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1. Applicability

- Gathering
- Processing
- Regulated Onshore Pipelines

2. Scope

This document defines the requirements and provisions of the Denbury Integrity Management Program.

3. Core Information and Requirements

3.1. Introduction

In accordance with Title 49 Code of Federal Regulations Part 195.452 (49 CFR 195.452), Denbury has developed an Integrity Management Program (IMP) to address the integrity management of its carbon dioxide pipelines and pipeline facilities.

This IMP manual addresses pipeline systems referenced in [IMP0100A - Appendix A - Jurisdictional Pipelines and Facilities](#), which have been evaluated and portions of which have been determined to meet the requirements of 49 CFR 195.452(a).

Denbury Onshore, LLC, Denbury Green Pipeline-Texas, LLC, Denbury Gulf Coast Pipelines, LLC and Greencore Pipeline Company, LLC are referred to collectively throughout this manual as "Denbury". Denbury Onshore, LLC is referred to individually throughout this manual as "Denbury Onshore". Denbury Green Pipeline-Texas, LLC is referred to individually throughout this manual as "DGPT". Denbury Gulf Coast Pipelines, LLC is referred to individually throughout this manual as "Denbury Gulf Coast". Greencore Pipeline Company, LLC is referred to individually throughout this manual as "Greencore". DGPT, Denbury Gulf Coast and Greencore have contracted with Denbury Onshore for the use of Denbury Onshore's services and employees on DGPT projects, Denbury Gulf Coast projects, and Greencore projects, respectively, through an operating and administrative services agreement. Therefore, during the performance of such work on DGPT

projects, Denbury Onshore will be a contractor of DGPT, and during the performance of such work on Denbury Gulf Coast projects, Denbury Onshore will be a contractor of Denbury Gulf Coast and during the performance of such work on Greencore projects, Denbury Onshore will be a contractor of Greencore. DGPT, Denbury Gulf Coast, and Greencore have approved Denbury Onshore's manuals and programs as complying with DGPT, Denbury Gulf Coast, and Greencore requirements and policies as well as federal and state laws and regulations. Employees listed in this IMP manual are employees of Denbury Onshore unless otherwise noted.

3.2. Integrity Management Program Overview

In accordance with 49 CFR 195.452, Denbury maintains this written IMP to provide a systematic and repeatable process for managing pipeline integrity. As required by 49 CFR 195.452 (f), the following elements are included in this IMP Manual:

- A process for identifying which pipeline segments could impact a High Consequence Area (HCA) (Section [3.5 - Identifying Segments with Potential HCA Impact](#))
- A Risk Analysis that integrates available pipeline integrity information and evaluates the likelihood and consequence of a failure at "Could Affect" pipelines (Section [3.6 - Risk Assessment Process](#))
- Development and implementation of a baseline assessment plan (Section [3.7 - Baseline and Continual Integrity Assessment Plan](#))
- A continual process of assessment and evaluation to maintain a pipeline's integrity (Section [3.7 - Baseline and Continual Integrity Assessment Plan](#))
- Criteria for repair actions to address integrity issues identified by the baseline assessment, subsequent assessments, and information analysis (Section [3.8 - Pipeline Repair Strategy](#))
- Identification and implementation of preventive and mitigation measures to protect the integrity of HCAs (Section [3.9 - Process for Identification of Preventive and Mitigative Measures](#))
- Methods to measure the program's effectiveness (Section [3.11 - Program Evaluation Measures](#))
- A process for review of integrity assessment results and information analysis by a person qualified to evaluate the results and information (Section [3.12 - Qualification of Personnel Reviewing Integrity Assessment Results](#))

Denbury has also incorporated elements, procedures, and guidance found in API Standard 1160, *Managing System Integrity for Hazardous Liquid Pipelines*. API Standard 1160 identifies the following additional elements, which are included in this IMP:

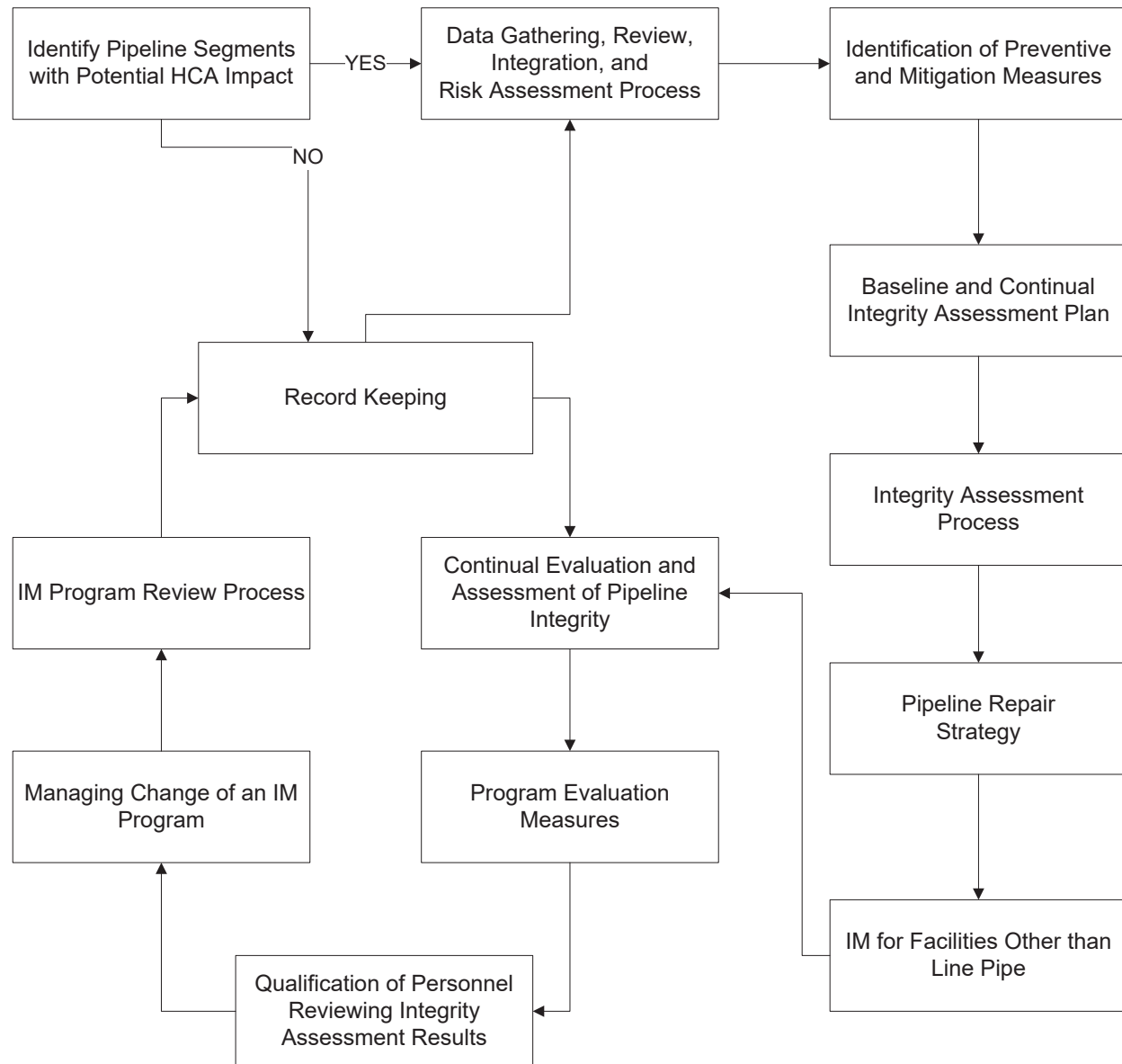
- Integrity management procedures for facilities other than line pipe (Section [3.10 - Integrity Management for Facilities Other than Line Pipe](#))
- Process for managing change (Section [3.13 - Managing Change in an Integrity Program](#))
- Process for reviewing the IMP (Section [3.14 - Integrity Management Program Review Process](#))
- Documentation of elements, procedures, and results of the IMP (Section [3.15 - Record Keeping Procedure](#))

In addition to this IMP, Denbury has developed a number of procedure manuals for inspection, operation and maintenance, and safe operation of its pipelines, which are collectively referred to throughout this document as the Denbury System of Manuals.

This IMP Manual is a living document that changes as the program is revised and improved. Revisions to the IMP are documented in [IMP0100B - Appendix B - Revision Log](#). A flow diagram of the Integrity Management Process is presented in Figure 1 - Integrity Management Program Framework (below).

Figure 1 - Integrity Management Program Framework

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3.3. IMP Roles and Responsibilities

General responsibilities for the IMP Program are described as follows.

Specific responsibilities for each aspect of developing, maintaining, and implementing the IMP are provided, by process/procedure, in [Attachment A – Responsibilities Matrix](#).

A Denbury personnel organization chart is provided in [IMP0100C - Appendix C - Denbury Organization Chart](#).

3.3.1. Integrity Management Engineering Technician

The Integrity Management Engineering Technician has overall responsibility for the development, maintenance, and implementation of the IMP. The Integrity Management Engineering Technician assigns specific integrity tasks to other Denbury personnel and oversees third parties supporting the Denbury IMP.

3.3.2. Pipeline Regulatory Specialist

The Pipeline Regulatory Specialist supports the Integrity Management Engineering Technician with implementation of the IMP and decision-making for IMP processes.

3.3.3. Pipeline Foreman

The Pipeline Foreman supports the Integrity Management Engineering Technician with implementation of the IMP and oversees district pipeline personnel who provide input on validation and decision-making for IMP processes.

3.3.4. Corrosion Foreman

The Corrosion Foreman supports the Integrity Management Engineering Technician with implementation of the IMP and oversees district pipeline personnel who provide input on validation and decision-making for IMP processes. The Corrosion Foreman also has responsibility for conducting integrity assessments and remediation.

3.3.5. Sr. GIS Specialist

The Sr. GIS Specialist supports the IMP with planning and oversight of data management, information systems development, GIS project support, and data gathering and information management of IMP processes.

3.4. Terms, Definitions, and Acronyms

Term	Definition
Anomaly	A possible deviation from sound pipe material or weld. Indication may be generated by non-destructive inspection, such as in-line inspection. Definition based on NACE Technical Committee Report, <i>In-Line Nondestructive Inspection of Pipelines</i> , already published. Also see: defect, imperfection.
Category 2	Pipelines existing on May 29, 2001, that were owned or operated by an operator who owned or operated less than 500 miles of pipeline subject to 49 CFR 195.
Condition	An anomaly confirmed to meet criteria for immediate, 60-day, 180-day, or other repairs.
Confirmed Discovery	When it can be reasonably determined, based on information available to the operator at the time a reportable event has occurred, even if only based on a preliminary evaluation.
Defect	An imperfection of a type or magnitude exceeding acceptable criteria. Definition based on API 570 - Piping Inspection Code: In-service Inspection, Rating, Repair, and Alteration of Piping Systems. Also see: anomaly, imperfection.
Emergency Flow Restriction Device (EFRD)	A check valve or remote control valve as follows: Check valve means a valve that permits fluid to flow freely in one direction and contains a mechanism to automatically prevent flow in the opposite direction. Remote Control Valve (RCV) means any valve that is operated from a location remote from where the valve is installed. The RCV is usually operated by the supervisory control center, and the RCV may be actuated by fiber optics, microwave, telephone lines, or satellite.
Facility	That portion of a pipeline that is not line pipe or a mainline block valve or line pipe appurtenance. As an example, a pig launcher, pig receiver, meter station, pump station, or large fenced area containing jurisdictional assets, or combination of these elements is considered a Facility (see Section 3.10 - Integrity Management for Facilities Other than Line Pipe and IMP0100G - Appendix G - "Could Affect" Facility Results).

Term	Definition
Final In-Line Inspection Report	A report provided by the in-line inspection vendor that provides the operator with a comprehensive interpretation of the data from an in-line inspection.
High Consequence Area (HCA)	<p>As defined in 49 CFR 195.450, a location where a pipeline release might have a significant adverse effect on one or more of the following:</p> <ol style="list-style-type: none"> 1) A commercially navigable waterway, which means a waterway where a substantial likelihood of commercial navigation exists; 2) A high population area, which means an urbanized area, as defined and delineated by the Census Bureau, that contains 50,000 or more people and has a population density of at least 1,000 people per square mile; 3) An other populated area, which means a place, as defined and delineated by the Census Bureau, that contains a concentrated population such as an incorporated or unincorporated city, town, village, or other designated residential or commercial area; 4) An unusually sensitive area, as defined in 49 CFR 195.6
Imperfection	A flaw or other discontinuity noted during inspection that may be subject to acceptance criteria during an engineering and inspection analysis. Definition based on API 570. Also see: anomaly, defect.
Inactive	Pipeline segments that are voided of CO ₂ and filled with inert material (for example inert gas)
Indication	A finding of a nondestructive testing or inspection technique. Definition based on NACE Technical Committee Report, <i>In-Line Nondestructive Inspection of Pipelines</i> "
Maximum Operating Pressure	The maximum pressure at which a pipeline or segment of a pipeline may be normally operated.
Normal Operating Pressure	The predicted pressure (sum of static head pressure, pressure required to overcome friction losses, and any back pressure) at any point in a piping system when the system is operating under a set of predicted steady state conditions.
Operator	A person or entity that owns or operates pipeline facilities
Purged But Active	<p>Disconnected from an active pipeline system, drained and/or flushed or purged with an inert liquid or gas (or in the case of pumping units, with a corrosion-protective fluid) and taken out of service for an extended period of time, but not retired from capital assets.</p> <p>A purged but active facility (pipeline, pump station, meter station, tank, scraper trap, etc.) is not operational without significant re-commissioning effort, and has been effectively removed from service subject to DOT regulations. Accordingly, while purged but active, certain maintenance functions may be performed to maintain the condition of the facility and certain activities, including but not limited to integrity assessments, may be deferred until the facility is returned to service.</p>
Risk	A measure of loss in terms of both the incident likelihood of occurrence and the magnitude of the consequences.

Term	Definition
Risk Assessment	A systematic analytical process in which potential hazards from facility operation are identified and the likelihood and consequences of potential adverse events are determined. Risk assessments can have varying scopes, and be performed at varying levels of detail depending on the operator's objectives (See Section 5 - Risk Assessment Process).
Risk Management	An overall program consisting of: identifying potential threats to an area or equipment; assessing the risk associated with those threats in terms of incident likelihood and consequences; mitigating risk by reducing the likelihood, the consequences, or both; and measuring the risk-reduction results achieved.
Safe Operating Pressure	The pressure, calculated using remaining strength of corroded pipeline formulas, where all corroded regions will withstand a pressure equal to a stress level of 1.39 times the maximum operating pressure.
Subject Matter Expert	A person who by a combination of education, training, and/or experience has knowledge in a particular area(s).
System of Manuals	A series of Denbury manuals that includes: <ul style="list-style-type: none"> • Operations and Maintenance Manual, • Cathodic Protection Maintenance and Inspection Manual, • Emergency Response Procedures Manual, and • Operator Qualification Program
Threat	Factors that can negatively impact pipeline integrity, such as external corrosion, internal corrosion, stress corrosion cracking, manufacturing defects, third party damage, incorrect operations, equipment failures, outside force damage, and construction.
Unusually Sensitive Area or USA	A drinking water or ecological resource area that is unusually sensitive to environmental damage from a hazardous liquid pipeline release (49 CFR 195.6)

Acronym	Term
CNW	Commercially Navigable Waterway
DW	Drinking Water
EFRD	Emergency Flow Restriction Device
ECO	Ecological Resource Area
GIS	Geographic Information System
HPA	High Population Area
ILI	In-Line Inspection
IMP	Integrity Management Program
MOP	Maximum Operating Pressure
NPMS	National Pipeline Mapping System
OPA	Other Population Area
P&ID	Piping and Instrumentation Diagram

Acronym	Term
P&MM	Preventive & Mitigative Measures
PHMSA	Pipeline and Hazardous Material Safety Administration
PLC	Programmable Logic Controller
RCV	Remote Control Valve
SCADA	Supervisory Control and Data Acquisition
SCC	Stress Corrosion Cracking
SME	Subject Matter Expert
SSC	Sulfide Stress Cracking
TPD	Third Party Damage
USA	Unusually Sensitive Area

3.5. Identifying Segments with Potential HCA Impact

In accordance with 49 CFR 195.452 (b)(2), this section establishes a process by which Denbury identifies pipelines and pipeline facilities which “Could Affect” high consequence areas (HCAs) (referred to herein as ““Could Affect” segments” and ““Could Affect” facilities,” respectively). The HCA “Could Affect” identification process includes, but is not limited to, the following critical elements:

- Identification of pipeline segments based on direct impact, indirect impact, or potential transport to an HCA
- Identification of facilities based on direct impact, indirect impact, or potential transport to an HCA
- Validation of identified segments and facilities

3.5.1. Process

High consequence areas (HCAs) are defined by 49 CFR 195.450 as:

- A commercially navigable waterway - a waterway where a substantial likelihood of commercial navigation exists;
- A high population area - an urbanized area, as defined and delineated by the Census Bureau, that contains 50,000 or more people and has a population density of at least 1,000 people per square mile;
- Other populated areas - a place, as defined and delineated by the Census Bureau, that contains a concentrated population, such as incorporated or unincorporated city, town, village, or other designated residential or commercial area; or
- An unusually sensitive area as defined in 49 CFR 195.6 - a drinking water or ecological resource area that is unusually sensitive to environmental damage from a hazardous liquid pipeline release.

Initial “Could Affect” segment identification was conducted in accordance with previous versions of the IMP. The annual “Could Affect” segment update process is conducted in accordance with [Section 3.5, Identifying Segments with Potential HCA Impact](#). [IMP Appendix D - “Could Affect” Segment Results](#) contains a list of pipelines, including the stationing range for each defined “Could Affect” segment impact along the length of pipelines identified in [IMP0100A - Appendix A - Jurisdictional Pipelines and Facilities](#). Separate records contain a map for each HCA segment (HCA Maps).

3.5.2. Triggering Events for “Could Affect” Segment Determination

3.5.2.1. Annual Review

On an annual basis, Denbury completes “Could Affect” segment determination for its pipeline segments. Denbury updates HCA information mapped by the NPMS and State data sources as it becomes available. For Denbury pipelines and/or HCA data not defined in the NPMS, new or revised shape files are created and incorporated into this IMP.

3.5.2.2. Change Notification

In the event that HCA, pipeline centerline, or potential release scenario changes are identified outside of the annual review process (Section [3.5.2 - Triggering Events for “Could Affect” Segment Determination](#)), the Integrity Management Engineering Technician initiates “Could Affect” analysis of the potentially affected segments. In accordance with O&M Procedures [OM0000 - Action Decision Committee](#) and [OM0155 – Management of Change](#), changes to pipe characteristics, product transported, or operations may be identified by the MOC process. The Integrity Management Engineering Technician evaluates each MOC request to determine whether “Could Affect” segment determination is required, and communicates limitations/obstacles to the change due to IMP requirements.

3.5.2.3. New / Converted Pipelines

Segments that could affect HCAs are identified prior to the pipeline being placed into service. Following “Could Affect” segment identification, newly constructed pipelines or pipelines converted for service are integrated in this IMP program within one year. For newly constructed pipelines, as-built pipeline data is reviewed after start-up to identify changes that would initiate “Could Affect” segment analysis.

3.5.2.4. Acquired Pipelines

Pipelines obtained through acquisition are reviewed and integrated into this program within one year of assumption of operational responsibility. The Integrity Management Engineering Technician may incorporate acquired pipelines through either of the following methods:

- Accept the previous operator’s IMP (including “Could Affect” segment and facility determination) and continue to maintain acquired pipelines as specified in the previous operator’s IMP
- Schedule “Could Affect” segment and facility analysis and subsequently follow Denbury IMP processes

3.5.2.5. “Purged But Active” Pipelines

Denbury has included all pipeline segments containing CO₂, independent of operational status (i.e., flowing or static), in the current IMP. These pipelines are included in the Continual Assessment Plan (CAP) found in [IMP Appendix E - Continual Assessment Plan](#).

Pipeline segments that are voided of CO₂ and filled with inert material (for example inert gas) are defined as ‘Purged But Active’. Purged But Active pipelines are assessed prior to being placed back into operation as required by this section. This includes the reconfirmation of HCAs. The Integrity Management Engineering Technician verifies the status of Purged But Active pipelines with Operations on an annual basis.

3.5.3. Data Gathering

Annually, at intervals not to exceed 15 months, the Integrity Management Engineering Technician works with the Sr. GIS Specialist to update the mapping data to confirm that the most recent data is available for identifying pipelines that could affect an HCA. During the data update process, the Sr. GIS Specialist verifies that the most current NPMS data is downloaded, base map data is configured, and updates to pipeline centerlines have been incorporated.

3.5.3.1. Compilation of Mapping Data (Software Utilized)

ArcGIS Desktop 10.6.1 software, developed by Environmental Systems Research Institute (ESRI), was used for base map, HCA, and pipeline data compilation and analysis. This software is a Geographic Information System (GIS) featuring seamless data integration with all major vendor formats, on-the-fly coordinate transformation and feature definition, and the ability to perform simple and complex spatial analysis.

The analysis applied buffers around the High Populated, Other Populated, and Ecological areas. Data/polygons were obtained in shapefile format from PHMSA (NPMS). Analysis then determined distances of pipeline travel through these areas.

3.5.3.2. Pipeline Data

Denbury operated pipeline centerlines are available as GIS shapefiles. Updates to the pipeline centerline shapefiles are incorporated into the program on an annual basis following the completion of the annual HCA verification and validation process or as identified throughout the year by change notification. These pipeline centerline shapefiles are used for determining the potential impact to HCAs.

Pipeline operational data is incorporated into “Could Affect” segment and facility analysis. The Integrity Management Engineering Technician obtains and reviews operational data to identify changes that impact “Could Affect” segment determination.

3.5.3.3. HCAs and Sensitive Areas

The Pipeline and Hazardous Materials Safety Administration (PHMSA) identifies HCAs for each of the states in which Denbury operates pipelines. HCA data is available through the PHMSA National Pipeline Mapping System (NPMS). During the HCA validation process, Denbury district corrosion and operations personnel also provide field identification of potential new or expanded HCAs.

3.5.4. Data Validation and Verification

On an annual basis, Denbury incorporates “Could Affect” segment and facility verification information in the “Could Affect” segment re-analysis. The Denbury Integrity Management Engineering Technician transmits maps to the Pipeline Foreman and Corrosion Foreman for final validation.

3.5.4.1. Field HCA Validation

In addition to published data sets, Denbury employs local knowledge and information obtained from Operations SMEs to identify changes that impact “Could Affect” segment determination. Field validation is initiated at the beginning of the data gathering process to determine accuracy of pipeline centerline and HCA data (see [IMP Procedure IMP0400 - New and Existing HCA Validation](#)).

3.5.4.2. Data Completeness and Correctness

Data inputs to the “Could Affect” segment determination process are checked for completeness and data format correctness prior to initiating “Could Affect” segment analysis.

3.5.5. Defining “Could Affect” Segments

“Could Affect” segment determination is completed for each of the potential impact scenarios identified in this section.

3.5.5.1. Direct Impact Zone

Direct impact zones are locations at which the pipeline exists within (intersects with) an HCA. This analysis identifies points at which a pipeline enters and exits an HCA.

3.5.5.2. Indirect Impact Zones

Indirect impact zone analysis consists of air dispersion analysis for CO₂ pipelines. Indirect impact zones are locations at which the pipeline exists within (intersects with) an HCA buffer. This analysis identifies points at which a pipeline enters and exits an HCA buffer.

3.5.5.3. Potential Transport Zones

Denbury pipelines transport CO₂, which vaporizes upon release to air or water, and dissipates or dissociates upon release to water. As such, overland and waterway transport mechanisms do not have the potential to affect an HCA. Air dispersion transport is modeled as detailed in Section [3.5.5.4 - Vaporization Buffer Zones](#).

3.5.5.4. Vaporization Buffer Zones

For “Could Affect” segment and facility identification conducted **prior to May 17, 2011** (revision date for Version 5.0 of the IMP), vaporization buffer zones were determined based on modeling studies conducted for the NEJD pipeline. Details of the modeling process are filed in Denbury’s Regulatory files.

For “Could Affect” segment and facility identification conducted **after May 17, 2011** (revision date for Version 5.0 of the IMP), the Process Hazards Analysis Software Tool (PHASt) evaluation model is employed to determine vaporization buffer zones. A summary of PHAST results for Denbury’s pipelines is included in [IMP0100F - Appendix F3 - Air Dispersion Model for CO₂ Pipelines](#). A description of the PHAST calculations and assumptions are filed in Denbury’s Regulatory files.

Upon completion of the air dispersion model analysis, the worst-case impact is determined for each pipeline segment. Identification of potential impact to HCAs for each segment is based on the worst case condition. Modeled scenarios vary to consider rupture size, MOP, normal and maximum flow rates, and stable or unstable atmospheric conditions.

3.5.6. Identification of “Could Affect” Facilities

Facilities (see definition in Section [3.4 - Terms, Definitions, and Acronyms](#)) include DOT-jurisdictional non-line pipe assets. The Denbury Integrity Management Engineering Technician maintains a listing of DOT regulated facilities in [IMP0100G - Appendix G - “Could Affect” Facility Results](#). Due to the nature of CO₂ releases, a facility is determined to be a “Could Affect” facility if the pipeline into or out of the facility is a “Could Affect” segment, or a “Could Affect” facility boundary intersects an HCA or HCA buffer. The process for identifying “Could Affect” facilities is the same as that for “Could Affect” segment identification. Facility information, including “Could Affect” facility status, is maintained in [IMP0100G - Appendix G - “Could Affect” Facility Results](#).

3.5.7. Reporting “Could Affect” Segments

The Integrity Management Engineering Technician, Pipeline Foremen, and Corrosion Foreman verify that Denbury employees are aware of HCA locations within their respective operating areas and have that information available for their use in daily operations and decision-making activities. Pipeline “Could Affect” segment maps are created by the Sr. GIS Specialist and are maintained on the Denbury intranet by the Integrity Management Engineering Technician.

3.5.7.1. “Could Affect” Segments

“Could Affect” segment maps for pipeline segments are contained on the Denbury intranet site. Additionally, data indicating each pipeline, the pipeline stationing that “Could Affect” an HCA, and the type of HCA potentially affected are also located in [IMP0100D - Appendix D - “Could Affect” Segment Results](#).

3.5.7.2. “Could Affect” Facilities

“Could Affect” Facilities are listed in [IMP0100G - Appendix G - “Could Affect” Facility Results](#). Specific details concerning each “Could Affect” facility can be obtained from the Integrity Management Engineering Technician.

3.5.7.3. “Could Affect” Segment and Facility Validation

Upon completion of “Could Affect” segment and “Could Affect” facility analysis, the Integrity Management Engineering Technician transmits maps to Denbury district personnel for validation in accordance with [IMP Procedure IMP0400 - New and Existing HCA Validation](#). District personnel review the maps to identify changes to the following:

- Pipeline route corrections
- Population center changes (growth or demolition)
- Potential local environmental concerns
- Findings are documented on [IMP Form IMP0400-01 - HCA Validation](#), and transmitted to the Integrity Management Engineering Technician for review and compilation. Revisions are summarized and submitted to the Integrity Management Engineering Technician for approval. The Sr. GIS Specialist updates HCA results.

3.5.8. Exempting “Could Affect” Segments and Facilities

Denbury does not exempt HPA or OPA “Could Affect” segments or facilities.

Denbury believes that the properties of CO₂ minimize the potential to impact ecological resource areas. In contrast with hazardous liquids, CO₂ disperses in air and does not provide long-term effects of contamination to soil or water habitats on a case-by-case basis. Denbury evaluates ecological resource areas to determine if a CO₂ release could impact the species, habitat, or ecological system of concern. The evaluation process involves identifying potentially impacted ecological resource areas through the “Could Affect” segment identification process, compiling ecological resource area attribute and source data from NPMS, contacting source agencies for detailed information regarding species/category for the area, and determining the impact from CO₂ release for that category/species. Results are summarized in [IMP0100H - Appendix H - Ecological Resource Area Report](#).

Additionally, CO₂ releases from CO₂ pipelines are identified as not impacting drinking water or commercially navigable waterways. Primary hazards associated with CO₂ releases (i.e., oxygen deficient atmosphere) do not apply to a release into water, as CO₂ readily dissipates or dissociates from water.

3.6. Risk Assessment Process

In accordance with 49 CFR 195.452 (g), this section establishes a process by which Denbury evaluates pipeline and facility risk. In order to determine risk, Denbury evaluates both the likelihood of a release and the consequences of that release. The Denbury risk evaluation process includes, but is not limited to, the following components:

- A) Data Acquisition
- B) Data Validation
- C) Input of Data into Risk Model
- D) Risk Analysis (Run risk model to calculate segment risk)
- E) Risk Results Validation (Review and validation of risk model results)
- F) Risk Algorithm Reviews (Risk model/algorithm reviews)

3.6.1. Data Acquisition

Denbury personnel are responsible for the collection of integrity assessment and risk related data as described in the Denbury System of Manuals and IMP documentation. The Integrity Management Engineering Technician and Sr. GIS Specialist enter the appropriate information and data into the pipeline databases.

Data sources for utilization in the integrity assessment process will typically include the following:

- A) Results of previous assessments: Internal Inspections (defect type, size, and growth; [O&M Procedure OM0235 - Pigging Operations](#), [O&M Procedure OM0916 – In-Line Inspections](#)), Pressure Testing ([O&M Procedure OM1600-C1135 – Strength and Leak Testing](#), [Construction Standard C1130 - Pressure Testing](#)), ECDA ([O&M Procedure](#)

- [OM0920 - External Corrosion Direct Assessment](#)), or other technology approved for use by PHMSA.
- B) Pipe size, material, pipe manufacturer, coating, pipe condition, seam type
- C) Leak history, repair history
- D) Product transported, product characteristics
- E) Operating stress level
- F) Existing or projected activities in area ([IMP Procedure IMP0400 - New and Existing HCA Validation](#))
- G) Local environmental factors ([IMP Procedure IMP0400 - New and Existing HCA Validation](#))
- H) Geo-technical hazards
- I) Physical supports/spans
- J) Elevation and terrain
- K) Exposure to pressure > MOP (control center records)
- L) Valve location
- M) HCA data changes and growth
- N) O&M activity documentation and records
- O) Operator Error
- P) Incident investigation results ([O&M Procedure OM0159 – Emergency Reporting and Investigation](#))

3.6.2. Data Correctness and Completeness

The Integrity Management Engineering Technician reviews data for completeness and correctness (valid data format) and documents the review on the risk analysis Data Audit Report and Data Completeness Report.

3.6.3. Risk Model

The risk model software database stores integrity assessment-related information which is utilized for the annual risk assessment analysis. [IMP0100I - Appendix I - Risk Analysis Results](#), contains a detailed process for updating the risk model software and conducting risk ranking.

The Denbury risk algorithm is capable of evaluating both the likelihood of failure (LOF) and the consequences of failure (COF), as shown in **Table 1 - Risk Factors** (below). Each risk factor shown in the table can be further sub-divided into additional detailed variables (such as coating design, age, type, cathodic protection data, etc.).

Table 1- Risk Factors

Likelihood of Failure	Consequence of Failure
External Corrosion	Impact on Environment
Internal Corrosion	Impact on Population
Third Party	
Equipment	
Construction	
Manufacturing	
Incorrect Operations	
Weather and Outside Forces	
Stress Corrosion Cracking	

Denbury populates the American Innovations software database, Risk Intelligence Platform™ (RIPL), with selected variable information from the above listed variables for “Could Affect”

sections. For a more detailed description of risk variables employed, refer to [IMP0100J - Appendix J - Risk Algorithm](#).

During the risk assessment process, complete and detailed information may not be available for some data fields. In these instances, one of two actions is taken;

- A) A reasonable engineering assumption is made to populate the data. These assumptions are noted in the comment field.
- B) The factor weighting is set to zero so that the factor has no affect in the analysis conducted using the algorithm.

Denbury's current practice prescribes that pipeline integrity data is incorporated in the risk database even though similar data may not be uniformly available for all line segments included in [IMP0100A - Appendix A - Jurisdictional Pipelines and Facilities](#).

3.6.4. Risk Assessment Results Review and Validation

To verify that the risk assessment methodologies for pipeline segments produce results that are consistent with the goals and objectives of the assessment, the Integrity Management Engineering Technician coordinates a quality assurance review of the preliminary relative risk results with district personnel.

In the event that pipeline segment results are deemed invalid, the input data is re-evaluated as soon as practicable. Until the review team conducts the re-assessment and resolves the uncertainty issues, the invalid results are used as information placeholders only, and the risk analysis report is considered preliminary. Once the results are deemed acceptable, the report is finalized and the Integrity Management Engineering Technician risk ranks the pipeline segments.

3.6.4.1. District Risk Validation

As a component of risk results validation, the Integrity Management Engineering Technician coordinates a review of the threats identified and overall risk rank for each pipeline segment with the Pipeline Foremen and Corrosion Forman to obtain feedback from Denbury district personnel. Pipeline and HCA maps, preliminary risk results, and rankings are presented to district personnel during the District Risk Validation Process. [IMP Form IMP0510-02 - Risk Results Validation](#), is employed to facilitate and document discussion with district personnel.

3.6.5. Risk Model Reviews

Annually, the Integrity Management Engineering Technician coordinates an algorithm review in accordance with [IMP Procedure IMP0500 - Review Risk Algorithm](#). The intent of the review is to verify that the risk algorithm includes appropriate risks/threats to the pipeline operation and reflects Denbury most current views and philosophies. The Integrity Management Engineering Technician reviews and approves the revised algorithm with input from subject matter experts (SMEs).

3.6.6. Facility Risk Assessment

"Could Affect" facility risk evaluations are completed on DOT-jurisdictional non-line pipe assets on an interval not to exceed 5 years. The Integrity Management Engineering Technician evaluates facility risk in accordance with [Section 3.10 - Integrity Management for Facilities Other than Line Pipe](#).

3.7. Baseline and Continual Integrity Assessment Plan

In accordance with 49 CFR 195.452 (c) and (j), this section establishes the baseline integrity assessment plan and a continual process of evaluation and assessment by which Denbury maintains pipeline integrity following the baseline integrity assessment. The continual process of evaluation and assessment includes, but is not limited to, the following elements:

- Development of risk based assessment intervals

- Selection of risk based assessment methods
- Periodic evaluations of pipeline segments
- Data integration and information analysis

3.7.1. Process

As part of its process for continual evaluation of “Could Affect” segments, Denbury conducts integrity assessment to determine the condition of its pipelines. [IMP0100E - Appendix E - Continual Assessment Plan](#), contains results of the assessment planning process.

3.7.2. Risk-Based Assessment Interval Selection

Denbury establishes risk-based assessment intervals up to a maximum of five years (not to exceed 68 months) for continuously evaluating pipeline integrity ([IMP Form IMP0620-02 - Assessment Planning](#)). The assessment interval is based on the potential risk posed to the high consequence areas and on the following:

- Results of the previous integrity assessment, defect type and size that the assessment method can detect, and defect growth rate
- Pipe size, material, manufacturing information, coating type and condition, and seam type
- Leak history, repair history and cathodic protection history
- Product transported
- Operating stress level
- Existing or projected activities in the area
- Local environmental factors that “Could Affect” the pipeline (e.g., corrosivity of soil, subsidence, climatic)
- Geo-technical hazards
- Physical support of the segment such as by a cable suspension bridge
- Addition or removal of valves

3.7.3. Threat-Based Assessment Method Selection

Denbury employs several methods to assess pipeline integrity. Depending on the threat(s) identified in the risk analysis process, the most suitable assessment method(s) for addressing the specified threat(s) is selected.

Denbury [IMP Procedure IMP0600 - Select Appropriate Assessment Tool and Vendor](#), lists the assessment methods used to determine pipeline integrity after an integrity threat is identified and it is determined that the associated risk must be more accurately quantified to allow for proper remediation and Preventive and Mitigative Measures (P&MM) selection.

Pipeline segments with multiple threats may require the use of multiple inspection techniques. In accordance with 49 CFR 195.452 (j)(5), only the following methods of integrity assessment are employed:

- Internal inspection tool or tools capable of detecting corrosion and deformation anomalies including dents, gouges, and grooves. The type of internal inspection tool selected is based on the threat assessment capability, limitations, and performance specifications of the tool. A process for employing ILI tools is included in [O&M Procedure 0235 - Pigging Operations](#).
- Pressure test conducted in accordance with 49 CFR 195.452 subpart E, [Construction Standard C1130 - Pressure Testing, and OM1600/C1135 – Strength and Leak Testing](#).
- External corrosion direct assessment in accordance with 49 CFR 195.588 and Denbury [O&M Procedure OM0920 – External Corrosion Direct Assessment](#).
- Other technology that Denbury demonstrates can provide an equivalent understanding of the condition of the line pipe. If Denbury utilizes other technology as an assessment method PHMSA will be notified 90 days prior to conducting the assessment per notification requirements specified in 49 CFR 195.452(m).

In the event that Denbury determines that other technology is appropriate to evaluate a particular threat, the requirements for investigation of potential defects identified using other

technology will be developed as appropriate. The process will include requirements for vendor specifications, validation of results, data analysis, data integration requirements, defect identification, and prioritization, prioritization of excavations, etc.

Denbury has identified the assessment methods in **Table 2 - Assessment Methods** (follows), as appropriate methods to inspect for threats to Denbury “Could Affect” segments.

Table 2 - Assessment Methods

Defect Type	Magnetic Flux Leakage			Ultrasonic		Caliper	Pressure Testing	External Corrosion Direct Assessment
	Standard Resolution	High Resolution	Transverse Field	Compression Wave	Shear Wave			
External General Corrosion	X	X	X	X	X		X ¹	X
External Pitting	X	X	X	X	X		X ¹	X
Internal Pitting	X	X	X	X	X		X ¹	
Gouging	X	X	X	X	X		X ¹	X ²
Dents with Metal Loss		X	X	X			X ¹	X ²
Dents						X	X ¹	X ²
SCC and Crack-like Defects					X		X ¹	
Lamination/Mid Wall Defects		X	X	X	X		X ¹	

¹ Assumes defects at failure conditions

² Assumes coating damage associated with gouge and dent defects.

3.7.4. Assessment Method Selection

In addition to selecting an assessment method based on identified threats, Denbury also considers the following:

- Threat assessment capability, limitations, and performance specifications of the selected method
- Capability and performance history of the selected method and vendor
- Piggability of the specific pipeline segment
- Operational capability and impact of the selected method
- Previous assessment methods and results
- Industry experience

Rationale for assessment method selection is documented on [IMP Form IMP0620-02 - Assessment Planning](#).

3.7.5. Validation of Assessment Method and Interval Selection

As part of the Denbury annual program evaluation, re-assessment methods and intervals are reviewed and modified, if necessary based on the following:

- New insights from completed assessments
- Data integration results and risk analysis
- Evaluation of new and improved assessment technologies

CAP review and evaluation procedures are provided in [Section 3.14 - Integrity Management Program Review Process](#).

3.7.6. Triggering Events for Initial (Baseline) Assessments

In the event that Denbury identifies a new “Could Affect” segment, constructs new pipeline segments containing a “Could Affect” segment, resumes operation of an inactive “Could Affect” segment, or acquires pipelines containing a “Could Affect” segment, baseline assessments will be incorporated into the continual assessment plan (CAP). Selection of assessment interval and method(s) will be in accordance with this section.

3.7.6.1. New “Could Affect” Segments

Upon having identified a new “Could Affect” segment, the Integrity Management Engineering Technician evaluates assessment history to determine if an integrity assessment and subsequent remediation have previously been completed. Additionally, a data integration review of known and potential threats for the new “Could Affect” segment and the current assessment schedule are reviewed to determine if a shorter assessment interval or alternate methodology might be necessary.

In the event that integrity assessment is not planned for a newly identified “Could Affect” segment, a baseline assessment plan is developed within one year of identification, and the corresponding baseline assessment is completed within five years of identification.

In the event that an in-line inspection has been completed previously for the newly identified “Could Affect” segment, the Integrity Management Engineering Technician assigns and schedules review of ILI and repair data to identify and appropriately schedule for evaluation any anomalies meeting regulatory or internal criteria for evaluation. Discovery of the condition, in these cases, is documented as the completion date of the data review assigned by the Integrity Management Engineering Technician.

Upon review by the Integrity Management Engineering Technician, ILI data and repair evaluations may be postponed if an assessment has been recently completed or is pending.

3.7.6.2. New / Converted Pipelines

Baseline assessments for newly constructed or converted to service pipelines containing “Could Affect” segments are completed before the pipeline begins operation. Baseline assessment methods are selected as described in [Section 3.7.3 - Threat-Based Assessment Method Selection](#), and [IMP Procedure IMP0600 - Select Appropriate Assessment Tool and Vendor](#). Within the first 12 months of operation, Denbury incorporates the “Could Affect” segment into the IMP. Newly constructed or ‘converted to service’ pipelines containing “Could Affect” segments are fully integrated into this IMP within one year.

3.7.6.3. Inactive / Idle Pipeline Segments

Denbury includes idle pipeline segments that “Could Affect” an HCA (purged and isolated, but not abandoned) in the CAP. Baseline assessments for reactivated pipeline segments containing “Could Affect” sections are completed before the pipeline resumes operation. Selection of assessment method(s) is in accordance with this section.

In the event that an idle pipeline segment containing “Could Affect” segments (not flowing, but containing product) is acquired, it will be purged and classified as inactive, purged and abandoned, or treated the same as any active “Could Affect” segment.

3.7.6.4. Newly Acquired Pipelines

Until Denbury has integrated newly acquired pipeline segments into its assessment plan, Denbury will meet the schedule established by the previous owner/operator. During the integration process, Denbury evaluates the completed assessments and planned reassessments to determine if changes to the assessment schedule or method(s) are required.

3.8. Pipeline Repair Strategy

In accordance with 49 CFR 195.452(h), this section establishes a process by which Denbury addresses conditions in areas that “Could Affect” HCA segments on Interstate and Intrastate Pipelines. For areas outside of “Could Affect” HCA segments, refer to [O&M Procedure OM0213 - Leaks, Pipe and Weld Defects, Repairs](#) for repair criteria. The remediation process includes, but is not limited to, the following critical elements:

- Establish discovery date
- Develop prioritized remediation schedule
- Complete repairs

3.8.1. Discovery of a Condition

Denbury considers “discovery” to be when the Integrity Management Engineering Technician or Corrosion Foreman has enough information to determine that a condition exists, which meets the criteria for an immediate, 60-day, or 180-day condition.

Discovery can be on an anomaly-by-anomaly basis, by groupings (types) of anomalies, or for the length of the inspected segment. Available information may include, but is not limited to field evaluation, communication with the ILI vendor, or anomaly correlation. Discovery will occur no later than 180 days after a completed integrity test, and is documented by the Integrity Management Engineering Technician or Corrosion Foreman. The Integrity Management Engineering Technician or Corrosion Foreman is responsible for documenting the receipt date of all preliminary and final assessment reports.

In the event that discovery is not declared within the 180-day allowance, the Integrity Management Engineering Technician or Corrosion Foreman is responsible for documenting the circumstances.

Note: Upon written notification from the data analyst that an immediate condition could exist, the Integrity Management Engineering Technician or Corrosion Foreman initiates immediate investigation. Investigation includes, but is not limited to data gathering, further communication with vendor, anomaly correlation, and/or field excavation.

3.8.2. Requirements for Repairs Scheduling

Repair conditions are scheduled for evaluation and repair following discovery as follows:

- A) Immediate conditions are evaluated and remediated immediately following discovery. Additionally, the Integrity Management Engineering Technician or Corrosion Foreman contacts the District Manager to coordinate initiation of temporary pressure reduction or line shutdown until the immediate condition is repaired.
- B) 60-day conditions are investigated and remediated, if necessary, within 60 days of discovery.
- C) 180-day conditions are investigated and remediated, if necessary, within 180 days of discovery.

Other conditions are investigated and remediated as determined necessary based on the results of data integration.

Repairs are completed according to a schedule that prioritizes the conditions for evaluation and remediation. **Table 3 - Repair Condition Criteria** (below), presents a summary of conditions for each repair condition category. In the event that the actual repair/remediation schedule extends beyond the original prioritized schedule, the Integrity Management Engineering

Technician or Corrosion Foreman documents the reasons why the original prioritized schedule cannot be met and that the change does not jeopardize public safety or the environment. Schedule extensions are communicated to the Integrity Management Engineering Technician. Denbury will notify PHMSA and state agencies as necessary, if regulatory mandated repair schedules per 195.452(h) cannot be met and additional protection cannot be provided through a temporary reduction in operating pressure.

Table 3 - Repair Condition Criteria

Criteria	Description
Immediate	<ul style="list-style-type: none"> • Metal loss greater than 80% of the nominal wall regardless of dimensions. • Metal loss with a burst pressure less than the established MOP at the location of the condition. • Dents located on the top of the pipeline (above 8 and 4 o'clock) with any indication of metal loss, cracking, or a stress concentrator • Dents greater than 6% of the nominal diameter located on the top of the pipeline (above 8 and 4 o'clock). • A condition that in the judgment of the evaluator requires immediate action.
60-Day	<ul style="list-style-type: none"> • Dents greater than 3% of the nominal diameter (greater than 1/4-inch on nominal diameters less than 12-inches located on the top of the pipeline (above 8 and 4 o'clock). • Dents on the bottom of the pipeline (below 8 and 4 o'clock) with any indication of metal loss, cracking or a stress concentrator • A condition that in the judgment of the evaluator requires action within 60 days.
180-Day	<ul style="list-style-type: none"> • Dents greater than 2% of the nominal diameter (greater than or equal to 1/4-inch on nominal diameters less than 12-inches) affecting pipe curvature at a longitudinal seam weld or a girth weld. • Dents greater than 2% of the nominal diameter (greater than or equal to 1/4-inch on nominal diameters less than 12-inches) on the top of the pipeline above 8 and 4 o'clock. • Dents with depths greater than 6% of the nominal diameter on the bottom of the pipeline (below 4 and 8 o'clock). • Metal loss with a calculated safe operating pressure that is less than the established MOP at the location of the condition. • Predicted metal loss greater than 50% in an area of general corrosion. • Predicted metal loss greater than 50% at crossings of another pipeline. • Predicted metal loss greater than 50% with widespread circumferential corrosion. • Predicted metal loss greater than 50% that could affect a girth weld. • A potential crack indication that when excavated is determined to be a crack. • Corrosion of or along the longitudinal seam weld. • A gouge or groove greater than 12.5% of the nominal wall. • A condition that in the judgment of the evaluator requires action within 180 days.

Criteria	Description
Other Conditions	<ul style="list-style-type: none"> • A condition that has changed since the previous assessment • Mechanical damage or dents located on the top of the pipeline (above 8 and 4 o'clock) • A condition abrupt in nature. • A condition longitudinal in orientation. • A condition that extends over a large area. • A condition located in or near a casing. • A condition located in or near a crossing of another pipeline. • A condition located in or near an area with suspect cathodic protection.

3.8.3. Temporary Pressure Reductions

Upon discovery of immediate conditions, the Integrity Management Engineering Technician or Corrosion Foreman initiates immediate repair. Additionally, the Integrity Management Engineering Technician or Corrosion Foreman contacts the District Manager to coordinate initiation of temporary pressure reduction or line shutdown until the immediate condition is repaired.

Denbury Engineering calculates safe operating pressure using the formula in Section 451.7 of ASME/ANSI B31.4, *Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids*. The calculated safe operating pressure is then employed to determine the temporary pressure reduction value. In the event that remaining-strength calculations cannot be performed due to anomaly type (such as possible dents with metal loss, or metal loss greater than 80%), the pressure is lowered to no more than 80% of the operating pressure actually experienced at the location of the condition within the two months preceding the inspection.

The Integrity Management Engineering Technician notifies the District Manager to initiate pressure reduction or line shut down. Temporary pressure reductions are communicated to the following Denbury personnel by the District Manager:

- Pipeline Operations Superintendent
- Pipeline Foreman
- District operations personnel
- Denbury Control Center

In the event that a temporary pressure reduction is taken in conjunction with an immediate condition, Denbury attempts to correct that condition within 365 days. The Integrity Management Engineering Technician monitors temporary pressure reductions associated with repairs. For a reduction in operating pressure anticipated to exceed 365 days, the Integrity Management Engineering Technician notifies PHMSA and state agencies as necessary, as provided in 49 CFR 195.452(m) and documents further remedial action taken to maintain the safety of the pipeline segment.

3.9. Process for Identification of Preventive and Mitigative Measures

In an effort to better protect high consequence areas and in accordance with 49 CFR 195.452 (f)(6) and 49 CFR 195.452(i), this procedure establishes a process by which Denbury identifies and implements Preventive and Mitigative Measures (P&MMs). This process includes, but is not limited to, the following critical elements:

- Evaluation of Risk Information
- Identification of Additional Actions (P&MMs) that protect public safety and/or the environment
- Implementation of P&MMs

P&MM identification and implementation are based on risk information. Subsequently, P&MMs reduce risk by addressing specific risk drivers along particular pipeline segments.

3.9.1. Process

Upon receiving final information from the risk process (3rd quarter of each year or as needed for new construction or conversion projects), P&MMs are evaluated for their sufficiency and effectiveness by means of a risk based review process. Additional P&MM evaluations are conducted in response to reportable releases. This process includes the following steps:

- Current P&MM review
- Additional P&MM consideration (EFRDs, leak detection, and other P&MMs)
- Documentation and justification
- Implementation of additional P&MMs

Pipeline segments determined to have sufficient P&MMs require no additional P&MMs be recommended for consideration during P&MM evaluation. The basis for P&MM sufficiency is documented on [IMP Form IMP800-01 - P&MM Evaluation](#). The Integrity Management Engineering Technician is responsible for maintaining associated records in appropriate segment files.

Segments found to be candidates for additional P&MMs are further evaluated by the Integrity Management Engineering Technician and P&MM evaluation team. The team considers each of the three P&MM categories (EFRDs, leak detection, and other P&MMs) by employing a risk-based analysis. The Denbury risk assessment model integrates segment specific information and has the ability to generate P&MM strategies into “scenarios”. These scenarios are utilized to evaluate the benefits (in reduced risk) for given P&MMs. Subsequently, the most appropriate P&MMs are selected for the particular risk drivers.

Implementation of selected P&MMs is assigned to responsible parties and documented on [IMP Form IMP800-01 - P&MM Evaluation](#). P&MMs are tracked to completion by the Integrity Management Engineering Technician.

3.9.2. EFRDs & Leak Detection Review

EFRDs and leak detection capabilities are critical components of the P&MM review process, as the speed at which pipeline leaks can be detected and the pipeline isolated is directly related to release volumes and potential impacts to HCAs. During the P&MM evaluation, Denbury SMEs determine whether further evaluation of leak detection and EFRDs is needed.

3.9.2.1. Leak Detection

Denbury reviews the required factors listed in 49 CFR 195.452 (i)(3) to determine the necessity of improved leak detection. [IMP Form IMP0800-02 - Leak Detection Evaluation](#), provides a more detailed discussion of the leak detection evaluation process. [IMP0100K - Appendix K - Leak Detection System Evaluation](#), provides an overview of available leak detection systems for consideration.

3.9.2.2. EFRDs

The Denbury risk model is employed to evaluate the anticipated potential impact on HCAs. This information and other factors as described in 49 CFR 195.452(i)(4) are reviewed by Denbury to determine the feasibility of risk reductions by changes to the SCADA system and/or the relocation or addition of EFRDs. [IMP Form IMP0800-03 - EFRD Evaluation](#), provides a more detailed discussion of the EFRD evaluation process.

In accordance with PHMSA guidance, when Denbury determines that EFRDs are needed on a pipeline segment to mitigate the effects of a hazardous liquid pipeline release in an HCA, they are installed.

3.9.3. Facility P&MM

Facility P&MM evaluations are completed on other (non-pipe) pipeline facilities in accordance with [Section 3.10 - Integrity Management for Facilities Other than Line Pipe](#).

3.10. Integrity Management for Facilities Other than Line Pipe

This process provides guidelines for Denbury to conduct a comprehensive “Could Affect” Facility Risk Analysis and Preventive and Mitigative Measures (P&MM) evaluation.

The process is intended to:

- A) Identify threats to the integrity of the applicable facilities
- B) Determine risk associated with identified threats
- C) Evaluate the effectiveness of existing P&MMs
- D) Identify additional P&MMs, if needed

3.10.1. Process

Facility risk assessment and P&MM evaluations are completed on an interval not to exceed five years for “Could Affect” facilities. The primary goals of the Facility Risk Assessment Review are to identify the facility threats, select P&MMs for implementation, and determine whether the facility increases line pipe risk.

3.10.2. Data Gathering and Validation

In preparation for the facility risk assessment, the Integrity Management Engineering Technician and district personnel compile the following facility documentation, if available:

- Facility Response Plans (e.g., Spill Response Plans, Emergency Response Plans, Security Plans, Contingency Plans)
- Facility Release Reports for DOT-regulated equipment and assets
- Incident Reports other than releases with emphasis on incidents with multiple occurrences (e.g., abnormal operating reports, near miss reports)
- Applicable inspection reports (e.g., exposed pipe, atmospheric corrosion inspections, tank inspections, non-destructive testing (NDT) examinations, cathodic protection surveys, internal corrosion coupon reports)
- P&MMs currently in use at the facility
- Information pertaining to the facility equipment (e.g., materials, type of valve, coating type, plot plans, piping diagrams, equipment lists)
- Operating information (e.g., pressures, product types, unplanned upset events, procedures)
- Facility Security (e.g., plans, programs)
- Facility HCA information (e.g., maps with HCA overlays)
- Other data as appropriate

Facility Review Team Members evaluate the facility documentation for completeness and accuracy. In the event that facility documentation does not accurately represent actual operations or equipment, action items are assigned to update the facility documentation accordingly.

3.10.3. Risk Assessment

The likelihood of a “Could Affect” facility release is evaluated for each of the following threats:

- Equipment/Non-pipe Malfunction or Failure
- Pipe – Corrosion (external, internal, and atmospheric)
- Pipe – Outside Force Related Failure (outside force (excavation) damage, security-related damage, and natural force damage)
- Operations (material receipts and deliveries, operator error, and instrumentation/relief devices)
- Other Causes

Consequences of a release are evaluated for ecological and population impacts.

3.10.4. Preventive and Mitigative Measures (P&MM) Evaluation

For each “Could Affect” facility P&MM evaluation, the following systematic steps are employed:

- Threat Identification
- Review of Current Threat Based P&MMs
- Evaluation of Additional P&MMs
- Determine Impact on Facility Risk
- Implement and Track P&MMs

The facility review team identifies currently implemented P&MMs on [IMP Form IMP0900-01 - Facilities Risk Evaluation](#), for each threat. Each current and potential P&MM is evaluated to determine the impact on risk based on the integrated facility data. During the review, additional P&MMs may be proposed for consideration and documented in the appropriate threat category.

Note: Additional risk reduction activities should also be considered, if needed. (Increased inspections, additional operator training or development of operating procedures, increased frequency of routine maintenance, enhanced corrosion control practices, enhanced leak detection efforts, enhanced back-flow prevention equipment, etc.).

An implementation decision for each proposed P&MM is documented on the [IMP Form IMP0900-01 - Facilities Risk Evaluation](#), along with the justification to implement or not implement the measure. The Integrity Management Engineering Technician documents implementation responsibility and tracks each item to completion.

3.11. Program Evaluation Measures

In accordance with 49 CFR 195.452 (f)(7) and 49 CFR 195.452 (k), this section establishes a process by which Denbury implements a method to measure the program's effectiveness. The process includes, but is not limited to, the following critical elements:

- Process Approach
- Performance Metrics
- Root Cause Analysis

3.11.1. Process

Denbury continually evaluates its pipeline integrity management program in accordance with the following sections.

3.11.2. Performance Measures

Denbury collects and analyzes performance measures annually. Performance measures are reviewed during the annual IMP review to identify modifications and establish goals.

Performance measures are used to evaluate the effectiveness of the IMP and are broken into three categories: leading, lagging, and deterioration. Leading performance measures evaluate how effectively the IMP is implemented (surveillance and preventive activities, number of one-calls, operator training, etc.). Lagging performance measures evaluate historical data (leak history, incident response, product loss, etc.). Deterioration performance measures are trends that indicate weakening integrity of a system despite preventive measures (inadequate one-call response, ECDA results, ILI tool run results, etc.).

When establishing performance measures and goals, the following criteria are considered:

- Reduce the total volume of unintended releases.
- Reduce the total number of unintended releases.
- Document the percentage of Integrity Management activities completed during the calendar year.
- Track and evaluate the effectiveness of Denbury's outreach activities
- Internal audits of pipeline systems (third party or Denbury personnel)
- External audits of pipeline systems (audits by regulatory agencies)
- Operational events (e.g. relief occurrences, unplanned valve closure, SCADA outages, etc.) that have the potential to adversely affect pipeline integrity
- Demonstrate that the integrity management program supports continuous risk reduction activities with a focus on high risk items. As assessments, repairs, and procedural or

process changes are made, operating risk for individual segments and pipelines should be reduced.

- Demonstrate that the integrity management program for facilities supports continuous risk reduction activities with a focus on high risk items.
- Descriptions of pipeline system integrity, including a summary of performance improvements, both qualitative and quantitative.
- Provide increasingly useful decision-making assistance and information by suggesting effective preventive and mitigative strategies.

The Integrity Management Engineering Technician, with input from the Supervisor, Pipeline Services, District Manager, Pipeline Foremen, and Corrosion Foreman, selects performance measures and establishes performance goals. Performance measures are assigned to Denbury personnel for data gathering and reporting to the Integrity Management Engineering Technician. A summary table of performance measures is contained in [IMP0100L - Appendix L - Performance Measures](#).

3.11.3. Audit Guidance

Auditing of Denbury's integrity management program may be conducted by Denbury personnel, contactors, or regulatory agencies. Audits conducted by regulatory agencies are incorporated into the Integrity Management Program Evaluation, as these audits often reveal valuable insights into the effectiveness of the integrity management program. Therefore, any audit findings, favorable or unfavorable, are considered and documented by the Integrity Management Engineering Technician.

Internal audits (audits conducted by Denbury personnel or outside contractors) are also a component of the program evaluation and are scheduled at the discretion of the Integrity Management Engineering Technician but at intervals no less than once every 3 calendar years. For audits conducted by either outside contractors or Denbury personnel, the Integrity Management Engineering Technician is responsible for evaluating and selecting competent auditors.

3.11.4. Lessons Learned

Root cause analysis is an integral part of risk management methodology and is used to evaluate the root causes of possible hazards or accidents. Investigation results for incidents or releases concerning the integrity of the pipeline system are critical metrics that are considered by the Integrity Management Engineering Technician during program evaluations.

3.11.5. Benchmarking

The Integrity Management Engineering Technician annually reviews Denbury performance against other operator reported performance. Information is obtained from regulatory agencies and industry organizations (e.g. AOPL, API committees).

Benchmarking is a structured approach for identifying the best practices from industry and government, and comparing and adapting them to the organization's operations. Such an approach is aimed at identifying more efficient and effective processes for achieving intended results, and suggesting new goals for program and process improvement.

3.12. Qualification of Personnel Reviewing Integrity Assessment Results

In accordance with 49 CFR 195.452 (f)(8), this section establishes a process by which Denbury ensures qualified personnel evaluate integrity assessment results. The process includes, but is not limited to, the following critical elements:

- Qualification Requirements
- Vendor Screening

3.12.1. Process

Denbury verifies the qualification of personnel reviewing integrity assessment results for each integrity assessment project on [IMP Form IMP1100-01 - Qualification Verification](#).

3.12.2. Qualification of Results Review Personnel

The Integrity Management Engineering Technician or Corrosion Foreman assigns qualified individuals to review and analyze information generated from integrity assessments. Denbury personnel or contractors who review integrity assessment results must meet the following minimum requirements:

- Three years of relevant experience:
 - Completing data integration activities
 - Reviewing ILI, ECDA, and hydrostatic assessment data
 - Reviewing field documentation (i.e., rubbings and PDER forms)
- Project experience during the previous 12-month period
- Knowledge of applicable regulations
- NACE Level II or higher certification (for ECDA only)

In the event that an individual does not meet the qualification requirements, additional training or skill acquisition is planned and scheduled by the Integrity Management Engineering Technician or Corrosion Foreman. An individual that does not meet each of these requirements may work under the direct supervision of a qualified person who meets each of the aforementioned criteria.

3.12.3. Vendor Qualification

Denbury only selects vendors whose personnel associated with the operation, evaluation, and analysis of the selected assessment method are competent with respect to qualification, education, training, experience, and knowledge.

ILI Vendor Results Review Process and personnel are to be qualified in accordance with ANSI/ASNT ILI-PQ-2005, *In-line Inspection Personnel Qualification and Certification Standard*, and API 1163, *In-line Inspection Systems Qualification Standard*.

ECDA vendor personnel reviewing Indirect Inspection results must maintain a NACE Level II or higher certification. ECDA vendor field personnel conducting Indirect Inspections must maintain a NACE Level I or higher certification, or be supervised by an individual with NACE Level I or higher certification.

Vendor personnel using Other Technology who are reviewing indirect inspection results must maintain a NACE Level II or higher certification or other appropriate equivalent certification agreed to by the Denbury Project Manager. Vendor field personnel using Other Technology and conducting indirect inspections must maintain a NACE Level I or higher certification or other appropriate equivalent certification agreed to by the Denbury Project Manager, or be supervised by an individual with NACE Level I or higher certification or other appropriate equivalent certification agreed to by the Denbury Project Manager. An individual that does not meet these requirements may work under the direct supervision of a qualified person who meets each of the aforementioned criteria. Vendor qualifications review and documentation is part of the vendor selection and data integration processes.

3.13. Managing Change in an Integrity Program

As discussed in API Standard 1160, *Managing System Integrity for Hazardous Liquid Pipelines*, Denbury employs a formal Action Decision Committee (ADC) process to identify changes relevant to integrity management. The ADC process includes, but is not limited to, the following critical elements:

- Recognize changes before or shortly after they occur
- Identify changes which affect pipeline risk
- Update IMP elements to reflect changes

Denbury follows a formal ADC process for communication of changes affecting Denbury pipelines as specified in [O&M Procedure OM0001 – Standards Modification](#) and on [O&M Form OM0000-01 - Action Decision Committee Request](#). This process is used for all changes to this Integrity Management Program.

3.14. Integrity Management Program Review Process

In accordance with 49 CFR 195.452 (f), this section establishes a process by which Denbury continually changes the IMP to reflect operating experience, conclusions drawn from results of the integrity assessments, and other maintenance and surveillance data, and evaluation of consequences of a failure on the high consequence area. The process includes, but is not limited to, the following critical elements:

- Written Program Review
- Risk Results Review
- CAP Review
- Other integrity-related issues

3.14.1. Process

The IMP review process encompasses the written program and associated procedures, as well as output from IMP activities conducted throughout the year. An IMP review meeting is held periodically, and a comprehensive report of the meeting discussion is prepared and distributed to IMP stakeholders. [IMP Form IMP1300-01 - Annual IMP Report](#), is employed to document the meeting discussion.

3.14.2. Written Program Review

The IMP is continually evaluated and revised as necessary to reflect operating and industry experience, conclusions drawn from Integrity Management Process Results, and to incorporate tools and techniques as they become available. The Integrity Management Engineering Technician facilitates program review, and receives input from Denbury personnel with IMP responsibilities.

Overall IMP review and revision is completed periodically. Review and revision is also conducted as necessary to incorporate regulatory changes, lessons learned during incident investigation/root cause analysis, and in response to other changes in the Denbury pipeline system.

Approval and communication of changes to the IMP are conducted through the ADC process specified in [O&M Procedure OM0001 – Standards Modification](#) and on [O&M Form OM0000-01 - Action Decision Committee Request](#). This process is used for all changes to this Integrity Management Program.

A listing of changes made to the IMP is maintained in the [IMP0100B - Appendix B - Revision Log](#).

The electronic IMP is maintained by the Integrity Management Engineering Technician on the Denbury intranet.

3.14.3. Risk Analysis Review

As a component of the Annual IMP Review, a summary of risk analysis results and pipeline risk rankings is prepared. Review Team Members consider the relative risk of the pipeline segments and identify apparent inconsistencies in the overall ranking with SME knowledge of the pipeline systems. Documentation from risk analysis review is employed in [IMP Procedure IMP0500 - Review Risk Algorithm](#). Action items resulting from risk analysis review may include, but are not limited to, additional data gathering, algorithm modification, or additional P&MM evaluation.

3.14.4. CAP Review

With input from the Corrosion Foreman and Integrity Management Engineering Technician, the Review Team evaluates the CAP to determine whether planned integrity assessments account for pipeline relative risk and threats identified during the risk analysis review. Results from previous integrity assessments, root cause analysis, and conditions identified on similar segments are considered by SMEs in determining whether the overall CAP is appropriate. Action items resulting from CAP review may include, but are not limited to, modifications to

planned assessments (timing or method), investigation of new technology, or additional P&MM evaluation.

3.14.5. Performance Measure Review

Performance measure review completed during the annual IMP review process is conducted to review effectiveness of the IMP, determine the value added by current performance measures, identify new performance measures, and establish goals for future periods. Trending and evaluation results are employed during process review to consider modifications to the written program and associated procedures.

3.15. Record Keeping Procedure

In accordance with 49 CFR 195.452 (I), this section establishes a process by which Denbury maintains IMP documents. The process includes, but is not limited to, the following critical elements:

- Document Submittal
- Records Retention

For additional detail on documentation requirements related to IMP, refer to [Section 5 - Documentation](#).

3.15.1. Process

The Integrity Management Engineering Technician maintains the IMP written program. The Pipeline Regulatory Specialist maintains other IMP records, including documents to support the decisions and analyses, including any modifications, justifications, variances, deviations and determinations made, and actions taken, to implement, and evaluate each element of the IMP. [IMP0100M - Appendix M - Document Retention Schedule](#), specifies the retention period, retention location, and responsibility for each record required in the IMP. The following guidelines provide document control:

- 3.15.1.1. Files stored in the Pipeline Office of Records shall be protected from unauthorized access, weather, and other damage.
- 3.15.1.2. Electronic records (as available) shall be maintained and backed up locally and remotely.
- 3.15.1.3. Original records shall not be removed from the file storage area without proper authorization. As necessary, copies of originals are permitted to be removed from the file storage area.
- 3.15.1.4. Document review by government agencies or third parties is supervised.

4. Training

The Integrity Management Engineering Technician develops and revises training materials and schedules integrity management training for employees. Training is documented on the Meeting Sign-In Sheet.

5. Documentation

Denbury maintains IMP-related records for the life of the pipeline. The following specific records are included:

5.1. HCA Analysis Maps and Records

- [IMP0100D - Appendix D - "Could Affect" Segment Results](#)
- [IMP0100F - Appendix F3 - Air Dispersion Buffers](#)
- [IMP0100G - Appendix G - "Could Affect" Facility Results](#)
- [IMP0100H - Appendix H - Ecological Resource Area Report](#)
- HCA Validation Forms
- "Could Affect" Segment and Facility Validation Forms

5.2. Risk Analysis Records

- Risk Model Spreadsheets/Databases
- [IMP0100I - Appendix I - Risk Analysis Results](#)
- [IMP0100J - Appendix J - Risk Algorithm](#)
- Data Audit Report
- Data Completeness Report
- Risk Validation Form

5.3. Assessment Planning Records

- [IMP0100E - Appendix E - Continual Assessment Plan](#)
- Assessment Planning Forms

5.4. Repair Records

Specific recordkeeping requirements can be found in [Engineering Standard E1700 - Project Closure Documentation](#) and include:

- Condition Classification
- Condition Discovery Dates
- Repair Records

5.5. Preventive and Mitigative Measures (P&MM) Evaluation Records

- P&MM Evaluation Forms
- Leak Detection Evaluation Forms
- EFRD Evaluation Forms

5.6. “Could Affect” Facility Risk Analysis

- Facilities Risk Assessment and Preventive and Mitigative Measures forms

5.7. Program Evaluation Records

- Performance Measure Reports
- Audit Reports

5.8. Personnel Qualification Records

- Qualification Verification Forms

5.9. IMP Review Records

- IMP review reports

5.10. Written IMP and Related Documentation

- Written Program, Procedures, and Forms
- Document Retention Schedule

6. References

- 49 CFR 195.450
- 49 CFR 195.452
- 49 CFR 195.588
- 49 CFR 195.6
- American Innovations Software Database, Risk Intelligence Platform™ (RIPL)
- ASME/ANSI B31.4 - Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids
- ANSI/ASNT ILI-PQ-2005, In-line Inspection Personnel Qualification and Certification Standard
- API 570 - Piping Inspection Code: In-service Inspection, Rating, Repair, and Alteration of Piping Systems
- API 1160 - Managing System Integrity for Hazardous Liquid Pipelines
- API 1163 - In-line Inspection Systems Qualification Standard

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- ArcGIS Desktop 10.2 Software (developed by Environmental Systems Research Institute - ESRI)
- NACE Technical Committee Report - In-Line Nondestructive Inspection of Pipelines
- NACE SP0102-2010 – Standard Practice, Inline Inspection of Pipelines
- NACE SP0204-2008 – Standard Practice, Stress Corrosion Cracking (SCC) Direct Assessment Methodology
- PHAST Evaluation for CO₂ Pipelines (see Denbury's Regulatory files)
- TX Administrative Code (TAC), Title 16, Chapter 8.101-Pipeline Safety Regulations
- [Construction Standard C1130 - Pressure Testing](#)
- [Engineering Standard P0005 - Introduction](#)
- [Engineering Standard E1700 - Project Closure Documentation](#)
- [O&M Procedure OM0000 - Action Decision Committee](#)
- [O&M Procedure OM0001 – Standards Modification](#)
- [O&M Procedure OM0155 – Management of Change](#)
- [O&M Procedure OM0159 – Emergency Reporting and Investigation](#)
- [O&M Procedure OM0213 - Leaks, Pipe and Weld Defects, Repairs](#)
- [O&M Procedure OM0235 - Pigging Operations](#)
- [O&M Procedure OM0916 – In-Line Inspections](#)
- [O&M Procedure OM0920 - External Corrosion Direct Assessment](#)
- [O&M Procedure OM1600-C1135 – Strength and Leak Testing](#)
- [O&M Form OM0000-01 - Action Decision Committee Request](#)
- [IMP Procedure IMP0400 - New and Existing HCA Validation](#)
- [IMP Procedure IMP0500 - Review Risk Algorithm](#)
- [IMP Procedure IMP0600 - Select Appropriate Assessment Tool and Vendor](#)
- [IMP Form IMP0400-01 - HCA Validation](#)
- [IMP Form IMP0510-02 - Risk Results Validation](#)
- [IMP Form IMP0620-02 - Assessment Planning](#)
- [IMP Form IMP0800-01 - P&MM Evaluation](#)
- [IMP Form IMP0800-02 - Leak Detection Evaluation](#)
- [IMP Form IMP0800-03 - EFRD Evaluation](#)
- [IMP Form IMP0900-01 - Facilities Risk Evaluation](#)
- [IMP Form IMP1100-01 - Qualification Verification](#)
- [IMP Form IMP1300-01 - Annual IMP Report](#)

6.1. Appendices to the Denbury Integrity Management Plan (Incorporated by Reference)

- [IMP0100A - Appendix A - Jurisdictional Pipelines and Facilities](#)
- [IMP0100B - Appendix B - Revision Log](#)
- [IMP0100C - Appendix C - Denbury Organization Chart](#)
- [IMP0100D - Appendix D - “Could Affect” Segment Results](#)
- [IMP0100E - Appendix E - Continual Assessment Plan](#)
- [IMP0100F - Appendix F3 - Air Dispersion Model for CO₂ Pipelines](#)
- [IMP0100G - Appendix G - “Could Affect” Facility Results](#)
- [IMP0100H - Appendix H - Ecological Resource Area Report](#)
- [IMP0100I - Appendix I - Risk Analysis Results](#)
- [IMP0100J - Appendix J - Risk Algorithm](#)
- [IMP0100K - Appendix K - Leak Detection System Evaluation](#)
- [IMP0100L - Appendix L - Performance Measures](#)
- [IMP0100M - Appendix M - Document Retention Schedule](#)



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Attachment A – Responsibilities Matrix

Responsible Parties:	Integrity Management Engineering Technician	District Manager	Pipeline Regulatory Specialist	Pipeline Foremen	Corrosion Foreman	Sr. GIS Specialist
<p>IMP Activity</p> <p><u>Identifying Segments with Potential HCA Impact</u></p>	<ul style="list-style-type: none"> Develop and maintain procedures for identifying pipeline segments that "Could Affect" an HCA Develop and maintain procedures for identifying pipeline facilities that could affect an HCA Approve field validation modifications to HCAs Initiate the HCA Validation process per Section 3.5.1 - P-Process Coordinate all aspects of the HCA Validation process through to completion Update intranet with "Could Affect" segment and "Could Affect" facility maps Receive validation reports and documentation from district personnel Implement and track revisions to final maps and records based on field validation 	<ul style="list-style-type: none"> Participate in risk model/algorithm reviews Assist with data gathering Participate in validating threats and relative risk rankings 	<ul style="list-style-type: none"> Assist with data gathering Coordinate threat/risk validation with district personnel 	<ul style="list-style-type: none"> Designate district personnel to assist with validating HCAs Assist with communicating segments or facilities that could affect HCAs to district personnel 	<ul style="list-style-type: none"> Designate district personnel to assist with validating HCAs Schedule and coordinate HCA field data gathering with district personnel Assist with communicating segments or facilities that could affect HCAs to district personnel 	<ul style="list-style-type: none"> Update GIS databases with current source data (NPMS, USGS, etc.) Prepare maps identifying pipeline segments and facilities that could affect an HCA Update intranet with "Could Affect" segment and "Could Affect" facility maps
<p><u>Risk Assessment Process</u></p>	<ul style="list-style-type: none"> Develop and maintain Risk Assessment Procedures Review and approve Threat/Risk Validation Develop and maintain risk model/algorithm for risk analysis Coordinate algorithm review meetings and document modifications Gather data for risk analysis Complete risk analysis and relative risk ranking Assist with data gathering Designate district personnel to assist with validating threats and relative risk rankings 	<ul style="list-style-type: none"> Participate in risk model/algorithm reviews Assist with data gathering Participate in validating threats and relative risk rankings 	<ul style="list-style-type: none"> Assist with data gathering Coordinate threat/risk validation with district personnel 	<ul style="list-style-type: none"> Assist with data gathering Designate district personnel to assist with validating threats and relative risk rankings 	<ul style="list-style-type: none"> Designate district personnel to assist with validating HCAs Schedule and coordinate HCA field data gathering with district personnel Assist with communicating segments or facilities that could affect HCAs to district personnel 	<ul style="list-style-type: none"> Assist with data gathering from GIS databases Identify and maintain pipeline databases and information systems employed for records storage



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Responsible Parties:	Integrity Management Engineering Technician	District Manager	Pipeline Regulatory Specialist	Pipeline Foreman	Corrosion Foreman	Sr. GIS Specialist
IMP Activity Baseline and Continual Integrity Assessment Plan	<ul style="list-style-type: none"> Develop and maintain assessment planning procedures Approve assessment plans Recommend reassessment interval and method for completed assessments Oversee assessment implementation and review of results Facilitate assessment plan reviews Maintain assessment plan documentation, including decision rationale 			<ul style="list-style-type: none"> Assign district personnel to participate in assessment plan reviews 	<ul style="list-style-type: none"> Recommend reassessment interval and method for completed assessments Assign district personnel to participate in assessment plan reviews Oversee assessment implementation and review of results 	
Pipeline Repair Strategy	<ul style="list-style-type: none"> Develop and maintain pipeline repair procedures Coordinate initiation of temporary pressure reductions or line shutdown as necessary Communicate anomalous conditions through ILI or pressure testing and coordinate repairs Notify the District Manager of immediate conditions 				<ul style="list-style-type: none"> Identify anomalous conditions through ECDA and coordinate repairs Notify the District Manager of immediate conditions 	



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Responsible Parties:	Integrity Management Engineering Technician	District Manager	Pipeline Regulatory Specialist	Pipeline Foreman	Corrosion Foreman	Sr. GIS Specialist
IMP Activity <u>Process for Identification of Preventive and Mitigative Measures</u>	<ul style="list-style-type: none"> Develop and maintain P&MM evaluation procedures Schedule and facilitate P&MM evaluations Complete risk analysis scenarios for potential P&MMs Document P&MM evaluations and decision rationale Monitor implementation of P&MMs 			<ul style="list-style-type: none"> Designate district personnel to assist with P&MM evaluations 	<ul style="list-style-type: none"> Designate district personnel to assist with P&MM evaluations 	
<u>Integrity Management for Facilities Other than Line Pipe</u>	<ul style="list-style-type: none"> Develop and maintain Facility Integrity Management Procedures Approve results of risk assessment and P&MM evaluations Coordinate risk analysis and P&MM evaluations for "Could Affect" facilities Track implementation of P&MMs for facilities 			<ul style="list-style-type: none"> Designate District Personnel to assist with risk analysis and P&MM evaluations 	<ul style="list-style-type: none"> Designate District Personnel to assist with risk analysis and P&MM evaluations 	
<u>Program Evaluation Measures</u>	<ul style="list-style-type: none"> Develop and maintain Program Evaluation Procedures Plan Internal Audits Assist in data gathering for Performance Measures Compile Performance Measure Data Prepare Performance Measure Report 	<ul style="list-style-type: none"> Assist in data gathering for performance measures 	<ul style="list-style-type: none"> Assist in data gathering for performance measures 	<ul style="list-style-type: none"> Assist in data gathering for performance measures 	<ul style="list-style-type: none"> Assist in data gathering for performance measures 	<ul style="list-style-type: none"> Assist in data gathering for performance measures



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Responsible Parties:	Integrity Management Engineering Technician	District Manager	Pipeline Regulatory Specialist	Pipeline Foreman	Corrosion Foreman	Sr. GIS Specialist
IMP Activity Qualification of Personnel Reviewing Integrity Assessment Results	<ul style="list-style-type: none"> Develop and maintain personnel qualification requirements Assign sufficiently qualified Denbury personnel to integrity assessment projects Verify contractor personnel assigned to integrity assessment projects are sufficiently qualified 				<ul style="list-style-type: none"> Assign sufficiently qualified Denbury personnel to integrity assessment projects Verify contractor personnel assigned to integrity assessment projects are sufficiently qualified 	
Integrity Management Program Review Process	<ul style="list-style-type: none"> Initiate and facilitate IMP Reviews Identify Review Team Members Provide knowledge of regulatory changes affecting the IMP Initiate the communication and approval process using Denbury MOC/ADC procedures Prepare Annual Review Report Provide insight into Denbury practices Maintain IMP0100B – Appendix B – Revision Log, with details regarding changes to the IMP Manage electronic IMP documents and update the Denbury intranet 	<ul style="list-style-type: none"> Provide insight into Denbury practices 	<ul style="list-style-type: none"> Provide insight into Denbury practices 	<ul style="list-style-type: none"> Provide insight into Denbury practices 	<ul style="list-style-type: none"> Provide insight into Denbury practices 	<ul style="list-style-type: none"> Provide insight into Denbury practices



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Responsible Parties:	Integrity Management Engineering Technician	District Manager	Pipeline Regulatory Specialist	Pipeline Foremen	Corrosion Foreman	Sr. GIS Specialist
IMP Activity Record Keeping	<ul style="list-style-type: none"> Develop and maintain record keeping procedures Maintain the document retention schedule for IMP records Prepare and submit IMP documentation for retention Maintain IMP records and files 	<ul style="list-style-type: none"> Prepare and submit IMP documentation for retention 	<ul style="list-style-type: none"> Prepare and submit IMP documentation for retention 	<ul style="list-style-type: none"> Prepare and submit IMP documentation for retention 	<ul style="list-style-type: none"> Prepare and submit IMP documentation for retention 	<ul style="list-style-type: none"> Prepare and submit IMP documentation for retention