase II of the Screening Process



## ■ Today

- Each of team member will receive an electronic copy of the Initial FEPs list
- 345 FEPs - 53 initially screened in FEPs = 292 FEPs to screen

## ■ Between now and July 5

- Based on professional judgment/perception, each team member shall assign an ordinal value for frequency and impact for each FEP
- Each team member will draft text describing their qualifications
- Return to Hommel via email

## ■ July 5 to July 17

- Hommel will use the team scores and the FEPs Screening Matrix to complete Phase I screening

- **July 18 and 19**
  - Team will meet to conduct Phase II Screening
  - Final disposition of each remaining FEP will be decided
- **August 3**
  - Hommel will document team justifications for any exclusions
  - Hommel will prepare the SDF FEPs Report using the final (screened in) FEPs list
- **August 3 to August 10 (deadline)**
  - FEPs Team will review Final FEPs documentation
  - Hommel will address comments
  - FEPs Team will approve/sign SDF FEPs Report

## ■ Tips for team success

- Budget your time
  - 292 FEPs × 2 screening criteria = 584 decisions to make
- Try not to get overwhelmed by the details
  - These evaluations are subjective, based upon your perceptions of the FEPs
  - Your first choice is the right one
  - If you have absolutely no idea, enter “NR” to indicate that you have no recommendation
  - If you are “on the fence” between two values, use the higher value
  - Any FEPs that are not initially screened will be discussed during the Phase II screening

- **FEPs missing from the initial FEPs list??**
  - Make a note of it, and we will assess it during Phase II
- **Phased approach designed to maximize screening team efficiency**
  - Phase I screening reduces the amount of discussion required for each FEP
  - Ideally, most FEPs will be screened in or out during Phase I
  - After Phase I all team members will be somewhat familiar with each FEP

- Thank you in advance for supporting this
- Questions?

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