

# GeoDose Product Information

Geofencing-Assisted Dose Reconstruction for EP/ER

## Executive Summary

GeoDose represents a paradigm shift in radiation dose assessment for emergency planning and response. By combining real-time geofencing technology with advanced plume modeling and dose reconstruction algorithms, GeoDose provides unprecedented situational awareness and decision support during radiological events.

## Core Capabilities

### MN-GeoDose Core Engine

- Real-time personnel tracking with configurable geofence zones
- Automated dose reconstruction based on location history
- External and internal dose calculations with uncertainty quantification
- Integration with existing dosimetry systems

### MN-PlumeLink Integration

- Direct integration with RASCAL, HOTSPOT, and MACCS outputs
- Real-time plume evolution tracking
- Time-integrated dose calculations
- Source term back-calculation capabilities

### MN-Notify Alert System

- CAP v1.2 XML generation for emergency alerts
- Automated protective action recommendations
- Multi-channel notification delivery
- Integration ready for IPAWS (when authorized)

### MN-Records Documentation

- Complete audit trail of all dose assessments
- ICS-214 Activity Log generation
- Regulatory compliance reports
- After Action Report (AAR) compilation

## Technical Specifications

- RESTful API for system integration
- GeoJSON support for geofence management
- Real-time WebSocket connections for live tracking
- PostgreSQL/PostGIS for spatial data management
- Monte Carlo simulation for uncertainty analysis
- HTTPS/TLS encryption for all communications

## Regulatory Alignment

GeoDose is designed to support compliance with:

- 10 CFR 50.47 Emergency Planning Requirements
- 10 CFR 50 Appendix E Emergency Planning and Preparedness
- NUREG-0654/FEMA-REP-1 Rev.2 Evaluation Criteria