EZ Reporting

Usability Summary

BUILDING A **SMARTER** ENERGY FUTURE®

UX Design Strategy 2022
Lisa Revelli – Sr. UX Designer

Who	Roles
Patty Page	Manager Transmission Organizational Effectiveness
Christy Guenther	Change Manager
Jenn Rochinski	Product Owner of Plantview MPV -> EZ Reporting
Joshua Klassberg	Sr IT Infrastructure Analyst Solutions Architect
Lead IT Applications Analyst	Jason Overcash
Shawn Mathes	IT Software Engineer
Chance Kaim	Backend Developer
Dhruvit Patel	Frontend Developer
Priya Immadi	Frontend Developer
Lisa Revelli	User Researcher, UX/UI Designer

GOALS of Plantview 2022 MVP Initiative

SIMPLIFY EVENT REPORTING

'Lightweight' version of the Plantview UI to make it easier for folks to report minor issues and process improvement ideas. Fewer fields and easy code selection.

ENCOURAGE more reporting

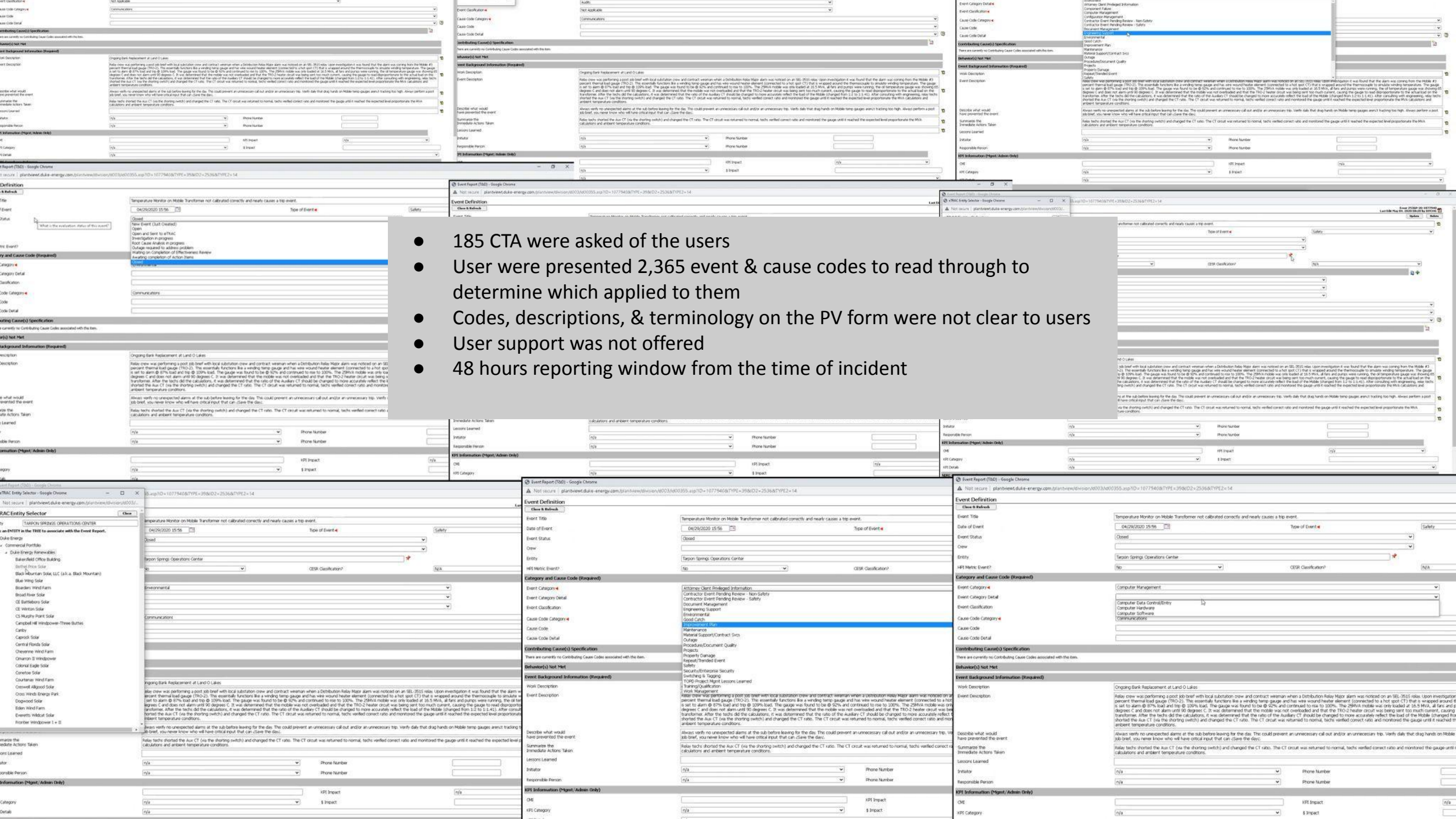
Increase Reporting in Low Level Events, specifically Level 3
Increase reporting on 'smaller stuff' that will also prove valuable.

STREAMLINE INFORMATION

- Simplifying and streamlining the form
- Automatically generates an event in PlantView () similar to the TOMS BOT process
- Solution to Speed up Reporting of low-level events (Level 3) **72+ hours → 48 hours**

SHARE LESSONS LEARNED/PREVENTATIVE MEASURES

- Share mistakes without punitive consequences
- Create supportive reporting culture



- 185 CTA were asked of the users
- User were presented 2,365 event & cause codes to read through to determine which applied to them
- Codes, descriptions, & terminology on the PV form were not clear to users
- User support was not offered
- 48 hours reporting window from the time of incident

Event Definition

Event 731P-22-1161749
Last Edit Feb 16, 2022 01:13 by LREVELL

Close & Refresh | Update | Delete

Event Title	Created: 02/16/2022 01:13		
Date of Event	02/16/2022 01:13	Type of Event	
Event Status	New Event (Just Created)		
Crew			
Entity			
HPI Metric Event?	No	CESR Classification?	N/A

Category and Cause Code (Required)

Event Category	
Event Category Detail	
Event Classification	
Cause Code Category	
Cause Code	
Cause Code Detail	

Contributing Cause(s) Specification

There are currently no Contributing Cause Codes associated with this item.

Behavior(s) Not Met

Behavior Categories	Not Specified Yet
Behaviors	

Event Background Information (Required)

Work Description			
Event Description			
Describe what would have prevented the event			
Summarize the Immediate Actions Taken			
Lessons Learned			
Initiator	n/a	Phone Number	
Responsible Person	n/a	Phone Number	

KPI Information (Mgmt/Admin Only)

CMI		KPI Impact	n/a
KPI Category	n/a	$ Impact	
KPI Details	n/a		

NERC Compliance Reference

CATSWEB Milestone Identifier

Root Cause Analysis

Analysis Type (Required)			
Executive Summary			
Root Cause Team			
Root Cause Team Lead			
Data Analyzed			
Date Initiated		Date Approved	

Add Attachments (Optional)

There are currently no Attachments associated with this item.

Related Modules (Corrective Actions)

There are currently no PlantView Items associated with this item.

Related Displays

Display Name	Description of Display	Go
Event Notification	Notify other plants about the TP-Trans Planning Carolinas Event and review their applicability discussion	

Considered Reports & Lists of Plantview Event Reporting

DUKE ENERGY

Data/Tme Data Last Updated
12/5/2021 3:09:06 AM

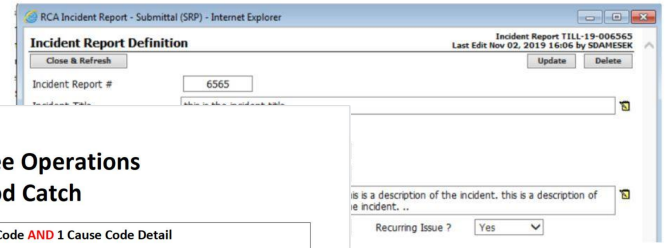
Distribution Events in Past 1 Day(s)

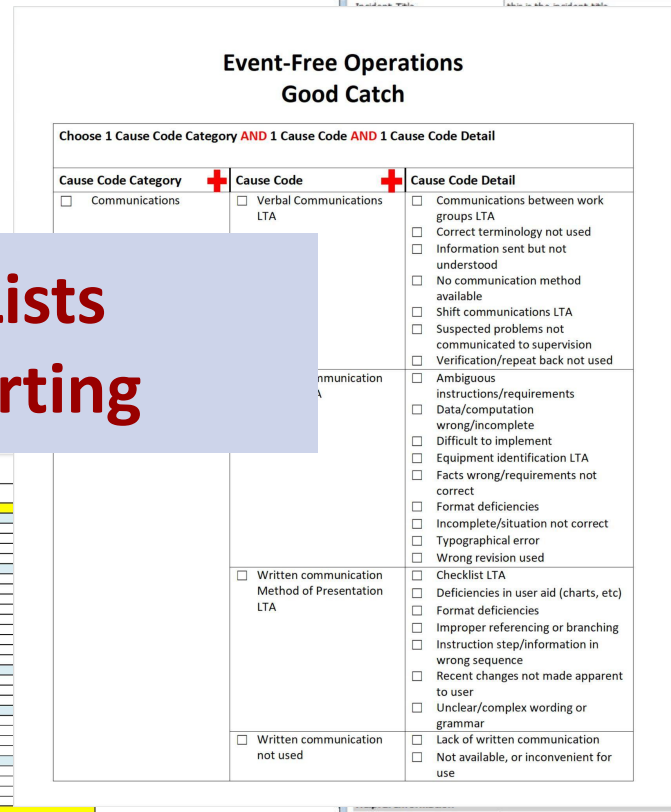
Carolinas Delivery Operations East

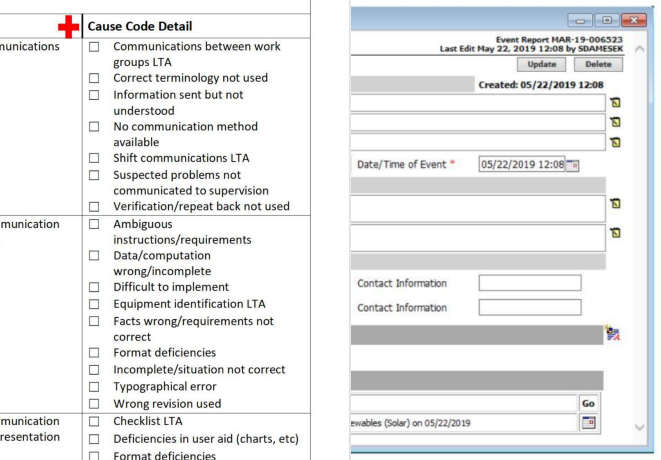
CD-CAR-E C&M Triad

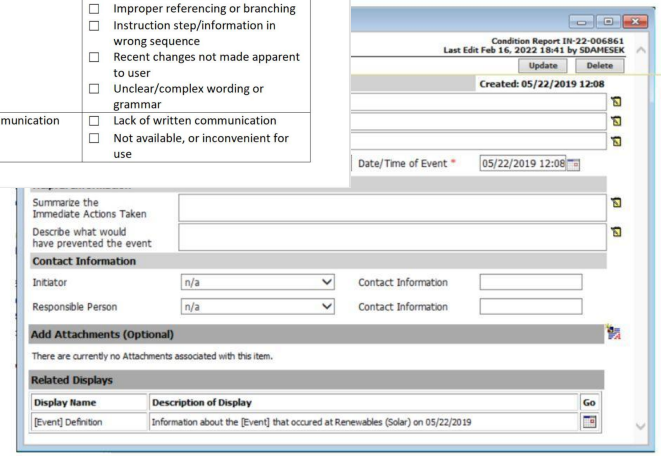
CD-High Point

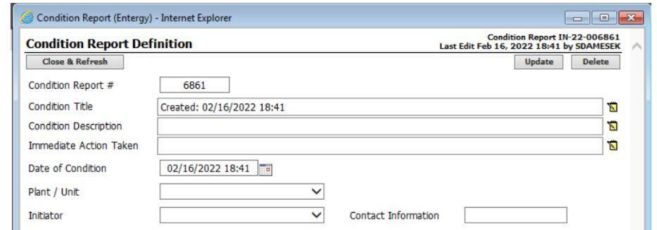
Event Report	1208900
Analysis Level	Level III
Event Title	Non-Driving/Clams only-POV contacts DE V
Date of Event	12/2/2021 1:11:00 PM
Region	CD-CAR-E C&M Triad
Plant/Ops Center	CD-High Point
Unit	CD-High Point
Type of Event	Safety
Event Status	Open and Sent to eTRAC
Event Category	Safety
Event Category Detail	Vehicle-PV hits Company vehicle
Event Classification	Vehicle / Powered Equipment
Near Miss Source Code	
Entity	High Point Operations Center
Cause Code Category	Open
Cause Code	Open
Cause Detail	Open
Work Description	Duke Energy Line Truck parked inside work zone
Event Description	Non-driving/claims only-POV contacts DE vehicle; On 12-02-21 a DE crew was working at the Intersection of Randolph St. and Liberty Drive in Thomasville, NC. Crew had a work zone set up by a SPA contract flagging crew. POV entered the self regulated lane shift and made an improper turn contacting the properly parked Line truck that was not being used at the time. No crew members were endanger of being struck by the POV and no injuries were reported as a result of the contact. Minor damage was sustained to the line truck with front end damage to the POV. Management and local PD were contacted.
Immediate Action Taken	Management and Local PD notified
Describe what would have prevented the event	Flagging crew needed to be monitoring the self regulated lane shift to aid in assistance with traffic flow and provide warning to crew if needed.
CMI	N/A

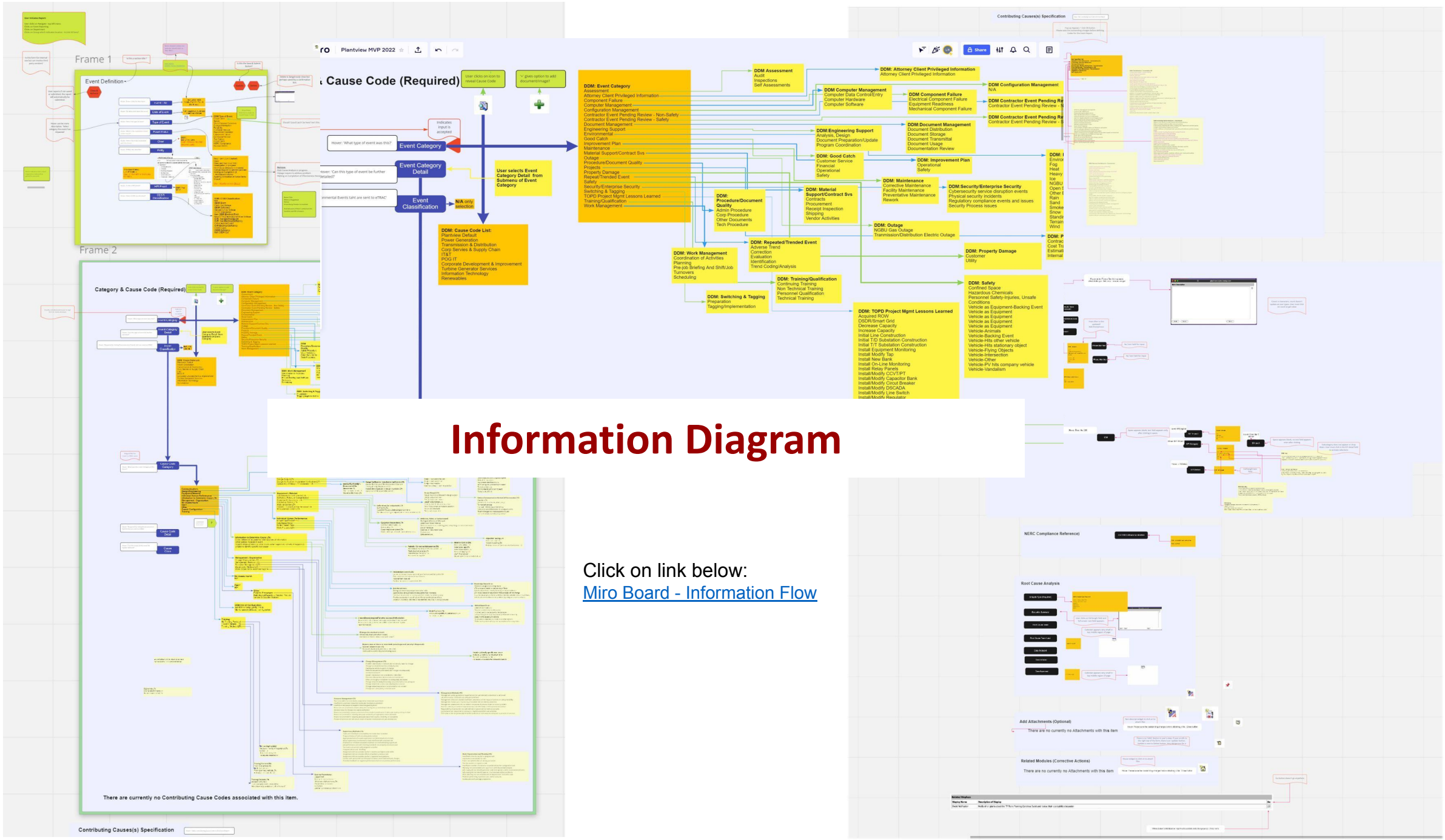












Information Diagram

Click on link below:
[Miro Board - Information Flow]

Test Users

Test Users	Role	Notes:		
Erik B. Sears	Sr. Project Manager	Manager of PMs, MidWest (Ohio, Kentucky)		
Andy Bradley	Supervisor Transmission Relay C&M	Construction Management		
Terry Pendergraft	Supervisor Transmission Relay C&M	Construction Management		
Kate Anderson	System Ops, Engineer II in Transmissions, periodic field inspections	Have Not used PV, Run the Grid, Health		

Review or record personal flow of event reporting in Plantview, ideas you may have had after that initial session, and what you think is relevant or not relevant to you. The Problems, Interviews

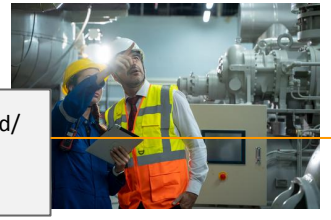
The Problem - User is tasked with reporting & categorizing

End Users Perspective

> "The end-user (technician, supervisor) finds the online Event Reporting Form difficult and frustrating to use and therefore do not complete or don't attempt it at all."

- Problem 1 - **User's apprehension**
  - Fear of reprimand or intense interrogation
  - Unnecessary Escalation
  - Who will it go to?
  - High Need of Validation from colleagues/supervisor
  - Does this field apply to my event?
  - What does the code mean?
  - Not sure how to use the form
  - Not clear of form verbiage - Are the Headings clear? Are the index terms (keywords, tags, subject headings) clear?

- Problem 2 – **Form Interaction**
  - Event Reporting Navigation doesn't follow a simple task flow.
  - Event and Cause Codes are not easily accessible to them through the form.
  - Too many drop-downs and cascading menus
  - Some fields do not work
  - Possible mismatch of User Flow and Form Layout - Define the gap



Boots on the Ground/ On the Field, Site Inspector

Notifies Supervisor

Stakeholders

Supervisors, Project Managers

DE Related Groups

Technicians

Sr. Managers, Director

3rd Party Vendors

Consensus on Preliminary Report

Sr. Managers, Director

Submits to DE Level 3 Events Library/Repository

Proposed:

Input from on-field technicians

Administrator also inputs, Tech & Supervisor

Plantview Input

Plantview Input

AM Reviewers

Transmission Reports

Plantview Event Reports Repository

Sr. Managers

Data Analysts

C-Level

Currently everyone can input in PV (i.e. Boots,Field)

Review Process & Establish IT for all employee levels

Dependent on Level of Event -Equipment Faulty, safety & reliability risk

Involving a group outside group - then report will be in cue, paused.

Mislabeling

Crew is not applicable because are all internal

Training should be at initial appointment of managerial position. Currently, its when the event happens, learn-as-you-go

Training in the verbiage. Standard language for event reporting for the managers to learn so the system to categorize the event - less human error.

End Users Perspective - Interviews

Interviewee: Erik B. Sears Feb. 9, 2022
Sr. Project Manager, Manager of PM, MidWest (Ohio, Kenucky)

- Would like Budget Overrun choice for Event type (Financial)
- More specific terms for choices, kind of vague
- Commented that “What would you have done to prevent”.. How can we think about that when we don’t even understand what happened
- Seem to not want the task of coding to fall on him
- Suggested field techs can submit Plantview reports on a mobile app

Interviewee: Andy Bradley Feb. 14, 2022
Supervisor Transmission Relay C&M, Construction Management

- Prioritized Narrative - written first to be clear of the event - who, what, how, why did the event happen, is it a good catch, start to finish.
- Unlimited Text field - average input is ½ page, limitation of word counts a hindrance, offers PV 1,000-1,500, user needs to paint the picture needs 2500 depending on severity (3000 **characters** or 500 phrase)
- Ability to post pictures, more efficient to understand the event
- Need a location field
- Take the analysis level or code out of initial submission
- In agreement with report status cue
- **Event Status:** Open to Etrac, Investigation in Progress, RCA,

Interviewee: Terry Pendergrass Feb. 15, 2022
Supervisor Transmission Relay C&M, Construction Management

- Internal involvement so Crew field not needed
- Event details can list after typing in first 3 letters
- Uploading photos would help
- Terry goes first to event type then down to event category

Interviewee: Kate Anderson Feb. 15, 2022
Engineer II of Preventions & Control
Kalu Bhatarai - Manager

Kate does Transmission Substation field inspections periodically. She takes pictures and notes. She hasn’t had a reason to do an event reporting yet.

For inspections, photographs are key and clearer to identify equipment.

End Users Perspective - Interviews

Feedback from Peter Thomopoulos - Feb. 18, 2022
Sr. Project Manager

- Eliminating the need to refine cause codes; as most of the ones there appear to be applicable to a L1 or L2 event, not driven from a BCA or RCA for that event level

- HP Behaviors - Not Met, Good Catches also do not need causal fields.

- Have the event reporting process updated to reflect managements expectations for events outside of L1, 2, or 3:
  - Transmission expectats to get reports in sooner than 48 hours.
  - Good catches or Near Misses to be entered sooner than 48 hours. They do not qualify as an event.

- Required sign off on events **before** entry into PlantView **seems to cause delays and added work before entry**. We can always modify events after the fact. It would be nice to change the internal Transmission process (not required per the TRM CAP procedure) to allow us to enter events with the current facts known; and update the PV event later (if / when warranted). Pre-screening event / good catch entries causes delays on my end in meeting the timeliness requirements for L3 events. **Referring to the back & forth of preliminary drafting.**

  Transmission Corrective Action and Lesson Learned Program
  5.1.5 The Event Initiator should only enter what is known at the time of entry; some data fields, if not a required field in the CAP tool, may be left blank. The event can be updated with additional or revised information at a later time as it becomes available.

  5.1.6 The Event Initiator notifies the manager/supervisor the event report has been initiated. The immediate manager or supervisor should then evaluates the event entry to ensure the entry is based on the impact to the business unit or Enterprise. They may request additional information if deemed necessary.

  5.1.7 Some Safety and Environmental events are required to be reported to regulatory agencies within 24 hours. Contact your EHS Specialist or refer to the EHS Event Reporting and Investigation Program (ADMP-EHS-EHS-00004). All other events should be reported within 48 hours from the date of discovery.

PLANTVIEW
Event Reporting

Design
Requirements

UX Design Strategy 2022
Lisa Revelli – Sr. UX Designer

Event Reporting Process

SITUATIONAL ANALYSIS

WORK (Task) DESCRIPTION

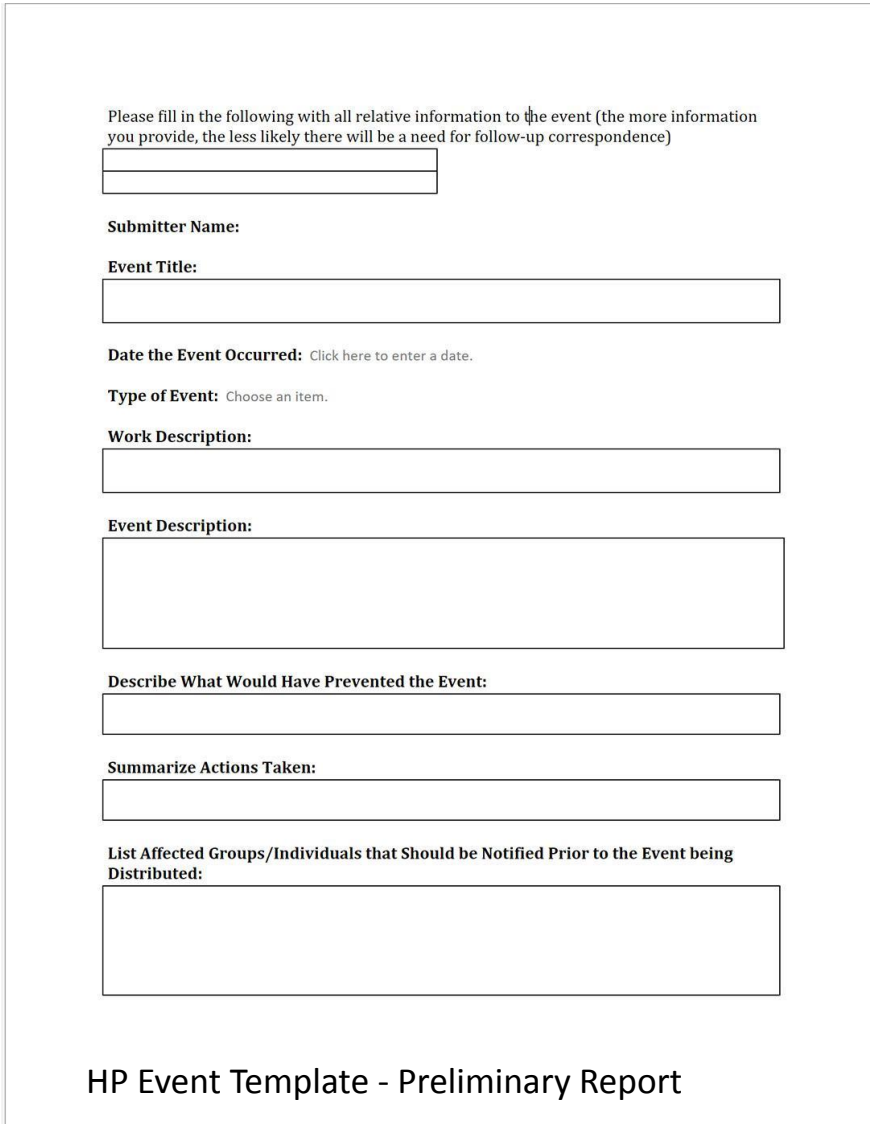
EVENT DESCRIPTION

PROBABLY CAUSE

Factors leading up to event, ‘All-stop’ whether if its an emergency (ask someone from CMV- constur. maintain.veg.)

SHARE LESSONS LEARNED/PREVENTATIVE MEASURES

- Share mistakes without punitive consequences
- Create supportive reporting culture



Please fill in the following with all relative information to the event (the more information you provide, the less likely there will be a need for follow-up correspondence)

Submitter Name:

Event Title:

Date the Event Occurred: Click here to enter a date.

Type of Event: Choose an item.

Work Description:

Event Description:

Describe What Would Have Prevented the Event:

Summarize Actions Taken:

List Affected Groups/Individuals that Should be Notified Prior to the Event being Distributed:

HP Event Template - Preliminary Report

Data points and their code assignments

Make a matrix with the remaining PHRASE codes to determine type (skills, time, external) and see how those are coded or what codes relate to the major or sub impacts.

Employee Impacted		Service Impacted		Department Impacted		Equipment Impacted		External Impacted	
Skills	Code		Code		Code		Code		Code
Sickness	Code		Code		Code		Code		Code
Time	Code		Code		Code		Code		Code
	Code		Code		Code		Code		Code
	Code		Code		Code		Code		Code

CauseCodeDefined

What would not apply to Level 3

- KPI, Root Cause Analysis, CATSWEB, Near Miss Source Code fields, CMI
- Attachments – should not be for Level 1 & 2, or VCA or investigations, less than 5% for additional information besided investigation.
- Majority of users have not attached documents.
- Kim Uses Attachments – information from contractors, photos, docs or ppt. RRE has attachments.

PlantView Input Form - Input Categories Defined

Color coded indicating these are Hidden from User - NOT on Form

Transmission Report	Proposed	Definition
Event Title	Event Title	Drawn from Registered Group
Analysis Level	Analysis Level	Categorizes into Levels 1-3, Good Catch, Near Miss
Region	Derived from PV when user drills down to specific folder to add ER	User's Station
Plant/Ops Center	Derived from PV when user drills down to specific folder to add ER	User's Station
Unit	Derived from PV when user drills down to specific folder before adding Event Report	User's Station
Date of Event	Date of Event	Time
Event Report ID & Entity	Plant Location	Seems like it should encompass to user's region, plant/ops cntr, unit
Event Category		
Event Status		Initiated, In cue or reviewing, Submitted
Event Category Detail	Event Category Detail	
Event Description	Event Description	
Type of Event	Type of Event	
Event Classification		
Immediate Action Taken	Immediate Action Taken	
Work Description	Work Description	
Cause Code Category		
Cause Code		
Cause Detail	Cause Detail	

PLANTVIEW
Event Reporting

Proposed Solutions

BUILDING A **SMARTER** ENERGY FUTURE®

UX Design Strategy 2022
Lisa Revelli – Sr. UX Designer

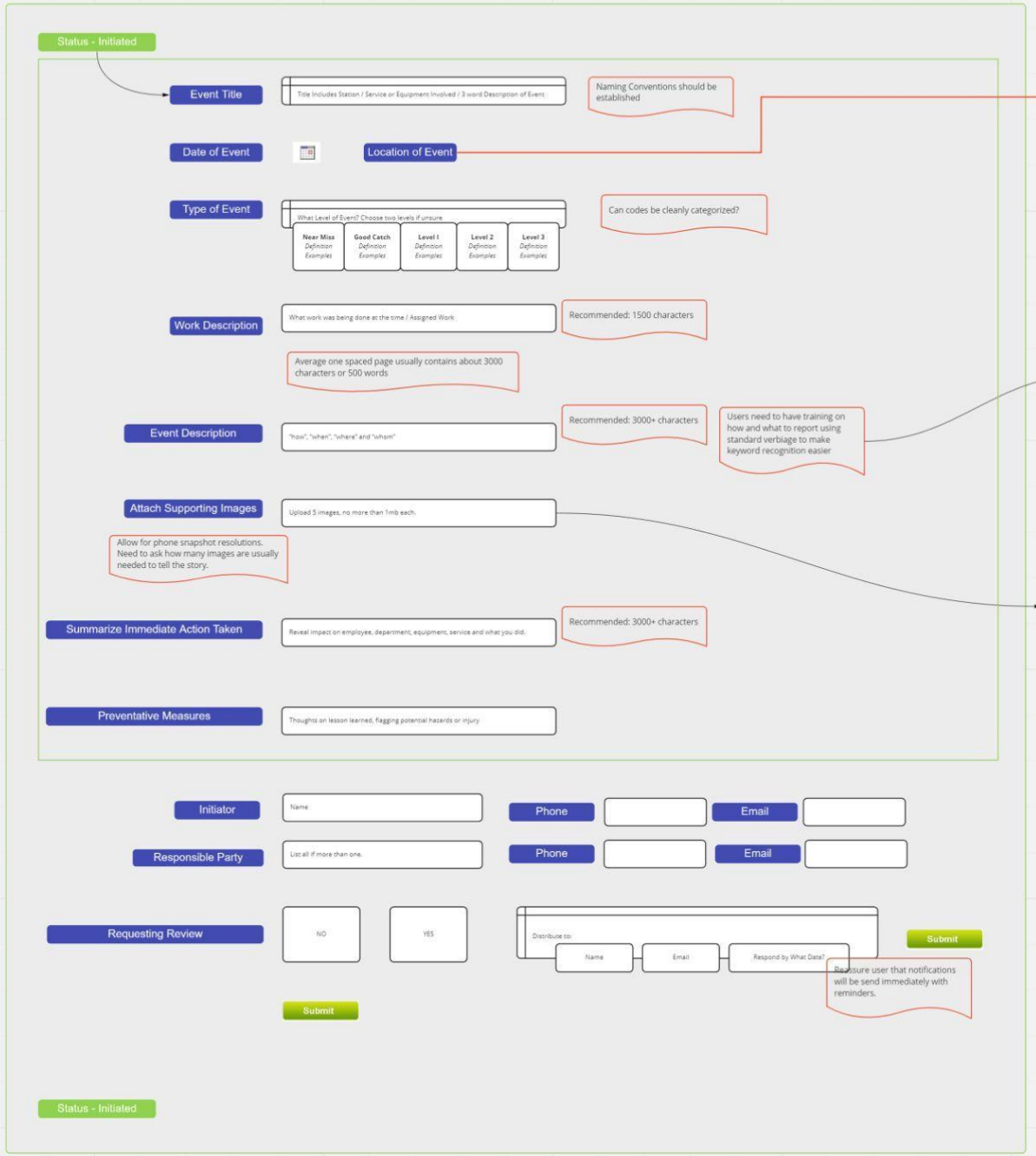
Proposed - **Incremented reporting to contain and track reporting process within a system**

https://miro.com/app/board/uXjVONfy6as=/

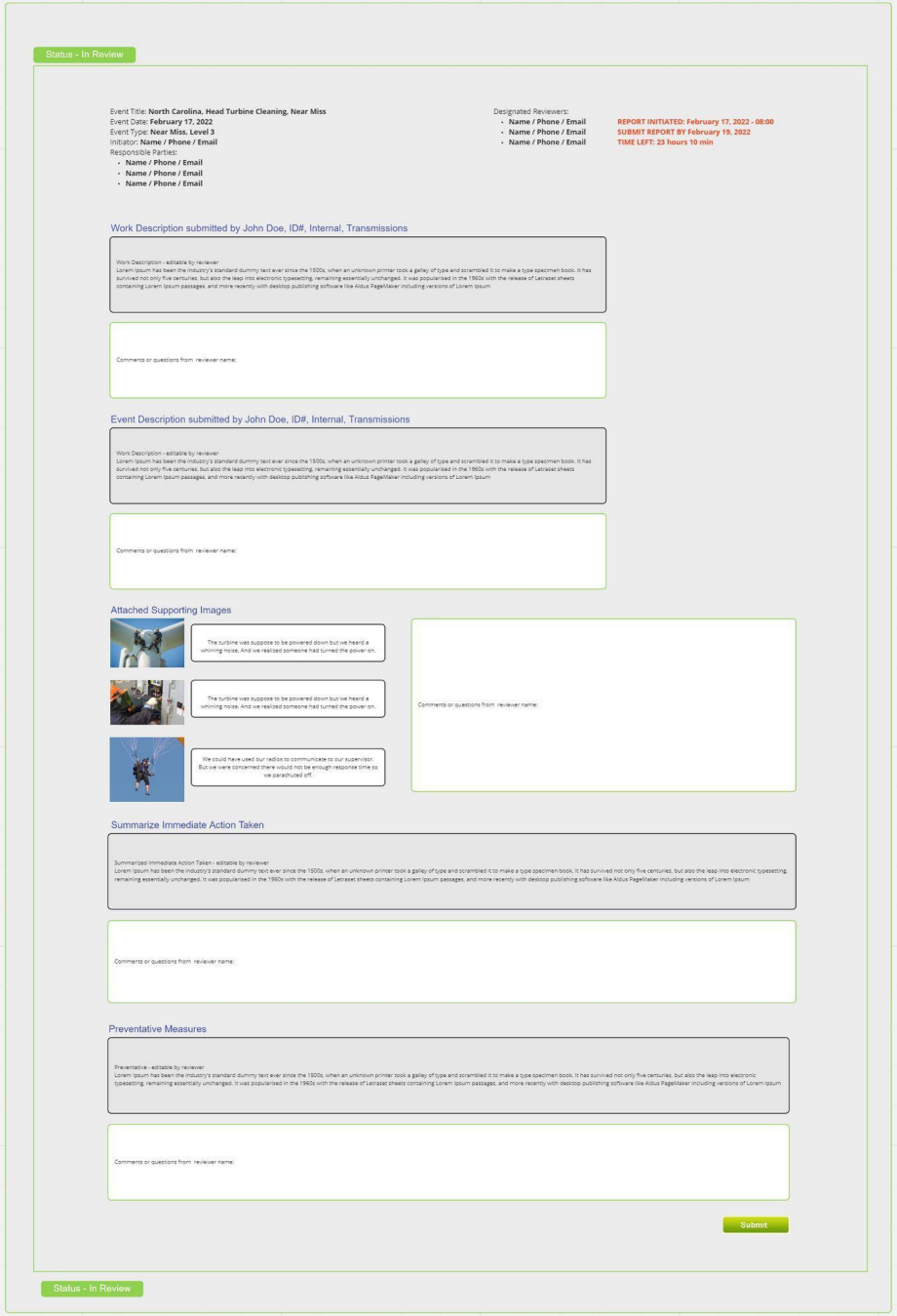
Proposed Incremental Reporting

Step 1
For Boots on the Ground, Technician to report Level 3 events

Step 1 - Initiating the Report with Narratives & Photos



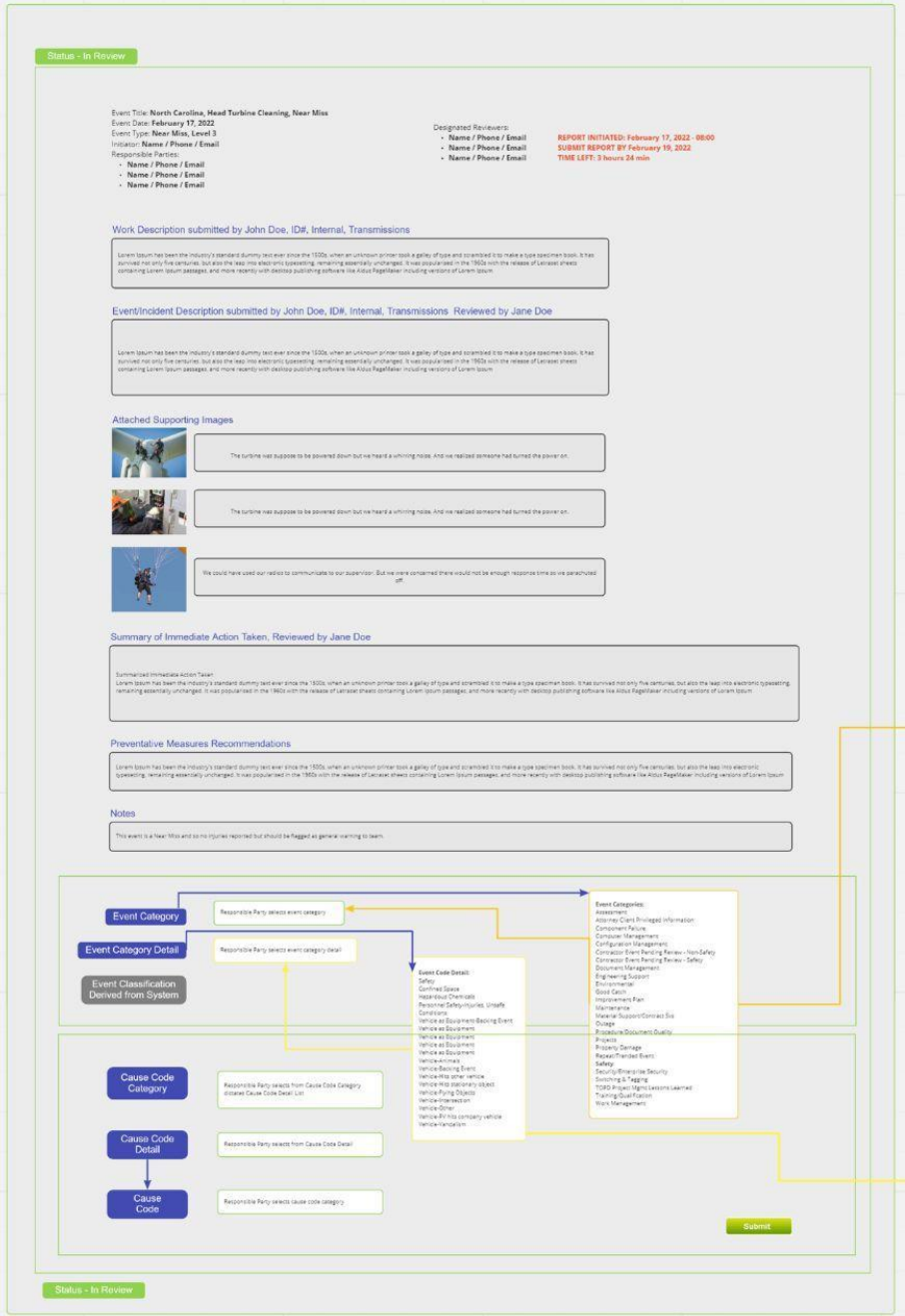
Step 2
Verification, Validation, with reporting techs, Supervisors, Project Managers , Third Party



Step 2 - In Review
Verification, Validation with Initiator, Responsible Parties, Supervisors, Project Managers

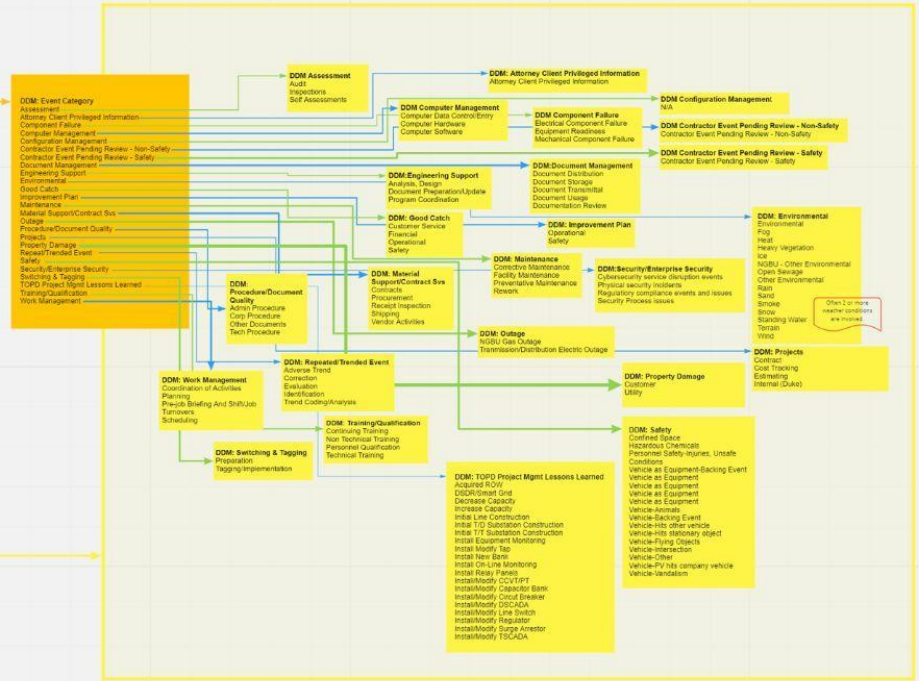
Step 3
Confirmation, Code of Events and Causes by Supervisor or Coding Specialist

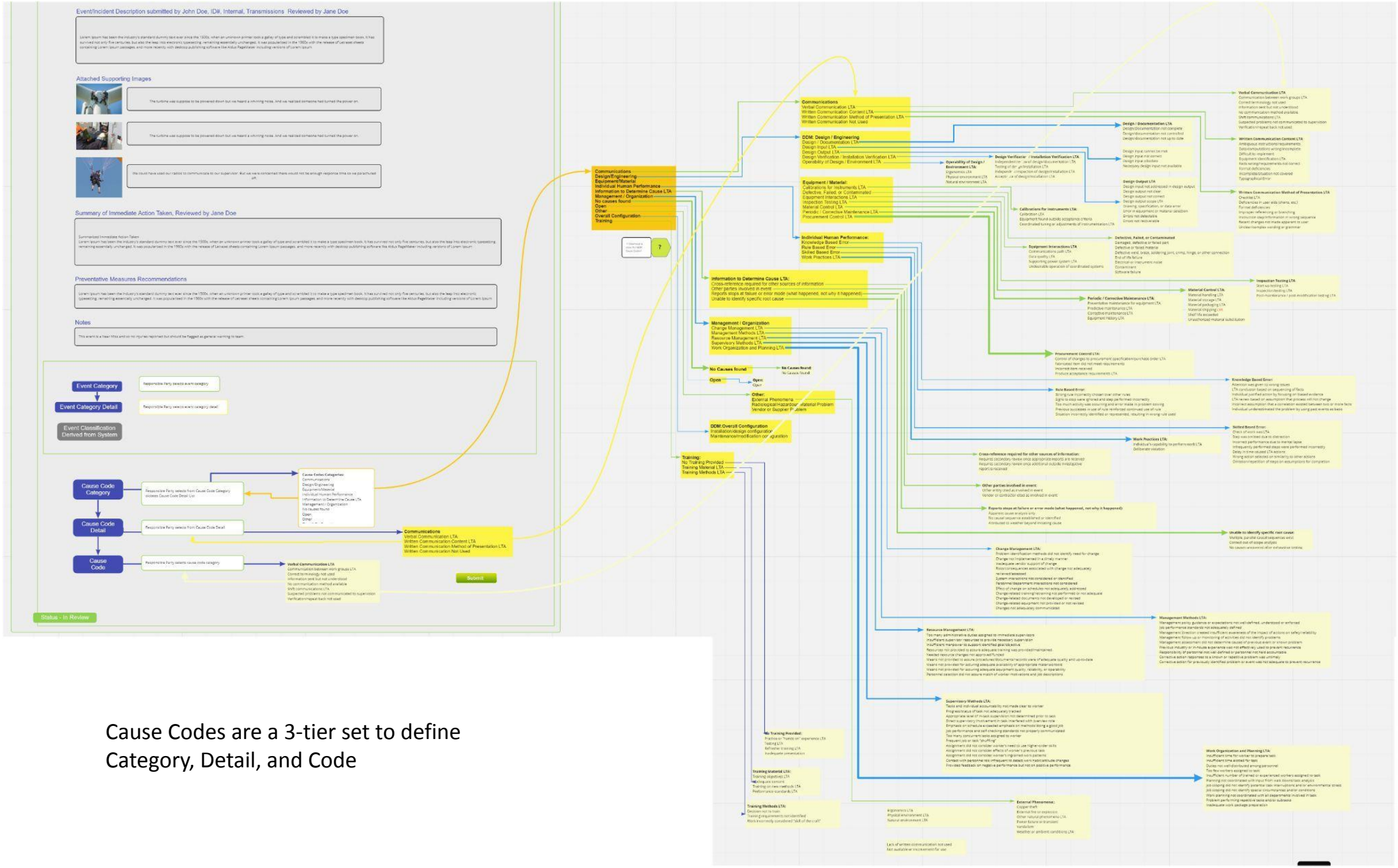
Report Submitted



Step 3 - Coding Events and Cause:

Event Category -> Event Category Detail Information Flow





Cause Codes are a 3-tier set to define Category, Detail, and Code

Accepted Solution:
A single form that enters data directly to Plantview for level 3 events. Not to include approval for supervisors. An option for location or station ID for user to input outside of Plantview.

Wireframe in Process

Glassberg, Joshua Roth Yesterday 9:05 AM

Does this look accurate?

Field	Type
Analysis Level	Ask User
Cause Detail	Ask User
Date of Event	Ask User
Describe what would have prevented the event	Ask User
Event Category Detail	Ask User
Event Description	Ask User
Event Title	Ask User
Immediate Action Taken	Ask User
Type of Event	Ask User
Work Description	Ask User
Event Status	STATIC - Always "Closed"
Unit	STATIC - Always "Transmission"
Cause Code	Tied to Cause Detail
Cause Code Category	Tied to Cause Detail
Event Category	Tied to Event Category Detail
Event Category Detail	Tied to Event Category Detail
Plant/Ops Center	?? Ask User
Region	?? Ask User

The Problem – Fear of Reprimand, Getting someone in Trouble, Intense Interrogation

End Users Perspective

- Offer anonymity

DE wants a safer place for everyone. Your reporting is important to everyone. We ensure you a safe place to land while reporting. Report fairly and objectively. Give details as much as possible.

☐ I have read and understood.

☐ Anonymous – your name or names in report de-identified.

SUBMIT

"no one wants to be put in there"
- or name referenced

Administration Perspective

- User is less apprehensive of reprimand, blame, and can focus on true reporting.
- Non-authoritative person can contact end user if necessary

Information Flow Feature

- Names can be inputted but 'anonymous' feature will de-identify names
- Backend will keep a history version if investigation calls for it

The Problem - Does this field apply to my event? Unnecessary Escalation

End Users Perspective

- Enable with Knowledge, Present what is Relevant
  - Define for user what is Level 1, Level 2, Level 3, Good Catch, Near Miss
  - Give top 5-10 incidents in each level.
  - Let the user decide

Slider highlights sections of level bar to reveal definitions and examples.

SUBMIT

Administration Perspective

- Autonomizing categorizing event: The system flags the possible category the event may be categorized in. This would objectively avoid misjudgements and indecisiveness if the submitted report should be escalated or not.

Information Flow Feature

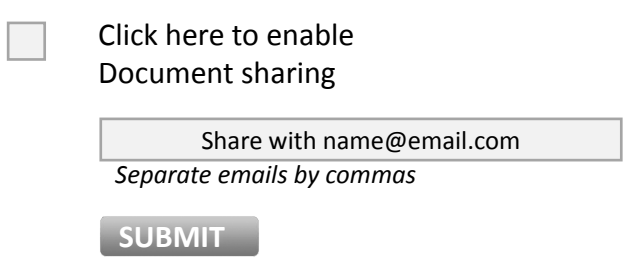
- Automation: Categorizes event for the user, then presents a relevant form for them to report.

The Problem – High Need of Validation from colleagues/supervisor. Events involve more than one individual or group

End Users Perspective

- Gathering information between individual(s) or management groups
- Document Sharing to collaborate on report
- Have a working cue with a Status - Open/In Review/Submitted

Events happen among individuals and among groups. For any investigation, the details of events provided by witnesses are a critical element of the evidence gathered. If your event reporting involves other groups, Plant View offers a collaborative recall/witnessing platform.



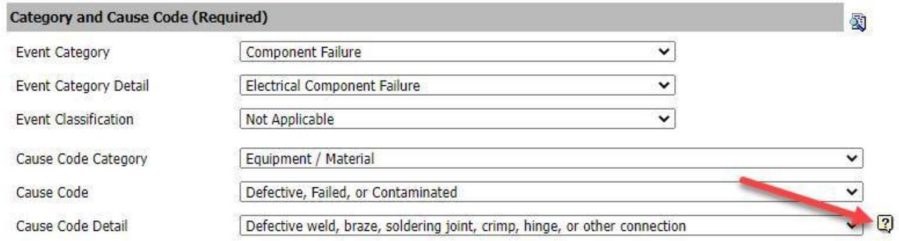
Erik Sears: Event reportings involve other groups reading their entries - Work Managers, Stakeholders, Construction management, public engagement.

Contacts will receive notification with due date of participation. Permissions of Editing or View only can be set.

Each status stage must be initiated by supervisor.

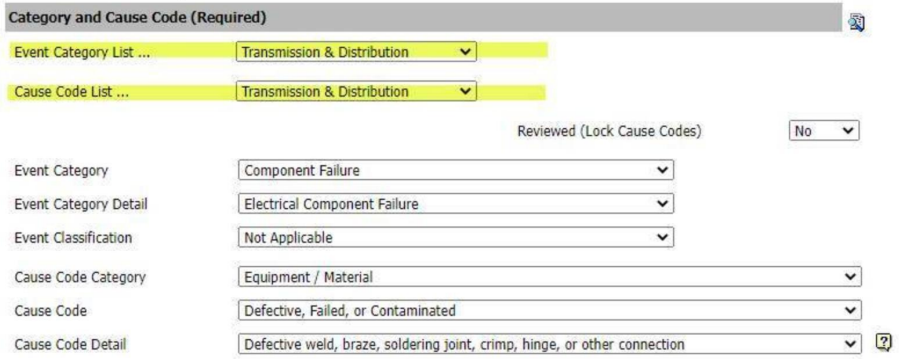
Possible Solutions

1. Since users are not familiar with the Event and Cause Codes
    a. Add a Quick Reference sheet that is accessible similar to the one for Cause Codes and provide training to make users aware



    b. Potentially add questions that would guide users to the correct codes and it would automatically populate based on choices
    c. Can the amount of codes be reduced but still be effective for driving Human Performance and Operational Excellence?

2. The Event Reporting form is NOT the same for all of DE. We all use the same database and tables but the forms and dropdown selections are different based on group. The Category and Cause Code section is for Transmission & Distribution but some of the other fields on the form are different based on which form is being populated. These selections can be split if needed since there are two different forms with different IDs.

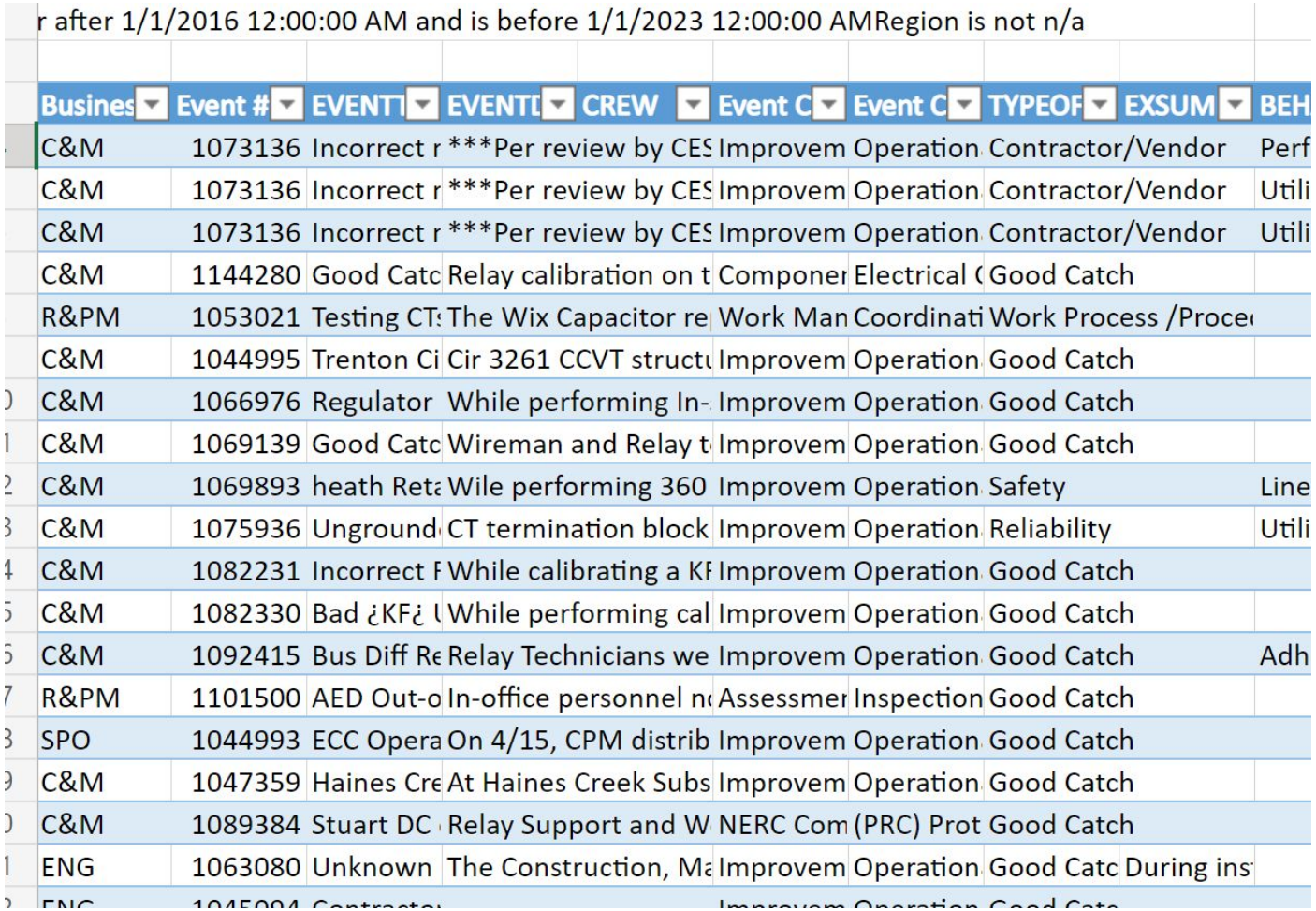


Need Clarification:

These selections can be split if needed since there are two different forms with different IDs. Do you mean the Event and Cause Codes?

Research Source – Data Capture of Plantview Inputs (6 years)

Raw Data Analyze



r after 1/1/2016 12:00:00 AM and is before 1/1/2023 12:00:00 AMRegion is not n/a

Busines	Event #	EVENTI	EVENTI	CREW	Event C	Event C	TYPEOF	EXSUM	BEH
C&M	1073136	Incorrect r	***Per review by CES		Improvem	Operation	Contractor/Vendor		Perf
C&M	1073136	Incorrect r	***Per review by CES		Improvem	Operation	Contractor/Vendor		Utili
C&M	1073136	Incorrect r	***Per review by CES		Improvem	Operation	Contractor/Vendor		Utili
C&M	1144280	Good Catc	Relay calibration on t		Componer	Electrical (	Good Catch		
R&PM	1053021	Testing CT:	The Wix Capacitor re		Work Man	Coordinati	Work Process /Proce		
C&M	1044995	Trenton Ci	Cir 3261 CCVT structu		Improvem	Operation	Good Catch		
C&M	1066976	Regulator	While performing In-		Improvem	Operation	Good Catch		
C&M	1069139	Good Catc	Wireman and Relay t		Improvem	Operation	Good Catch		
C&M	1069893	heath Reta	Wile performing 360		Improvem	Operation	Safety		Line
C&M	1075936	Unground	CT termination block		Improvem	Operation	Reliability		Utili
C&M	1082231	Incorrect F	While calibrating a KF		Improvem	Operation	Good Catch		
C&M	1082330	Bad ¿KF¿ l	While performing cal		Improvem	Operation	Good Catch		
C&M	1092415	Bus Diff Re	Relay Technicians we		Improvem	Operation	Good Catch		Adh
R&PM	1101500	AED Out-o	In-office personnel n		Assessmer	Inspection	Good Catch		
SPO	1044993	ECC Opera	On 4/15, CPM distrib		Improvem	Operation	Good Catch		
C&M	1047359	Haines Cre	At Haines Creek Subs		Improvem	Operation	Good Catch		
C&M	1089384	Stuart DC	Relay Support and W		NERC Com	(PRC) Prot	Good Catch		
ENG	1063080	Unknown	The Construction, Ma		Improvem	Operation	Good Catc	During ins	

Development Milestones:

Milestones		Milestones	Notes
Users Identified for Design Sessions			Erik B. Sears – Sr. Project Manager Andy Bradley – Supervisor Transmission Relay C&M Terry Pendergraft – Supervisor Transmission Relay C&M Kate Anderson – Systems Ops
Cause Code List		2.14.2022	Patty Page 80> codes
User Feedback on Codes		2.14.2022	Erik Sears - Sr. Manager
Comprehensive User Research Report		2.18.2022	Lisa Revell Information user flow
API Spec		2.22.2022	Preliminary Wires - Lisa
AWS Integration Wireframes Designed, skin concepts,		02.24.2022	AWS sandbox approval, integration
App Screens in Development		03.01.2022	2.17 Drew 1-2 day
Testing		03.14.2022	Date for Testers, Approved Design Handed off to Developers
Assessments		03.16.2022	
User Testing Assessments/Design Iterations		03.21.2022	
Deployment		03.31.2022	

Top Contributors

Most | Least

VALUE	FREQUENCY
Amanda.Breland@d...	5
Patty.Page@duke-e...	5
Sean.Bill@duke-en...	5
Randy.Veltri@duke-...	3
Keith.Gifford@duke...	3

Newsletter Accolade of top Event Level III reporters.

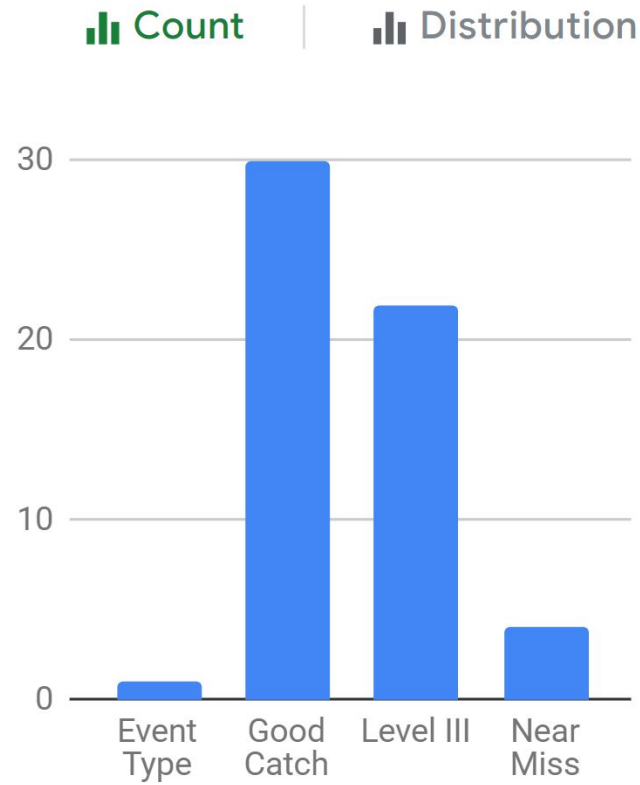
Snapshots - The TOP FIVE (April - June 17)

Top Plant Names

Most | Least

VALUE	FREQUENCY
Project Mgmt Car E...	8
Asset Protection M...	4
Contractor Veg Mg...	2
MW P&C Plainfield	2
Project Mgmt Florida	2

Event Types



Snapshots - The TOP FIVE (April - June 17)

Cause Codes

Most | Least

VALUE	FREQUENCY
Design Output LTA	10
Written Communica…	9
Skill Based Error	7
Defective, Failed, or…	6
Report stops at fail…	3

Cause Codes Category

Most | Least

VALUE	FREQUENCY
Design / Engineering	13
Equipment / Material	13
Individual Human P…	11
Communications	10
Information to Dete…	4

Snapshots - The TOP FIVE (April - June 17)

Event Category

Most | Least

VALUE	FREQUENCY
Engineering Support	13
Substation Mainten…	9
Improvement Plan	7
Procedure/Docume…	6
Material Support/C…	4

Event Category Detail

Most | Least

VALUE	FREQUENCY
Safety	7
Line Engineering	5
Substation Enginee…	5
Preventative Maint…	4
Admin Procedure	4

Event Classification

Most | Least

VALUE	FREQUENCY
Not Applicable	22
Materials	4
Electrical Compone…	4
Design Error	3
Duke Utility	3

Snapshots - The TOP FIVE (April - June 17)

PLANTVIEW
Event Reporting

EZ Reporting Form 2022

https://ezreport-sbx.duke-energy.app/

DUKE ENERGY®

BUILDING A SMARTER ENERGY FUTURE®

UX Design Strategy 2022
Lisa Revelli – Sr. UX Designer