General Characteristics		
1	**Abstract of Model Capabilities**	This is a Gaussian plume model especially designed to run on an HP 486X graphical calculator for convenience during emergencies and model reviews. It calculates both radiological dose and hazardous material risk under a variety of conditions including building wakes, resuspension, wet and dry deposition, tilted plume. It also calculates plume rise (both heated and explosive), long range transport and ____ ____ quality.
2	**Sponsor and/or Developing Organization**	Los Alamos National Laboratory P. O. Box 1663 Los Alamos, NM 87545
3	**Last Custodian/ Point of Contact**	William M. Porch LANL MS D407 Los Alamos, NM 87545 (505)-667-0971 wporch@lanl.gov **primary individual**
9	**Input Data/Parameter Requirements**	Source height (Plume-rise calculated) Wind Speed Stability Category Receptor Distance Receptor Height Urban or Rural Surface -------- Puff or Plume Also for related calculations such as resuspension (soil type) or wet deposition (----- ------)
10	**Output Summary**	Three type of output are possible 1. Source normalized concentration or specific calculation results such as resuspension factor or surface concentration 2. Radiological Dose 3. Risk factor
11	**Applications**	Los Alamos National Laboratory and Cape Canaveral for radiological risk assessment.
12	**User-Friendliness**	Menu driven input, but requires some sophistication on the user's part to work a problem all the way through to dose estimates and several steps.
13	**Hardware-Software Interface Constraints/ Requirements**	**Computer operating system:** HP calculator (Language similar to FORTH) **Computer platform:** HP 48 6X **Disk space requirements:** About 250k bytes of RAM **Run execution time** (for a typical problem)**:**1 to 10 seconds for single calculation **Programming language:** GAUS1 can be down loaded from a PC **Other computer peripheral information:**
14	**Operational Parameters**	**Identify whether the code has any error diagnostic messages to assist the user in troubleshooting operational problems:** None **Set up time for: Typical times are:** ***first-time user:*** 1 h ***experienced user:*** 30 min**.**
15	**Surety Considerations**	**All quality assurance documentation:** User's Guide **Benchmark runs:** Comparison with test problems **Validation calculations:** Test Problem Comparison in User's Guide **Verification with field experiments that has been performed with respect to this code:** No specific validation except with standard Gaussian plume results
16	**Runtime Characteristics**	This model only runs on an HP48 Scientific calculator. Most results available in seconds.

Specific Characteristics		
Part A: Source Term Submodel Type		
A3	**For Radiological Consequence Assessment Models**	**Gaseous releases:** ✔ **noble gases** ✔ **iodines** ✔ **other non-reactive gases** **Aerosol releases:** Radioactive and hazardous gases. **Particulate releases:** Hazardous aerosols such as Plutonium-239 and hazardous materials such as Beryllium. __ **Chemistry** __ **Isotopic exchange** __ **Physical properties capability**
Part B: Dispersion Submodel Type (No Information Provided.)		

Part C: Transport Submodel Type		
C1	**Prognostic**	No
C2	**Deterministic**	Yes
C3	**Stochastic**	No
C4	**Frame of Reference**	**_✔_ Eulerian __ Lagrangian __ Hybrid __ Eulerian-Lagrangian**
Part D: Fire Submodel Type		
D5	**Brand Transport Probabilities**	Long-Range Transport >100 KM Algorithm included
Part E: Energetic Events Submodel Type (Not Applicable)		
Part F: Health Consequence Submodel Type (No information Provided)		
Part G: Effects and Countermeasures Submodel Type (No information Provided)		
Part H: Physical Features of Model		
H1	**Stability Classification Turbulence Typing**	**Pasquill-Gilfford-Turner:** Stability category paramerization supplemented with long-range diffusion algorithm. **STAR:** **Irwin:** **Sigma theta:** **Richardson number:** **Monin-Obukhov length:** **TKE-driven:** **Split sigma:**
H6	**Mixing Layer**	**_✔_ trapping __ lofting __ reflection __ penetration** **__ inversion breakup fumigation __ temporal variability** Parameterized limited mixing with mixing depth as input parameter
H7	**Cloud Buoyancy**	**__ neutral [passive] __ dense [negative] _✔_ plume rise [positive]** Stable and unstable plume rise calculation (modified Briggs)
Part I: Model Input Requirements		
I1	**Radio(chemical) and Weapon Release Parameters**	**Release rate: _ Continuous __ Time dependent ___ Instantaneous** **Release container characteristics: __ vapor temperature** **__ tank diameter** **__ tank height __ tank temperature __ tank pressure __ nozzle diameter** **__ pipe length** **Jet release: ___ initial size __ shape** **__ concentration profile at end of jet affected zone** **Release dimensions: _✔_ point _✔_ line _✔_ area** Gaussian normalized dispersion **Release elevation: ___ ground ___ roof _✔_ stack** Stack height and virtual source calculations
I2	**Meteorological Parameters**	**Wind speed and wind direction: _✔_single point __ single tower/multiple point** **___ multiple towers** Wind speed at release height only **Temperature: _✔_ single point __ single tower/multiple point _✔_ multiple towers** Only used for plume rise calculations. **Dew point temperature: ___ single point __ single tower/multiple point** **___ multiple towers** **Precipitation: __ single point __ single tower/multiple point ___ multiple towers** **Turbulence typing parameters: __ temperature difference ___ sigma theta** **__ sigma phi __ Monin-Obukhov length __ roughness length** **__ cloud cover __ incoming solar radiation __ user-specified** **Four dimensional meteorological fields from prognostic model:**
Part J: Model Output Capabilities (See Item 10.)		

Part K: Model Usage Considerations		
K1	**Ease of Model Use**	**Training required to run the model: __ background (years of education)** College level or special training on atmospheric transport processes **__ training time needed on the model to be able to exercise all model capabilities** 1 - 3 week specialized training class **Training required to continue development of the model:** **__ background (years of education)** Post graduate **__ training time needed on the model to be able to exercise all model capabilities** 1 - 3 week specialized course